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A COMPUTERIZED
MATHEMATICAL APPROACH
TO MENU PLANNING

by

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B.S. in M.E., Technical University of Istanbul, 1983

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Submitted to the Institute for Graduate Studies in
Science and Engineering in partial fulfillment of
requirements for the degree of

Master of Science

in

Industrial Engineering

Bogazici University

1986

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my thesis advisor Doc. Dr. İlhan Or for this invaluable guidance and patience for the long discussions throughout the course of this study.

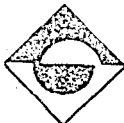
I also sincerely want to thank to Prof. Dr. Atac Soysal and Yard. Doc. Dr. Mahmut Karayel for their interests and evaluations as members of thesis committee.

My special thanks are due to the members of Operations Research Division of Marmara Scientific and Industrial Research Institute for their encouragement, help and understanding.

I would also like to thank to the members of Nutrition and Food Technology Division for providing the required data for this study.

Hakan Gurdal

Gebze, May 1986



ABSTRACT

In this thesis it is aimed to develop monthly or bimonthly menu planning methodologies for institutions serving three meals per day. The menus generated are to satisfy certain nutritional, structural and variety requirements at least possible cost.

For the purposes stated above multistage and single stage linear and integer programming models are developed and solved using B.U. CDC-Cyber computer and TUBITAK VAX-780 computer.

Data for these models (Dish selections and their nutrient contents, human nutritional requirements etc.) have been obtained from Nutrition and Food Technology Division of TUBITAK.

In order to include subjective evaluations of decision maker and food system manager and nonquantifiable factors (such as taste and suitability) interactive modules are added to the developed system.

ÖZET

Bu çalışmada günde üç öğün yemek veren kurumlar için onbeş günlük veya bir aylık menü planlaması metotları geliştirilmesi amaçlanmıştır. Yaratılacak menülerin belirli besin, yapı ve çeşit gereksinimlerini mümkün olan en düşük maliyetle sağlayabilmesi için B.Ü. CDC-Cyber ve TÜBİTAK VAX-780 bilgisayar sistemlerinde çok aşamalı ve tek aşamalı doğrusal ve tamsayı programlama modelleri geliştirilmiştir.

Bu modeller için gerekli bilgi (yemek çeşitleri ve bunların besin içerikleri, günlük kişisel besin gereksinimleri vs.) TÜBİTAK Beslenme ve Gıda Teknolojisi Araştırma Bölümü'nden temin edilmiştir.

Karar vericinin ve besin uzmanının subjektif değerlendirmeleri ile tat, uygunluk gibi denklemlere dökülemeyecek bazı faktörlerin içerilmesi için mevcut sisteme etkileşimli modüller eklenmiştir.

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CHAPTER 1

INTRODUCTION

1.1 PROBLEM DEFINITION:

The menu planning problem for institutions such as hospitals, boarding schools, prisons etc., where a large number of people eat together, is concerned with finding the "optimum combination" of dishes which satisfies specified nutritional, structural, and variety requirements for a sequence of days, whereas the objective is usually minimization of cost.

The structural requirements are the customary array of the components in menus; these are beverage, bread, jam, cheese, olive etc. for breakfast, starch, vegetable, salad, dessert, bread etc. for dinner and lunch. These components make up the structure of menus depending on the habits and standards of households and institutions. However for a given culture and society the structure shows little variance from one institution to another.

The variety requirements imply a reasonable degree of variety among dishes from day to day. For example, it may be desirable to serve the main dish of boiled chicken no more often

than every five days. This is taken care of by the variety requirements.

Nutritional requirements are the minimum dietary allowances which are published by F.A.O. (Food and Agricultural Organization) (1970) (Ref: Ayse Baysal) for nine nutrients: calories, protein, calcium, iron, vitamin A, thiamin, niacin, riboflavin and vitamin C. In this study, calories and protein requirements are met daily whereas the others are met on average (over the planning horizon) with the assumption that a human being has storage for them for that duration.

Nutritional, structural and variety requirements are regarded as constraints limiting the degree to which cost may be reduced. In other words the higher the number of constraints, the higher is average cost (but also the quality) of menus.

1.2 COMPUTERIZING THE MENU PLANNING PROCESS:

Due to the great progress in the computer technology in the last decade the use of computers in decision making process has become widespread. Decision making in institutional food service is no exception. Since the number of combinations of dishes that will meet all the nutritional, structural and variety requirements is very large, systematically evaluating them to determine the least expensive or less expensive combinations is a very time consuming process without using a computer and some tools of Operations Research.

In recent times, increasing availability of a wide selection of agricultural products, comparatively high prices and price fluctuations, growth of consumer awareness of diets and preventative health care, variability of food preferences and tight budgets have made a food service manager's job more complex. These factors, together with the declining cost of electronic computation and advances in mathematical programming have encouraged the generation of computer-assisted menu planning systems adapted to specific nutritional habits and customs.

Utilization of computers in planning menus increases the potential degree of control over any array of critical variables. This is because computers can quickly and systematically evaluate prospective dishes for suitability given any set of predetermined requirements and objectives.

On the other hand, there has been almost no activity on this subject in Turkey. Currently in most institutions menu planning process is made manually and the resulting menu sets have either a high cost or a high variation in nutritional adequacy among days or both. Considering the fact that there is a great number of people fed through planned menus in Turkey, even a 10 % reduction in menu planning costs would sum up to great amounts of savings.

CHAPTER 2

PROBLEM FORMULATION

2.1 HISTORY OF MENU PLANNING BY COMPUTER:

The problem of finding nutritionally adequate diet at least cost is a classic application of mathematical programming methodology. The tools of mathematical optimization were first applied to human diet planning with seminal contribution of Stigler (1945). The development of the Simplex algorithm by Dantzig (1963) led to the development of several models by V.E. Smith (1959, 1963) , P.E. Smith (1961) , Lewis and Peng (1977) , which were based on the "feed mix" approach. But this approach failed to capture the complexity and cultural evolution of human diet patterns, although it has been successfully used for planning intakes for cattle and chickens.

However, Peryam (1959) reviewed Stigler's and Smith's work and concluded that one of the difficulties with linear programming solutions was related to the lack of menu structure. That is, people do not eat like animals, rather they consume meals of culturally determined structure. He further noted the need to consider dish suitability for each meal and that some combinations of foods are acceptable while others are not.

Moreover, menu combinations are not additive in acceptability since some dishes have low acceptability rating except when paired to a culturally accepted complement (such as puree and grilled meat). But Peryam did not develop a model using this information. It remained to Balintfy (1964-1970) to develop a program to plan hospital menus by computer.

V.E. Smith (1959) and P.E. Smith (1961) developed models obtaining standard linear programming solutions for menu planning problem. On the other hand, Balintfy recognized the problem as an integer programming problem. In his models, portion size is specified since a solution specifying inclusion of 10 gr. of a dish would be absurd. Balintfy (1964) developed multistage linear programming models since menus are customarily planned for an entire horizon at one time. In his model each day is considered a stage with stated objectives to be optimized. Using branch and bound techniques he allows the objectives to be optimized each day but with carryover of nutrients such as vitamin A, vitamin C etc. This way some nutrient constraints such as protein and calories are met daily while others are met on average over the planning horizon. As usual cost is to be minimized subject to nutritional, color, variety, texture etc. constraints. His model consists of 200 variables and 25 constraints. But he used a special L.P. procedure instead of an integer programming code in solving the subproblems. This procedure does not give an optimal solution but a feasible integer solution. Model refinements of Balintfy have continued over the years.

Balintfy and Prekopa (1966) demonstrated that the nutritive composition of meals is related to variability in (A) inherent nutrient composition of ingredients (B) portion size and plate waste (C) the nutrient contribution of dishes combined as meals. They decided that the data available were not adequate and much research was required to develop data of this nature. According to Balintfy and Nebel (1966) , computerized menu planning probably will always be a joint man-machine decision-making activity since there are number of aspects of menu planning that may never be sufficiently defined through mathematical formulations. The solution generated by the model may not be acceptable to dietitians. So they included interactive programs to Balintfy's previous integer multistage model.

Balintfy's models were developed to plan nonselective menus. Liggett and Gue (1966) observed that selective menus are widely used in hospital food service. They developed a computerized model for planning selective menus using stochastic linear programming methodology (200 decision variables). This model, selects the base and alternative dishes simultaneously. It differs from others in that each meal component (class) where selection is offered, pairs or triplets of items are prematched and treated as single dishes for the purpose of evaluation. The expected value, for pair or triplet for cost, nutrient contribution etc. is used as input data. Using historical data on consumption, probabilities of selection are computed and weighted values for cost etc. are derived.

Langier (1969) reviewed linear programming applications and developed solutions with less variables and constraints for use in Guatemala and other less developed countries, where people do not have great expectations in terms of variety. In 1971 Patrick and Simoes developed a linear programming model that creates a list of least cost foods (ingredients) with associated quantities for Brazil. This model uses caloric, nutrient, and quantity restrictions as programming constraints. Moskowitz and Klarman (1977) approached the analysis of food compatibilities and menu planning by three step procedure a) multidimensional scaling, b) regression analysis, c) cluster analysis. Sinha (1978) presented a model that determines optimal serving frequencies of dishes while ensuring budgetary and nutritional control with a use of linear programming model.

Besides using special kinds of integer programming models to solve the menu selection model, random selection techniques were developed. In 1966 Brown developed primitive techniques for controlling the palatability of individual nonselective lunch and dinner menus using random selection techniques. Working independently, about the same time Eckstein (1967) developed a more sophisticated method of planning up to 99 selective dinner menus using the random selection method. Selection criteria included meat cost, color, texture, shape, flavor, calories and variety. The random approach was designed to simulate the dietitian's methods of selecting dishes. Then he made several refinements in his model (1969, 1978).

2.2 APPROACH TO THE PROBLEM:

2.2.1 General Scope Of The System:

As mentioned in the previous section, computerized models are quite effective in generating nutritionally, structurally and costwise adequate tasteful menus. In this section we present a multistage integer programming model that will plan the total menu set over a determined period. But since there are a large number of aspects of the menu planning process that cannot be quantitatively defined to allow incorporation into the model, the judgement of dietitian is seemed to be essential. So there was a need for interactive computer programs that help the dietitian to make small modifications over the menu set, which then assure that all requirements are met. After the modifications of the dietitian the computer reevaluates the modified menu and warns if any nutritional requirement is not met. Shortly, a computer-dietitian interaction is suggested after the menu set is determined by the multistage integer programming model. (Figure 1)

Portion sizes are predetermined for the first stage of the model, since the solutions are stated in terms of whole portions of dishes. But in the modification stage the portion sizes may be changed at the control of the dietitian. The variables are dishes with fixed, predetermined portion sizes. Repetition of dishes are controlled by means of "reoccurrence intervals" which specify the number of days that must elapse before repetition can occur. An advantage of the multistage model is that each

dish can be reevaluated for each stage and dishes previously rejected because of repetition, can reenter the solution set after individually varying intervals.

Summing up, the dietary information processing is based on standardized recipes, portion sizes, and on the classification of dishes according to the desired number and structure of menu classes for meals per day. Afterwards the cost and the nutrient composition of menus can be calculated and stored.

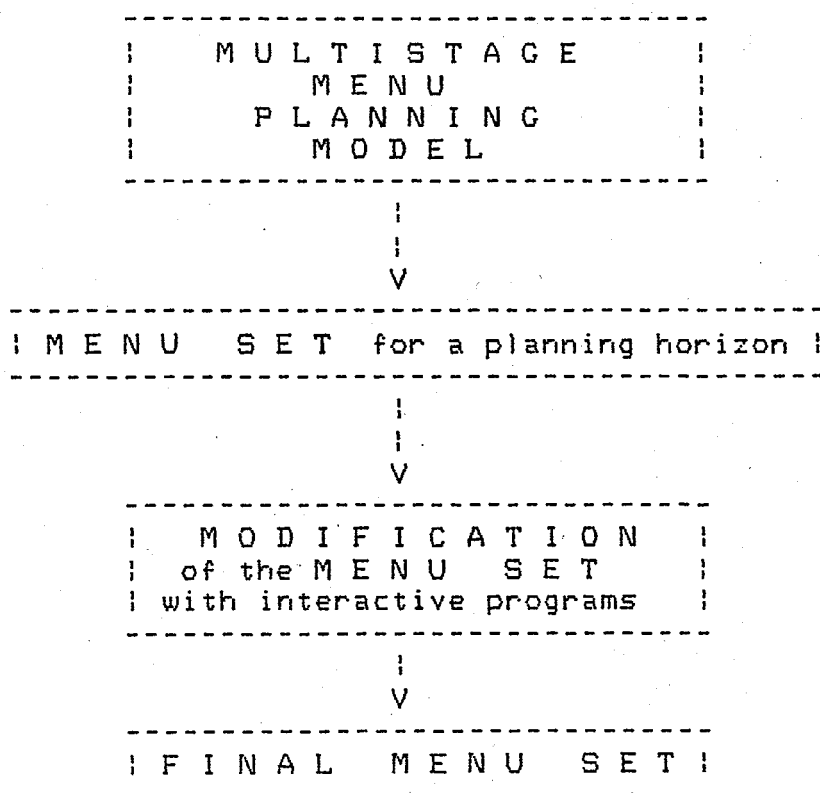


Figure 1: First approach to the menu planning problem

For this purpose two indexed files are created, which forms the data base of the system. These files are a) Ingredient File b) Recipe File. In the ingredient file information of ingredients (foods) are stored. In the recipe file informations of dishes are stored. These records shall be updated intermittently due to price or rating changes. Due to this information a multistage integer programming model will give a menu set. After getting this menu set in hand, the dietitian will make modifications with the help of interactive programs if it seems necessary.

Another approach to this menu planning problem is a single stage integer programming model (Figure 2). It should be pointed out that planning a sequence of daily menus individually over a period with a multistage model is not equivalent to planning the entire horizon at the same time. The basic difference between them is that in the single stage model it is assumed that a human being has storage capability for all nutritional requirements whereas in the multistage model some or all of these requirements are met daily with assumption that there is no storage capability of human beings for them. In the single stage model we obtain a true optimal solution in the form of a list of dishes and associated quantities for the total length of the planning horizon at minimum cost. In the multistage model we obtain an overall solution involving the suboptimal solutions of dependent days in the form of a list of menus for each day at the least cost given the predetermined menus and nutrient intake of preceeding days. Therefore, the single stage model has an advantage of giving a less expensive solution when compared with

the multistage model.

Some dietitians claim that at least some nutritional requirements should be met daily. In this situation, we have to use the multistage approach to solve the menu planning problem. The single stage approach is then used only to make comparisons between two approaches since the solution of the single stage model gives the lower bound for the solution of the multistage model.

On the other hand some other dietitians claim that a human being has a storage capability for all of the nutritional requirements. That means the nutritional requirements should not necessarily be met daily. This makes the use of the single stage approach possible for the menu planning problem, but there is still a disadvantage: the dietitian can only get a list of least-cost dishes and their occurrences prepared for the complete planning horizon. So it remains a great work to the dietitian to schedule them in accordance with the variety and structural requirements. Therefore the use of the multistage approach seems to be more feasible for the dietitian although it gives a more costly solution. The dietitian gets a list of dishes in a certain structure for each day independently. Thus, the arrangement problem reduces to the consideration of two meals and one breakfast.

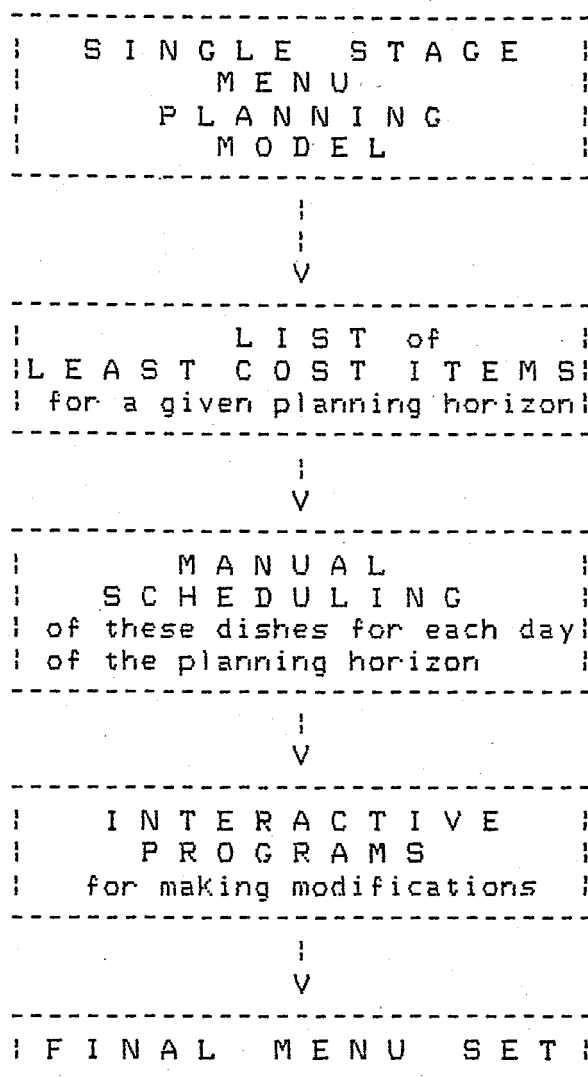


Figure 2: Second approach to the menu planning problem

A linear programming model has been added to this study. This model gives a list of ingredients (foods) and their associated quantities for a family of four persons which satisfies monthly nutritional requirements at minimal cost. The variables are ingredients instead of dishes and they don't have to take integer values in contrast to the models described before. Thus, the solution involves the names of ingredients to be consumed during a month and their quantities in Kg. The work of preparing reasonable dishes using this solution remains to the

applicant. The aim of this model is to provide at least a lower bound for monthly feeding costs of a family of four given monthly nutritional requirements.

2.2.2 The Multistage Menu Planning Model:

Daily food consumption is assumed to occur in three meals (breakfast, lunch, dinner). Each meal is formed by selecting at most one dish from each menu classes of a set of predetermined menu classes. A possible set of these menu classes are as follows :

- Breakfast Menu: 1.Beverages
 2.Breakfast items
 3.Bread
- Lunch Menu : 1.Entrees (First hot main dishes)
 2.Starchy dishes
 3.Salads
 4.Desserts
 5.Fruits
 6.Soups
 7.Appetizers
 8.Bread
- Dinner Menu : 1.Entrees (First hot main dishes)
 2.Starchy dishes
 3.Salads
 4.Desserts
 5.Fruits
 6.Soups
 7.Appetizers
 8.Bread

A possible set of dishes in specific menu classes are as follows :

- Beverages : 1.Milk
 2.Tea etc.
- Breakfast items : 1.Butter
 2.Egg
 3.Olive
 4.Jam
 5.Cheese etc.
- Fruits : 1.Apple
 2.Orange
 3.Tangerine
 4.Plum
 5.Grapefruit etc.

The problem of planning non-selective menus is one where over a period of days it is desired to provide three meals per day so that:

1. The human being obtains a minimum amount of certain nutrients each day.
2. There is a reasonable degree of variety among dishes daily and from day to day.
3. The daily menu follows a certain structure. (Cultural and Social habits)

The aim is to determine what arrangements of selections should be used for menus during this period in order to minimize, for a prescribed quality, the cost of the menus.

According to this information we can formulate our problem as follows:

$$\min Z = \sum_{k=1}^L \sum_{j=1}^{N_k} C_{jk} V_{jk} \quad \text{Eq. (1)}$$

subject to:

$$\sum_{k=1}^L \sum_{j=1}^{N_k} d_{ijk} V_{jk} \geq b_i \quad i=1, \dots, M \quad \text{Eq. (2)}$$

$$\sum_{j=1}^{N_k} V_{jk} \leq X_k \quad k=1, \dots, L \quad \text{Eq. (3)}$$

$$\text{all } V_{jk} = 0 \text{ or } 1$$

In the objective function (1) C_{jk} denotes the cost of j -th dish in the k -th menu class. In the analysis of this study C_{jk} represents only raw food cost. The primary reason for this is

that production cost data are not available in most institutions. In addition to this it should be noted that the model discussed may still be used when these data become available, since raw food cost makes up the major portion of the cost of the menu and production cost are nearly menu independent. These data provide a good indication of the optimal menu plan, where Z is the total cost per consumer-day for serving the menu. The variable V_{jk} indicates the number of times a serving of dish j in class K appears on the daily menu. In this formulation $V_{jk} = 0, 1$; that is the dish either appears or does not appear on the daily menu plan. L is the total number of menu classes which is taken 10 in this study. N_k is the number of dishes in the k -th class.

Constraint set showed under index (2) stands for the minimum daily requirement in a menu for a given nutrient. Here d_{ijk} is the quantity of the i -th nutrient in the j -th dish in the k -th menu class. The summation is over all dishes within a class and over all classes. The inequality states that the sum of these quantities must be greater than or equal to, a certain minimum nutrient level b_i , $i=1, \dots, M$. The b_i values are based on minimum daily requirements for a 25 year old male set by F.A.O. (Food and Agricultural Organization) and approved by the Division of Nutrition and Food Technology in TUBITAK. These minimum allowances are shown in Table 1. At present nine nutrients ($M = 9$) have been considered, but others may be easily added to the analysis. It should be noted that "bread" has been omitted from the menu planning operation. This because

usually this dish is consumed by a person every day and hence it is not subject to menu planning. It is assumed that a person eats 450 gr bread everyday and the nutrient content of that much "bread" is subtracted from the minimum allowances to obtain the adjusted allowances (b_i).

Constraint set stated under index (3) is associated with the structural requirements of the problem. The structure of the problem requires that there should be at least or at most a specified number of representatives from each menu class. Here, X_k is associated with the total number of dishes from k-th menu class can appear in a daily menu. The structural constraints for beverages and first main dishes are equality constraints whereas the others are either 'less or equal' or 'greater or equal' constraints. To be more precise these constraints are listed below:

total of dishes consumed in breakfast	< 3
total of dishes consumed in breakfast	> 2
total of main dishes	= 2
total of beverages	= 1
total of soups	< 2
total of appetizers	< 2
total of (fruits + desserts)	< 2
total of (fruits + desserts + salads)	> 2
total of salads	< 2
total of starchy dishes	< 2

It has to be noted that structural requirements are given for a full day. Therefore "structural requirements" of a single lunch or dinner are outside the I.P. model. For example, in our model we obtain two main dishes in the solution set for each single day. The model does not determine which of them is served in dinner or lunch menu. This decision remains to the food manager.

As it can be noticed the problem so far revealed is being formulated in terms of planning a daily menu. However, in actual applications it is desired to plan a sequence of daily menus over a period of days called as the planning horizon. The frequency of serving a certain dish over this period is determined by means of "reoccurrence intervals" which specify a minimum time interval for this dish, in days, before a repetition can occur. For example, it may be desirable to serve the main dish of boiled chicken no more often than every five days. It is not possible to formulate this requirement as a mathematical constraint in planning a daily menu. This is the main reason why a multistage integer programming model has been used in this study.

Another important point is the evaluation of surplus values for each nutrient except calories and protein. According to some dietitians it is not that important to satisfy the daily requirements of these nutrients for each day independently, since a human being has storage capability for them at least for one week. They suggest that meeting these minimum allowances on average over the planning horizon is adequate. Due to this

information objectives are optimized each day but with carryover of nutrients such as calcium, iron, vitamin A, Thiamin, Riboflavin, Niacin and vitamin C. In this manner we can generate solutions in which calories and protein requirements are met daily while others are met on average over the planning horizon with the assumption of one week storage capabilities of human beings for them.

A computer program has been developed for the solution of these problems that monitors this minimum interval and does not allow a dish to enter the solution if it does not satisfy the reoccurrence interval restriction and that adjusts the requirements for the above mentioned nutrients. These operations imply a sequential dependency among daily menus planned over a period of days.

NUTRIENT	F.A.O.	ADJUSTMENT	ADJUSTED
	ALLOWANCES	(bread allowance)	ALLOWANCES b _i
CALORIES	3000.00	1237.00	1762.00
PROTEIN gr	65.00	36.00	29.00
CALCIUM mg	500.00	108.00	392.00
IRON mg	10.00	9.00	1.00
VIT. A IU	5000.00	0.00	5000.00
THIAMIN mg	1.20	0.18	1.02
RIBOFLAV. mg	1.60	0.23	1.37
NIACIN mg	19.80	5.70	14.10
VIT. C mg	50.00	0.00	50.00

Table 1 : Minimum Dietary Allowances Used in Nonselective Menu Planning

Summing up, each day is considered a stage with the formulation made above. Using BBMIP of MPOS developed by the Northwestern University first day is optimized

independently. After this, the cost of dishes that enter the daily solution are artificially made more expensive in order to prevent them from entering a new daily solution until their reoccurrence intervals elapse, and the surplus values of specific nutrients are subtracted from their daily allowances to update the new right hand side vector b_i . After these operations, a new stage (day) is optimized. However a control has to be made before each stage to check whether a dish that has been made expensive artificially has passed its reoccurrence interval. If it is so, its price is reduced to its normal level to give the opportunity to that dish to reenter to the solution set. This sequence of operations is repeated until the desired length of the planning horizon has been accomplished. (Figure 3)

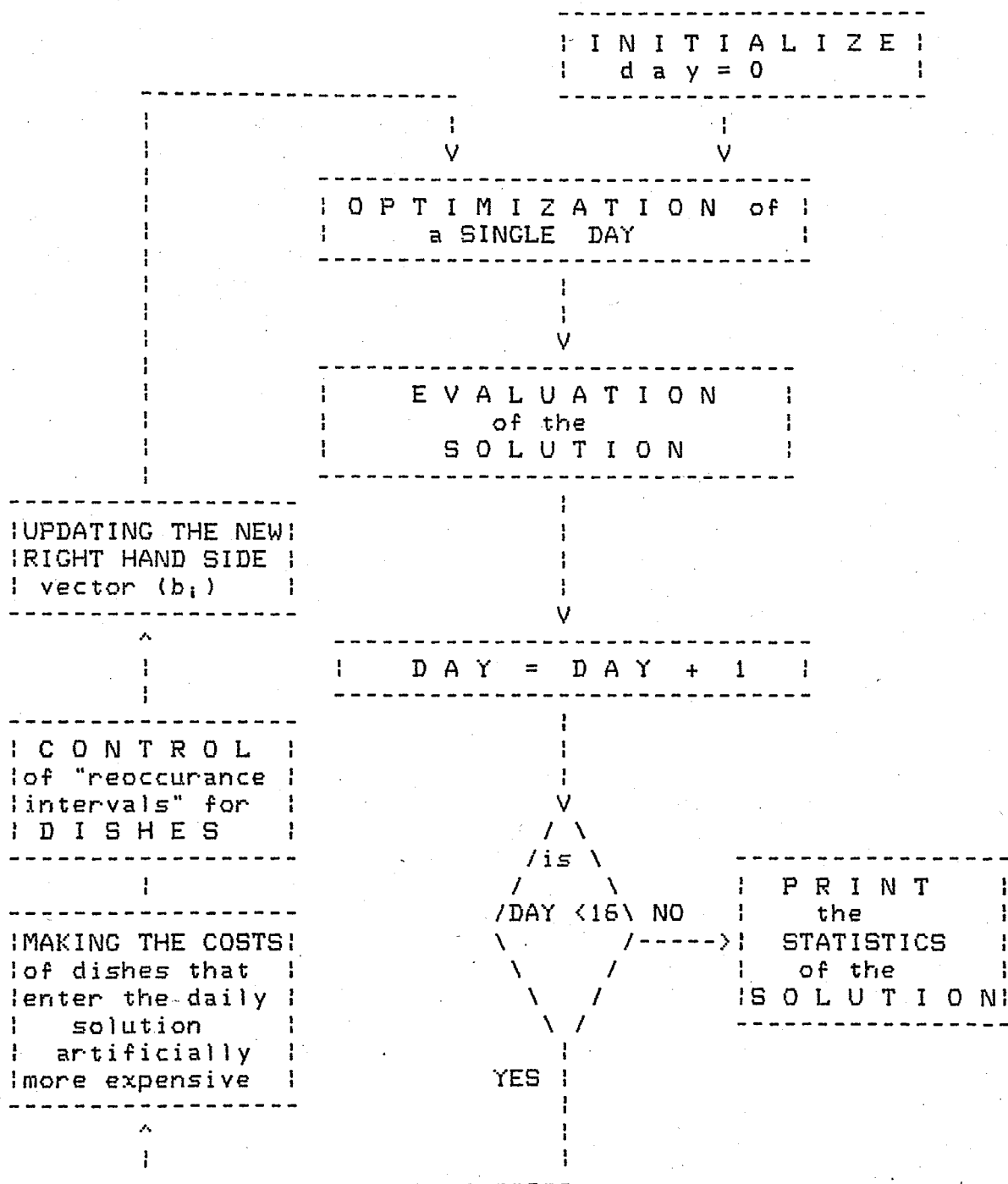


Figure 3: Sequence of operations in the multi-stage model

2.2.3 Single Stage Menu Planning Model:

The single stage model is used to plan a list of dishes and associated quantities necessary to provide a nutritionally adequate diet for a finite number of days at least cost. Although the solution is a list rather than a set of menus, dishes rather than ingredients (foods) are used as variables. Structural requirements are specified in an overall manner. This means that daily appearance limits (upper and/or lower limits) of menu classes are multiplied by the length of planning horizon and thus converted into appearance limits over the complete planning horizon.

The formulation of the model is as follows:

$$\min \quad Z = \sum_{k=1}^L \sum_{j=1}^{N_k} C_{jk} V_{jk} \quad \text{Eq (1)}$$

subject to:

$$\sum_{k=1}^L \sum_{j=1}^{N_k} d_{ijk} V_{jk} \geq b_i \quad i=1, \dots, M \quad \text{Eq (2)}$$

$$\sum_{j=1}^{N_k} V_{jk} \leq X_k \quad k=1, \dots, L \quad \text{Eq (3)}$$

all $V_{jk} \geq 0$ and integer

As it can be noted, the formulation is very similar to the formulation of the multi-stage model. Both models have similar parameters. Again in the objective function (1) C_{ijk} denotes the cost of j -th dish in the k -th menu class. Z is the total cost of all dishes that are served over the planning horizon. The variable V_{ijk} indicates the number of times a serving of dish j in class k appears during the planning horizon. L is the total number of menu classes (it is 10 in this study). N_k is the

number of dishes in the k -th class.

Constraint set under index (2) stands for the minimum requirement over the complete planning horizon in a menu for a given nutrient b_i , where M is the total of nutrients to be involved. Here, d_{ijk} represents the quantity of the i -th nutrient in the j -th dish in the k -th menu class. For a 15 day planning horizon the structural constraints are listed below:

total of dishes consumed in breakfast	< 45
total of dishes consumed in breakfast	> 30
total of main dishes	= 30
total of beverages	= 15
total of soups	< 30
total of appetizers	< 30
total of (fruits + desserts)	< 30
total of (fruits + desserts + salads)	> 30
total of salads	< 30
total of starchy dishes	< 30

Single stage model has four main differences from the multistage model:

1. V_{jk} is not a zero-one variable. It can take any positive integer value.
2. b_i 's are values equal to minimum dietary allowances multiplied by the length of the planning horizon (Table 1).

3. X_k 's denote the appearance limits of dishes in the k -th class over the complete planning horizon. X_k 's are found also by multiplying the X_k values considered in the multistage model by the length of the planning horizon.
4. Every dish V_{jk} has an upper bound which corresponds to the reoccurrence interval in the multistage model. The upper limit of any dish equals to its maximal reoccurrence opportunity in the multistage model.

2.2.4 A Linear Programming Model To Determine Lower Bounds For Monthly Feeding Costs :

The linear programming model is used to plan a list of ingredients (foods) and associated quantities necessary to provide a nutritionally adequate diet of a family for a month at least cost. The members of this family are a middle aged father and a middle aged mother with normal activities and their two children in 4-6 and 6-8 age groups. In this model ingredients, which can take any positive real value, are used as variables.

The formulation of the model is as follows:

$$\min \quad Z = \sum_{k=1}^L \sum_{j=1}^N C_{jk} V_{jk} \quad \text{Eq (1)}$$

subject to:

$$\sum_{k=1}^L \sum_{j=1}^N d_{ijk} V_{jk} \geq b_i \quad i=1, \dots, M \quad \text{Eq (2)}$$

$$l_{jk} \leq V_{jk} \leq u_{jk} \quad j=1, \dots, N_k, k=1, \dots, L \quad \text{Eq (3)}$$

$$L_k \leq \sum_{j=1}^N V_{jk} \leq U_k \quad k=1, \dots, L \quad \text{Eq (4)}$$

$$\text{all } V_{jk} \geq 0$$

In the objective function (1) C_{jk} denotes the cost (in TL) of j -th ingredient in the k -th class. Z is the total cost over a month. The variable V_{jk} indicates the total quantity (in Kg) of ingredient j in class k to be consumed during the month. L is the total number of the ingredient classes. N_k is the number of ingredients in k -th ingredient class. Constraint set (2) denotes the minimum monthly requirement of a family for a given nutrient b_i . M is the total number of nutrients to be involved in the study. In this model M is equal to eight (calories, protein, calcium, vitamin C, vitamin A, iron, riboflavin, thiamin). Here, d_{ijk} represents the quantity of i -th nutrient in j -th ingredient of k -th class. Constraint set (3) denotes the minimum, l_{jk} , and maximum, u_{jk} , amounts that j -th ingredient of k -th class can be consumed in a month. Constraint set (4) represents minimum and maximum amounts (L_k , U_k respectively) that total of all ingredients from k -th class can be consumed in a month.

This model ignores specific dishes, structure of menus and eating habits. However it is quite useful in generating a lower bound for monthly feeding cost of a family of four. This bound will be helpful not only in menu planning and budgeting at large institutions but also in macro level economic planning (in estimation of inflation and minimum-wage).

2.3 DIFFICULTIES OF MENU PLANNING BY COMPUTER:

During this study it has become clear that the menu planning process combines two separate activities, namely planning or selecting dishes to be included in the solution and

scheduling their occurrence within or among days, according to the frequency criteria. The single stage model, however, was used only to generate a list of least cost dishes in the considered period. Nevertheless, a difficulty may be encountered in distributing dishes over the planning horizon: manual scheduling of the generated dishes to individual days and meals while satisfying variety and structural requirements could turn out to be quite complex and time consuming.

On the other hand the multistage model contains scheduling of dishes to individual days of the planning horizon. But there is also a problem, that might be encountered, in multistage models. Menus planned by this method are arranged in a sequence from least expensive to the most expensive (with a 3 to 7 day period of increasing costs) as more expensive dishes are selected to replace dishes outgoing because of variety restrictions. The above mentioned period depends directly on the selection of reoccurrence intervals. After this period a steady state develops as less expensive dishes are allowed to reenter the solution set.

Another handicap of the multistage model is that sequentially planning daily menus may be considered as suboptimization. This means the total solution set for the entire planning horizon is not optimal, since no consideration is given to the fact that decisions taken in early stages influence costs of later stages.

To find the more acceptable solutions which are closer to real world applications, the number of additional constraints should be increased, where each refinement, however, would raise the minimum cost over the least-cost solutions. Therefore in this study the number of constraints are restricted, considering the fact that there are a great number of aspects of menu planning process that may never be sufficiently defined and that the computer solution may not be always optimal as judged by dietitians. This is why a man-machine interactive decision making activity is included in the menu planning process.

A different point in question is the variability of nutritive composition of meals. The reasons of this are :

1. variability of nutrient compositions of ingredients due to regional and genusal differences
2. variability of portion size and plate waste from one institution to another and even within an institution
3. variability of nutrient composition of dishes combined as meals

The lack of adequate data on nutrient composition (i.e. range, mean, standard deviation, variance and co-variance) creates problems in forecasting the nutritional adequacy of menu planned manually or by computer.

CHAPTER 3

SOLUTION PROCEDURES AND RESULTS

3.1 SYSTEM DESCRIPTION:

The interactions of data files, programs and integer programming model are described in Figure 4. The solution of any menu problem on a computer must be preceded with acquisition of data on dishes being considered for menus. Several hundreds of dishes were numbered and classified into mutually exclusive classes of menu components. These dishes, which are listed by Doc. Dr. Turkan Kutluay (1977) with the consideration of preference maximization of consumers, are coded according to this classification for the sake of simplification of the computer works. The recipes of dishes were translated into lists of ingredients and quantities of ingredients per 1 gr. serving of that dish. This information is stored in the recipe file. This recipe file supplies all the information to calculate the price and the nutrient composition as a function of portion size of that dish. There is a nutrient file which includes nutrition content and price of ingredients in 1 gr. units. If there is any price change of ingredients a program updates data files and dish prices.

There is a dish file used by the multistage integer programming model, which contains the nutritional composition, the prices and the "reoccurrence intervals" of dishes. Price and reoccurrence intervals can be updated by interactive programs.

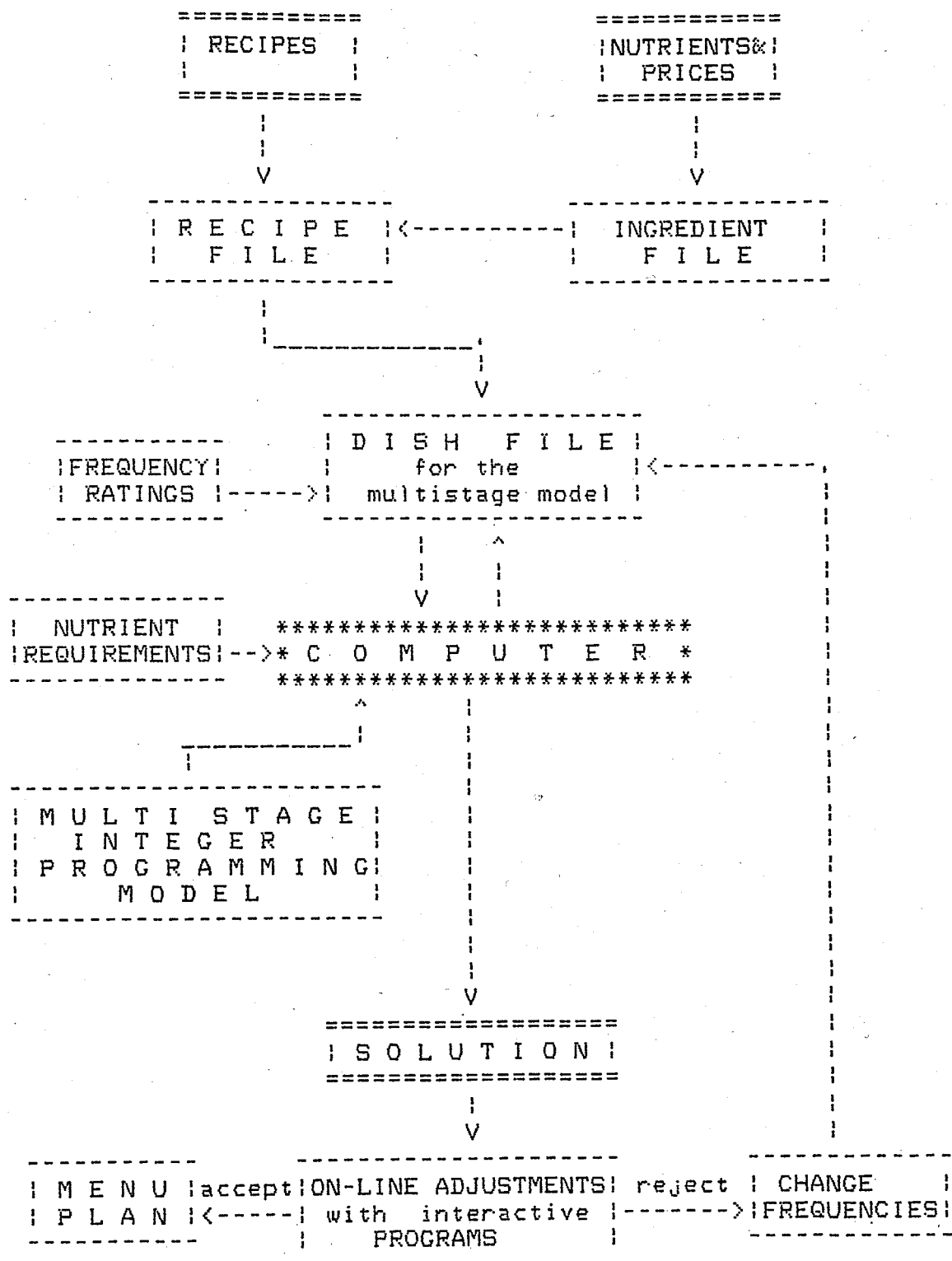


Figure 4: Scheme of the system

3.2 DATA STRUCTURE OF THE SYSTEM:

The data requirements in menu planning include the following types of informations:

1. expected nutrient contribution of various ingredients
2. expected nutrient contribution of dishes.
3. food habits and preferences of the consumer group
4. cost data
5. dish characteristics (menu classes)

The data base of the system involving the above listed informations is mainly based on three data files. These are a) Ingredient File b) Recipe File c) Dish File.

The first two of these are random access files and their organizations are indexed. These files are stored on VAX-780 computer system in Marmara Arastirma Enstitusu, TUBITAK. The third one is a sequential file which is stored on CDC-Cyber computer system in Bogazici University.

3.2.1 Coding Of The Data:

In order to retrieve information about a specific dish or ingredient, an identification code has to be used. For this purpose the ingredients and the dishes are given five digit codes.

In dish codes the first two digits represent the menu class. These are alphabetic characters which are useful to the user because they are mnemonic (see Table 3). In ingredient codes all digits are numeric with the first digit representing the ingredient class (see Table 4).

In constructing the classifications, it has been assumed that any dish and ingredient fit into one and only one class.

CODES	NAME OF THE GROUP
E0001 - E9999	Breads
I0001 - I9999	Beverages
K0001 - K9999	Items eaten mostly in breakfast
M0001 - M9999	Fruits
S0001 - S9999	Salads
TH001 - TH999	Starchy Desserts
TN001 - TN999	Other Desserts
YC001 - YC999	Soups
YD001 - YD999	Roasted Vegetables
YE001 - YE999	Main Dishes of Meat
YS001 - YS999	Main Dishes of Vegetable
YU001 - YU999	Starchy dishes
YZ001 - YZ999	Cold dishes of Vegetables prepared with olive oil

Table 3 : Sample Master Codes for Dishes

CODES	NAME OF THE GROUP
10000 - 19999	Meats
20000 - 29999	Beans
30000 - 39999	Fruits
40000 - 49999	Vegetables
50000 - 59999	Milky ingredients (foods)
60000 - 69999	Ingredients involving sugar
70000 - 79999	Starchy ingredients
80000 - 89999	Fats, Oils
90000 - 99999	Supplemental ingredients

Table 4 : Sample Master Codes for Ingredients

3.2.2 Ingredient File:

This file contains information about the ingredients in 1 gr. units. It is a random access file with indexed organization. Its record key is ingredient codes. That means by giving any existing ingredient code we can directly reach to the related information. The record length of this file is 71 bytes.

The information included are listed below (Table 5):

1. Gross nutritional support of 11 nutrients for each ingredient. (Calories, fat, vegetal and carnal protein, calcium, iron, vitamin A, thiamin, riboflovin, niacin and vitamin C)
2. price of the ingredient in TL
3. percentage of residuals in the ingredient
4. name of the ingredient

It has to be noted that the nutritional and price informations are determined for 1 gr. units. To calculate the net nutritional content we have to subtract the quantity related to the residuals from the gross values. These informations are coded from the Turkish Nutrient Tables (1985).

3.2.3 Recipe File:

This file contains information about dishes in servings of 1 gr. units. It is a random access file with indexed organization. Its record key is dish codes. The record length is 231 bytes.

The information included are listed below (Table 6):

1. The net nutritional content of 11 nutrients for each dish (calories, fat, vegetal and carnal protein, calcium, iron, vitamin A, thiamin, riboflavin, niacin and vitamin C)
2. The price of each dish in TL.
3. List of the ingredients in each dish and their quantities in gr when serving 1 gr of that dish.
4. Name of the dish
5. Number of ingredients in dishes
6. Standard portion size of dish in gr

It has to be noted that each value is determined for 1 gr units of that dish. To find the values in standard portion size the stored values have to be multiplied by the portion size.

3.2.4 Dish File :

This file contains information necessary for the multi-stage model. It is a sequential access file where each record correspond to a coefficient in a specific constraint (constraint zero being the objective function) and has a length of 20 bytes. The information contained is listed below: (Table 6)

1. Constraint number
2. Variable number
3. Value
4. Total time in days since last appearance
5. Reoccurrence time between two servings

Attributes (4) and (5) above are important for all variables in constraint (0). A variable may enter the solution set if attribute (4) is zero. If it enters the solution set attribute (4) is set to one and then it is incremented by one at each stage and set back to zero when it reaches the value contained in attribute (5).

NAME OF THE VARIABLE	RECORD LENGTH	RECORD TYPE	EXPLANATION	FORMAT	UNIT
MLZKOD	5	A	Code of the ingred.		
MLZAD	20	A	Name of the ingred.		
KALORI	3	N	Quantity of calories	X.XX	cal.
HPROTEIN	3	N	Quantity of carnal pr	.XXX	gr
BPROTEIN	3	N	Quantity of vegetal p	.XXX	gr
YAG	3	N	Quantity of fat	.XXX	gr
KALSIYUM	4	N	Quantity of calcium	XX.XX	mg
DEMIR	3	N	Quantity of iron	.XXX	mg
AVIT	5	N	Quantity of vitamin A	XXX.XX	I.U.
THIAMIN	4	N	Quantity of thiamin	.XXXX	mg
RIBOF	4	N	Quantity of riboflav.	.XXXX	mg
NIAS	3	N	Quantity of niacin	.XXX	mg
CVIT	4	N	Quantity of vitamin C	X.XXX	mg
ARTIK	2	N	Percentage of rest	.XX	
FIYAT	5	N	Cost for 1 gr	XX.XXX	TL

Table 5: Variables of the ingredient file

NAME OF THE VARIABLE	RECORD LENGTH	RECORD TYPE	EXPLANATION	FORMAT	UNIT
KOD	5	A	Code of the dish		
YEMEKADIX	20	A	Name of the dish		
MALZEME-SAYI	2	N	Number of ingredients	XX	
KALORI	6	N	Quantity of calories	XX.XXXX	cal.
HPROTEIN	5	N	Quantity of carnal pr	X.XXXX	gr
BPROTEIN	5	N	Quantity of vegetal p	X.XXXX	gr
YAG	5	N	Quantity of fat	X.XXXX	gr
KALSIYUM	7	N	Quantity of calcium	XXX.XXXX	mg
DEMIR	6	N	Quantity of iron	X.XXXXX	mg
AVIT	6	N	Quantity of vitamin A	XXX.XXX	I.U.
THIAMIN	5	N	Quantity of thiamin	.XXXXX	mg
RIBOF	5	N	Quantity of riboflav.	.XXXXX	mg
NIAS	5	N	Quantity of niacin	X.XXXX	mg
CVIT	6	N	Quantity of vitamin C	XX.XXXX	mg
FIYAT	5	N	Cost for 1 gr	XXX.XX	TL
MLZKOD1	5	A	Code of ingredient		
((15 times))					
MLZMIK	4	N	Quantity of	X.XXX	gr
((15 times))			ingredient		

Table 6: Variables of the recipe file

NAME OF THE VARIABLE	RECORD LENGTH	RECORD TYPE	EXPLANATION	FORMAT	UNIT
KIS	2	N	Constraint number	XX	
VAR	3	N	Variable number	XXX	
MIK	7	N	Value	XXXXXXX	
TOPBEK	2	N	Total time since last appearance	XX	day
MUST	2	N	Reoccurrence time between two servings	XX	day

Table 7:Variables of the dish file

3.2.5 Nutritional Standards File :

This file contains information about the standards in nutritional requirements. As it is known, the requirements depends on the sex and age of the human being under consideration. These informations are stored on this file, which is a sequential access file with a fixed record length of 91 bytes. The contents of each record are displayed in Table 8.

NAME OF THE VARIABLE	RECORD LENGTH	RECORD TYPE	EXPLANATION	FORMAT	UNIT
YAS	3	N	age of human being	XXX	year
YGR	5	A	interval of group		
EKAL	4	N	calories req. for male	XXXX	cal.
KKAL	4	N	female	XXXX	cal.
EPROT	3	N	proteins req. for male	XX.X	gr
KPROT	3	N	female	XX.X	gr
ECAL	4	N	calcium req. for male	XXXX	mg
KCAL	4	N	female	XXXX	mg
EDEM	3	N	iron req. for male	XX.X	mg
KDEM	3	N	female	XX.X	mg
EAVIT	5	N	vitam. A req. for male	XXXXX	I.U.
KAVIT	5	N	female	XXXXX	I.U.
ETH	3	N	thiamin req. for male	X.XX	mg
KTH	3	N	female	X.XX	mg
ERIB	3	N	riboflavin req. f. male	X.XX	mg
KRIB	3	N	female	X.XX	mg
ENIA	3	N	niacin req. for male	XX.X	mg
KNIA	3	N	female	XX.X	mg
ECVIT	4	N	vitam. C req. for male	XXX.X	mg
KCVIT	4	N	female	XXX.X	mg

Table 8 : Variables of nutritional standards file

3.3 DESCRIPTION OF INTERACTIVE PROGRAMS

The selections in the main menu of the interactive programs, which are stored on VAX-780 System in TUBITAK, Gebze, are as follows :

1. Entering new ingredient or remove an existing one
2. Updating information on an ingredient
3. Entering a new dish or remove an existing one
4. Updating information on a dish

5. Displaying nutritional values and the price of a dish
6. Examining nutritional values and the total price of a daily menu
7. Examining nutritional values and the total price of a weekly menu set
8. Getting total list of all dishes with their current prices and nutritional support

By choosing the first selection we can add a new ingredient into the ingredient file or remove an existing one. This selection is enabled by the code "BESGIR.COB", which is a COBOL program with 9 blocks length.

By choosing the second selection we can change any information about the existing ingredients in the ingredient file. This selection is used very often, since the price changes are made by selecting this selection. This selection is enabled by the code "BESDUZ.COB", which is a COBOL program with 16 blocks length.

By choosing the third selection we can add a new dish into the dish file or remove an existing one from the dish file. This selection is enabled by the COBOL program "YEMGIR.COB", which covers 8 blocks on the disk.

By choosing the fourth selection we can change any information of an existing dish in the dish file. This selection is enabled by the code "YEMDUZ.COB", which is a COBOL program with 11 blocks length.

By choosing the fifth selection we can display the nutritional values, price and the ingredients with their associated quantities of any dish that exists in the dish file. We can also obtain outputs involving these information (Report 1). This selection is enabled by code "YEMIZ.COB", which is a COBOL program with 30 blocks length.

By choosing the sixth selection we can examine the nutritional values and the price of any daily menu. According to the selected sex and age an evaluation of the menu is made. After the evaluation the dietitian can either change a dish or remove a dish or add a new dish or change the portion sizes to be served in order to improve the nutritional values or decrease the price of the menu. At any step of this evaluation procedure an output report can be obtained (Report 2). This selection is enabled by the code "GUNIZ.COB" with 76 blocks length.

By choosing the seventh selection we can examine the nutritional values and the price of any weekly menu set. Examination is made according to the nutritional requirements of a family of 4 persons in a week. The evaluation procedure is similar to the procedure mentioned as the sixth selection. The dietitian can make similar changes on the menus for any of the seven days (Report 3). This selection is enabled

by the code "HAFTAIZ.COB" with 86 blocks length.

By choosing the eighth selection we can get a list of all dishes with their nutritional values and their prices from the printer (Report 4). This selection is enabled by the code "TUMYEM.COB" with 11 blocks length.

It is to be noted that if we choose any of the first four selections, a COBOL program called "YBEDH.COB" runs automatically to update the recipe file according to the changes made by choosing any of these selections. The block length of this program code is 9.

3.4 DESCRIPTION OF THE PROGRAMS IN THE MULTISTAGE PROGRAMMING MODEL

The selections in the main menu of the multistage programming model on CDC-Cyber System in B.U. are as follows:

1. Changing prices of dishes
2. Changing reoccurrence intervals of dishes
3. Substituting the new dishes with old ones in the model
4. Activating the model

By choosing the first selection we can change the prices (in kurus) of the existing dishes in the dish file. This selection is enabled by the code "FIYCOB", which is a COBOL program with 9 blocks length.

By choosing the second selection we can change reoccurrence intervals of dishes, which specifies the minimum time intervals for them in days before a repetition can occur. This selection is enabled by the code "ORCOB", which is a COBOL program with 8 blocks length.

By choosing the third selection we can substitute the new dishes with the old ones. This means we can add a new dish to the model where we delete an existing dish in the same class. There is a constraint for this selection : the dish numbers should be entered in order. This selection is enabled by the code "DEGCOB", which is a COBOL program with 16 blocks length. The number codes and their classes are shown in Table 9.

NUMBER	GROUP
CODES	
1-2	Beverages
3-9	Breakfast items
10-25	Fruits
26-32	Salads
33-50	Sweets
51-59	Soups
60-62	Roasted vegetables
63-97	Main dishes
98-107	Starchy dishes
108-114	Cold dishes of vege-
	tables prepared with
	olive oil

Table 9 : Number codes and their classes of dishes

By choosing the fourth selection we can activate the multistage model for a given planning horizon of 15 days. This is a batch routine that operates some consequent programmes and the MPOS BBMIP integer programming package (Figure 5).

This package that is called BEMIP (Branch and Bound Mixed Integer Procedure) employs a branch and bound algorithm implemented by Shareshian (1967) and based upon the Land and Doig (1960) method extended by Driebeck to solve mixed integer programming problems of limited size.

The LP (minimization) problem is first solved without regard to integrality constraints; from this point on the program proceeds as if to enumerate the set of all possible mixed integer solutions by constraining each integer variable singly and in turn to an integer value within its range. A dual simplex LP algorithm is used as a bound establishing mechanism immediately after each integer variable is constrained.

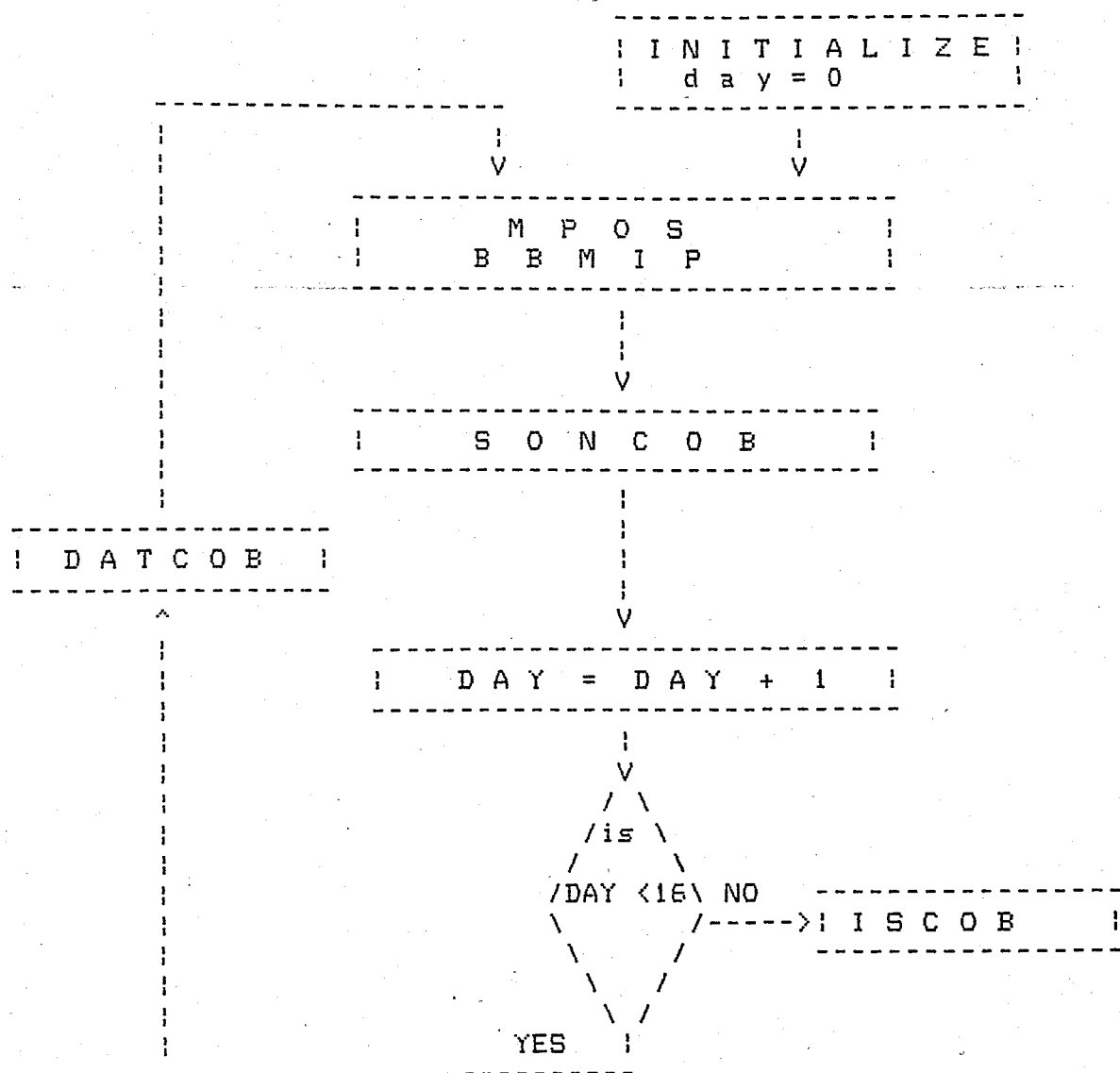


Figure 5 : Sequence of programs in the multi-stage model

3.5 RESULTS :

The models presented in previous sections are experimented on using a set of 114 dishes (Report 4). In the experimental runs special attention is given to the

1. Differences between multistage model solutions and single stage model solutions for equivalent conditions
2. Differences caused by changing the reoccurrence intervals
3. Differences caused by changing the planning horizon

In table 10 we can observe the statistics of several experimental cases. Here, MS stands for multistage model cases and SS stands for single stage model cases. (1) represents the case with the original data set for a planning horizon of 15 days, while (1#) denotes the case with the same data set but with a planning horizon of 30 days. (2) stands for the case where the reoccurrence intervals of all dishes except beverages and breakfast dishes are increased by one day.

In all of the three cases the total cost generated by the MS model is about 5.5 % higher than the total cost generated by SS model. Another point, that is observed between MS and SS model is that the total number of dishes as well as the number of different dishes are greater in the MS model. On the other hand, in SS model the number of dishes at their upper bounds is about 90 % more when compared with the MS model. This is the reason why the total number of dishes and the number of different dishes are greater in MS model.

When the reoccurrence intervals are increased, it is observed that the total number of dishes and especially the number of different dishes are increased in both models. Similarly the number of dishes at their upper bounds are

increased in both models. The cost of (2) is 7% more expensive than (1) for both SS and MS. In other words in both models increase in variety results in an increase of costs.

Another interesting point is that doubling the planning horizon does not change average dish cost very much, whereas it causes an increase in variety in MS model. So it can be concluded that a 15 day planning horizon is sufficient for our purposes (especially so when we consider the doubled computer time that is needed for MS(1#)).

To give an opinion about the menu sets that are obtained by the MS model the solution of MS(1) is listed below :

1. GUN:

CAY	HURMA TATLISI	ELMA KOMPOSTO
YUMURTA	CIGER SOTE	YUM. ISPANAK
RECEL	BULGUR PILAVI	Z.YAGLI BAKLA
EKMEK	EKMEK	EKMEK

2. GUN:

CAY	ELMA	MENEMEN
RECEL	TAVUKLU PILAV	AYVA KOMPOSTO
Y. ZEYTIN	Z.YAGLI BARBUNYA	EKMEK
EKMEK	EKMEK	

3. GUN:

CAY	LOKMA	SUTLAC
YUMURTA	HASLAMA TAVUK	K.FASULYE
RECEL	EKMEK	EKMEK
EKMEK		

4. GUN:

SUT	ERIK KOMPOSTO	KAYISI KOMPOSTO
RECEL	SEBZE CORBASI	SEHRIYE CORBASI
Y.ZEYTIN	ETLI NOHUT	KIY. BEZELYE
EKMEK	EKMEK	BULGUR PILAVI
		EKMEK

5. GUN:

CAY	PATATES SALATASI	DOMATES SALATASI
YUMURTA	DOM.PRINC CORBASI	YUMURTALI ISPANAK
RECEL	TAVUKLU PILAV	IC PILAV
EKMEK	EKMEK	EKMEK

6. GUN:

CAY
RECEL
Y. ZEYTIN
EKMEK

ELMA
KIYMALI PATATES
BULGUR PILAVI
EKMEK

LOKMA
KIYMALI MERCIMEK
Z. YAGLI BAKLA
EKMEK

7. GUN:

SUT
YUMURTA
RECEL
EKMEK

KIRMIZI ERIK
SEBZE CORBASI
KURU FASULYE
EKMEK

HURMA TATLISI
DOMATES CORBASI
HASLAMA TAVUK
EKMEK

8. GUN:

SUT
RECEL
Y. ZEYTIN
EKMEK

PORTAKAL
CIGER SOTE
BULGUR PILAVI
EKMEK

DOMATES SALATASI
LOKMA
MENEMEN
EKMEK

9. GUN:

CAY
YUMURTA
RECEL
EKMEK

ELMA
YUMURTALI ISPANAK
Z. YAGLI BARBUNYA
EKMEK

TAVUKLU PILAV
ELMA KOMPOSTO
EKMEK

10. GUN:

CAY
RECEL
Y. ZEYTIN
EKMEK

LOKMA
KIYMALI BEZELYE
EKMEK

KIYMALI PATATES
BULGUR PILAVI
HANIM COBEGI
EKMEK

11. GUN:

SUT
YUMURTA
RECEL
EKMEK

ELMA
SEBZE CORBASI
KURU FASULYE
EKMEK

HURMA TATLISI
HASLAMA TAVUK
UN CORBASI
EKMEK

12. GUN:

SUT
RECEL
Y. ZEYTIN
EKMEK

DOMATES SALATASI
KAYISI KOMPOSTO
TAVUKLU PILAV
EKMEK

LOKMA
ETLI NOHUT
Z. YAGLI BAKLA
EKMEK

13. GUN:

CAY
YUMURTA
RECEL
EKMEK

PATATES SALATASI
DOM. PRINC CORBASI
YUMURTALI ISPANAK
BULGUR PILAVI
EKMEK

DOMATES SALATASI
MENEMEN
IC PILAV
EKMEK

14. GUN:

CAY
RECEL
Y. ZEYTIN
EKMEK

KIRMIZI ERIK
ETLI BIBER DOLMASI
EKMEK

LOKMA
Z. YAGLI BARBUNYA
KIYMALI PATATES
EKMEK

```

*****
*      1      1      2      2      1#      1#      *
*      MS      SS      MS      SS      MS      SS      *
*****
*   Number of
* different dishes | 39 | 25 | 48 | 32 | 44 | 26 | *
*-----*
*   Total of
*   all dishes    | 130 | 119 | 139 | 132 | 265 | 240 | *
*-----*
*   Total of
* breakfast items | 30 | 30 | 30+1 | 30 | 60 | 60 | *
*-----*
*   Total of
* main dishes     | 30 | 30 | 30 | 30 | 60 | 60 | *
*-----*
*   Total of
* fruits + desserts | 26 | 26 | 29 | 18 | 52 | 43 | *
*-----*
*   Total of
* salads          | 6 | 4 | 4 | 12 | 12 | 17 | *
*-----*
*   Total of
* soups           | 8 | 0 | 14 | 11 | 20 | 1 | *
*-----*
*   Total of
* starchy dishes  | 9 | 8 | 9 | 11 | 20 | 18 | *
*-----*
*   Total of
* beverages       | 15 | 15 | 15 | 15 | 30 | 30 | *
*-----*
*   Total of
* veget.with o.oil | 6 | 6 | 8 | 5 | 11 | 11 | *
*-----*
*   No of dishes
* at upper bounds | 9 | 17 | 16 | 23 | 7 | 17 | *
*-----*
* AVERAGE COST (TL)* | 364 | 342 | 389 | 368 | 365 | 344 | *
*-----*
* MINIMAL COST (TL)* | 288 |   | 314 |   | 281 |   | *
*-----*
* MAXIMAL COST (TL)* | 458 |   | 492 |   | 476 |   | *
*-----*
* M.Stage-S.Stage   |   |   |   |   |   |   | *
* difference (TL)    | 22.50 |   | 21.65 |   | 20.58 |   | *
*-----*
* 15 - 30 days      |   |   |   |   |   |   | *
* difference (TL)    |   |   |   |   | -0.64 | -2.56 | *
*-----*
* COMPUTER TIME(min) | 120 | 10 | 120 | 10 | 240 | 10 | *
*****

```

Table 10 : Solution statistics of experimental cases

*) This cost does not include the cost of "bread" that would add as much as 66 TL for one day.

As it is mentioned before , the essential aim of developing a linear programming model is to determine lower bounds for monthly feeding costs of a family. In the experimental runs 70 ingredients are used as variables. Initially , only nutritional constraints are taken into consideration. It is observed that results are grouped on a few variable (such as anchovy and flour) , where the monthly cost is computed as 19000 TL. Furthermore, as upper and lower bound constraints are added , it is seen that both variability and monthly cost (26000 TL) (Report 5) of the solution were increased. So , the dependency of cost upon variety of the solution , which is a function of lower and upper bound constraints, is observed.

CHAPTER 4

CONCLUSIONS AND SUGGESTIONS:

4.1 CONCLUSIONS:

Experimental runs with the use of the models described in preceeding chapters were conducted in such a way that an unbiased comparison between menu plans in general use and those prepared by computer is possible. For these purposes menus of a boarding school were examined as a sample of daily menus planned with traditional methods. The average cost of a daily menu in this sample data was 750 TL for a two-week menu cycle in that school selected for comparative studies. Using the multistage model described in section 2.2.2 the average cost of a daily menu decreases to 450 TL (see MS(2) in Table 10) which is equivalent to 40 percent saving. So it can be easily determined that there is a great amount of savings of menus planned with the models described in this study as opposed to menus in general use. It is also worth mentioning that the nutrients are satisfied each day or during the planning horizon depending on the model used, while in sample data planning deficiency was found in some nutrients (Thiamin, Riboflavin, Niacin). Another important point is that there was great variations in amounts

of some nutrients (calories, calcium) from day to day. On the other hand, it should be noted that even though meal names and descriptions in sample data match with their counterparts in our recipe file, nutrient contents and prices may show some variation. Menus in the sample data are listed below : (Note : Bread is assumed to be eaten 100 gr at each meal, which is not shown below)

1. GUN:

CAY	FIRIN KOFTESI	BAHCEVAN KEBABI
B. PEYNIR	PILAV	P. TEPSI BOREK
RECEL	ERIK KOMPOSTO	DOMATES SALATASI
TEREYAG		ELMA
S. ZEYTIN		

2. GUN:

CAY	ETLI BIBER DOLMA	TAS KEBABI
B. PEYNIR	DOM. SOSLU MAKARNA	Z. YAGLI Y. FASULYE
RECEL	KIRMIZI ERIK	ELMA
TEREYAG		
S. ZEYTIN		

3. GUN:

CAY	IZMIR KOFTESI	KARNIYARIK
B. PEYNIR	Z. YAGLI BARBUNYA	PEYNIRLI MAKARNA
RECEL	HANIM GOBEGI	KIRMIZI ERIK
TEREYAG		
S. ZEYTIN		

4. GUN:

CAY	FIRIN KOFTESI	PATLICAN MUSAKKA
B. PEYNIR	DOM. SOSLU MAKARNA	SEHRIYELI PILAV
RECEL	UZUM	CACIK
TEREYAG		ELMA
S. ZEYTIN		

5. GUN:

CAY	YAZ TURLUSU	ETLI BIBER DOLMA
B. PEYNIR	YOG. PATLICAN KIZARTMA	PEY. TEPSI BOREK
RECEL	SUTLAC	SEFTALI
TEREYAG		
S. ZEYTIN		

6. GUN:

CAY	KADINEUDU KOFTE	DOMATES CORBASI
B. PEYNIR	KIYMALI BEZELYE	YAZ TURLUSU
RECEL	LOKMA	PILAV
TEREYAG		ELMA
S. ZEYTIN		

7.GUN:

CAY
B.PEYNIR
RECEL
TEREYAG
S.ZEYTIN

KURU FASULYE
PILAV
YOGURT
LOKMA

IZMIR KOFTESI
KIYMALI MERCIMEK
DOMATES SALATASI
ERIK

8.GUN:

CAY
B.PEYNIR
RECEL
TEREYAG
S.ZEYTIN

HASLAMA TAVUK
IC PILAV
LOKMA

KIYMALI ISPANAK
FIRIN KOFTESI
ELMA

9.GUN:

CAY
B.PEYNIR
RECEL
TEREYAG
S.ZEYTIN

FIRINDA KOYUN
PATLICAN KIZARTMA
LOKMA

ETLI NOHUT
PILAV
KAYISI KOMPOSTO

10.GUN:

CAY
B.PEYNIR
RECEL
TEREYAG
S.ZEYTIN

ROSTO PATATESLI
PILAV
LOKMA

PEY,TEPSI BOREGI
YAZ TURLUSU
YOGURT
ERIK

11.GUN:

CAY
B.PEYNIR
RECEL
TEREYAG
S.ZEYTIN

BAHCEVAN KEBAP
FIRIN MAKARNA
LOKMA

TAS KEBABI
Z.YAGLI BARBUNYA
ERIK

12.GUN:

CAY
B.PEYNIR
RECEL
TEREYAG
S.ZEYTIN

HASLAMA TAVUK
Z.YAGLI BARBUNYA
YOGURT

TAS KEBABI
Z.YAGLI FASULYE
LOKMA

13.GUN:

CAY
B.PEYNIR
RECEL
TEREYAG
S.ZEYTIN

FIRINDA KOYUN
KIYMALI ISPANAK
LOKMA

KIYMALI ISPANAK
PILAV
YOGURT
IRMIK HELVASI

14.GUN:

CAY
B.PEYNIR
RECEL
TEREYAG
S.ZEYTIN

IZMIR KOFTE
PILAV
ERIK

BAHCEVAN KEBAP
PEY,TEPSI BOREK
KARISIK SALATA
UZUM

It should be pointed out that the single stage and multistage models described and experimented on seem to be quite suitable for menu planning in institutions serving three meals everyday (such as hospitals , prisons , boarding schools , military camps etc.). The results displayed in the previous section indicate that through the models nutritious and fairly inexpensive menus can be planned and ,if desired, more variety in meals may be obtained at a small cost increase. Furthermore through the system described one can make or change the plan interactively. That is,

1. observe the current plan
2. increase the related reoccurrence intervals if more variety is desired
3. decrease the related reoccurrence intervals if less variety is desired
4. resolve the model and observe the new plan and the new costs
5. stop , if satisfied , or continue making similar changes

On the other hand parameter changes such as

1. changing nutrition content of dishes
2. changing price of dishes

3. adding new dishes
4. changing the meal structures

are quite easy to implement, which implies the generated system is easy to update and applicable in any environment. The L.P. model, which is also included in this study, seems to be helpful to families for planning their nutritionally adequate menus at least cost.

It should be also noticed that the optimum integer solution could not be calculated for both of the integer models 10 out of 15 times for the sake of the computer time limits. The last integer feasible solution until the 4000th iteration has been accepted. In reality, this causes a 4-5 % increase in the least cost solutions that are obtained when compared with the optimal solutions. However, in real applications the true optimal solutions and the corresponding cost savings may be obtained by investing more computer time.

4.2 SUGGESTIONS:

For making efficient use of the proposed Menu Planning Models, first of all, a reliable data about nutritional support and prices should be available. The price changes of ingredients should be updated immediately in order to obtain realistic solutions. Furthermore, any new dish and changes in the ingredients of existing dishes should immediately be added to the recipe file.

It is undeniable that many extensions to models developed in this study are possible. As mentioned before, the minimization is done due to the raw food costs. The preparation durations and the cooking durations are not considered in this study, which show great variations from one dish to other. The cost related to the cooking and labor may also be added to the prices of dishes, whereas the preparation durations can be formulated as limiting constraints. But for both of these, reliable data should be provided which are not available during this study.

APPENDIX A

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APPENDIX B

REPORTS

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OUTPUT OF YEMIZ.COB

REPORT I

 YEMEGİN ADI : YUMURTALI İSPANAK *
 PORSİYON GRAMAJI : 180 GR. *
 -----*
 İÇERDİĞİ KALORİ MİKTARI : 161 *
 HAYVANSAL PROTEİN MİKTARI : 4.8 GR. *
 BİTKİSEL PROTEİN MİKTARI : 4.4 GR. *
 TOPLAM PROTEİN MİKTARI : 9.2 GR. *
 YAĞ MİKTARI : 11.4 GR. *
 KALSİYUM MİKTARI : 146 mg. *
 DEMİR MİKTARI : 4.9 mg. *
 A VİTAMİNİ MİKTARI : 10,819 I.U. *
 THİAMİN MİKTARI : 0.17 mg. *
 RİBOFLAVİN MİKTARI : 0.38 mg. *
 NİACİN MİKTARI : 0.8 mg. *
 C VİTAMİNİ MİKTARI : 57.1 mg. *
 -----*
 PORSİYON FİYATI : 54 T.L. *

1 PORS. İÇİNDEKİ MALZEMELER

 İSPANAK 155 GR.
 MARGARİN 8 GR.
 KURU SOĞAN 15 GR.
 YUMURTA 45 GR.

 YEMEGİN ADI : ZEYTİNYAĞLI BAKLA *
 PORSİYON GRAMAJI : 300 GR. *
 -----*
 İÇERDİĞİ KALORİ MİKTARI : 268 *
 HAYVANSAL PROTEİN MİKTARI : 3.5 GR. *
 BİTKİSEL PROTEİN MİKTARI : 8.4 GR. *
 TOPLAM PROTEİN MİKTARI : 11.9 GR. *
 YAĞ MİKTARI : 13.8 GR. *
 KALSİYUM MİKTARI : 193 mg. *
 DEMİR MİKTARI : 1.8 mg. *
 A VİTAMİNİ MİKTARI : 446 I.U. *
 THİAMİN MİKTARI : 0.51 mg. *
 RİBOFLAVİN MİKTARI : 0.43 mg. *
 NİACİN MİKTARI : 2.8 mg. *
 C VİTAMİNİ MİKTARI : 48.1 mg. *
 -----*
 PORSİYON FİYATI : 48 T.L. *

1 PORS. İÇİNDEKİ MALZEMELER

 BAKLA(TAZE) 170 GR.
 LIMON 4 GR.
 KURU SOĞAN 12 GR.
 ZEYTİNYAĞI 10 GR.
 YOGURT 100 GR.

 YEMEGİN ADI : HURMA TATLISI *
 PORSİYON GRAMAJI : 130 GR. *
 -----*
 İÇERDİĞİ KALORİ MİKTARI : 422 *
 HAYVANSAL PROTEİN MİKTARI : 1.0 GR. *
 BİTKİSEL PROTEİN MİKTARI : 3.4 GR. *
 TOPLAM PROTEİN MİKTARI : 4.4 GR. *
 YAĞ MİKTARI : 8.9 GR. *
 KALSİYUM MİKTARI : 12 mg. *
 DEMİR MİKTARI : 0.6 mg. *
 A VİTAMİNİ MİKTARI : 225 I.U. *
 THİAMİN MİKTARI : 0.04 mg. *
 RİBOFLAVİN MİKTARI : 0.08 mg. *
 NİACİN MİKTARI : 0.6 mg. *
 C VİTAMİNİ MİKTARI : 0.7 mg. *
 -----*
 PORSİYON FİYATI : 23 T.L. *

1 PORS. İÇİNDEKİ MALZEMELER

 SEKER 50 GR.
 MARGARİN 10 GR.
 LIMON 2 GR.
 D.R.UN 30 GR.
 İRMİK 10 GR.
 KURU MAYA 1 GR.
 YUMURTA 6 GR.

OUTPUT OF GUNIZ.COB

REPORT 2

GUNLUK BESİN BİLESİM ÇİZELGESİ:

* GUNLUK YEMEK MENUSU												
* -----												

* KAHVALTI :												
* -----												

* I0001 CAY (SEKERLi)	100 GR.	*	52	0.0	0	0.0	0	10.00	10.00	0.0	0.0	07
* K0004 YUMURTA	50 GR.	*	70	5.3	24	0.9	231	10.04	10.13	0.0	0.0	25
* K0005 RECEL	30 GR.	*	81	0.1	6	0.3	3	10.00	10.00	0.0	0.6	12
* E0002 EKMEK	150 GR.	*	412	12.0	36	3.0	0	10.06	10.07	1.9	0.0	22
* -----												

* OGLE YEMEĞİ :												
* -----												

* Y0032 CİĞER SOTE	200 GR.	*	199	122.1	13	10.1	25721	10.23	13.11	113.0	43.1	114
* YZ016 ZEYTİNYAĞLI BAKLA	300 GR.	*	268	11.9	193	1.8	446	10.50	10.42	2.7	48.1	48
* TH010 HURMA TATLISI	130 GR.	*	421	4.3	11	0.6	225	10.03	10.08	0.5	0.6	23
* E0002 EKMEK	150 GR.	*	412	12.0	36	3.0	0	10.06	10.07	1.9	0.0	22
* -----												

* AKSAM YEMEĞİ :												
* -----												

* YS036 YUMURTALI İSPANAK	180 GR.	*	161	9.1	146	4.9	10818	10.16	10.37	0.8	67.0	54
* YU016 BULGUR PILAVI	175 GR.	*	263	5.6	26	2.5	442	10.16	10.06	2.2	7.6	14
* TN004 ELMA KOMPOSTO	220 GR.	*	247	0.1	6	0.3	81	10.02	10.01	0.0	3.6	17
* E0002 EKMEK	150 GR.	*	412	12.0	36	3.0	0	10.06	10.07	1.9	0.0	22

* BESİN BİLESİM ÇİZELGESİ												
* -----												

* E R K E K												
* K A D I N												
* ACIKLAMA												
* -----												

* ONERİLEN! FARK !DEĞER * ONERİLEN! FARK !DEĞER *												
* -----												

* İCERDİĞİ KALORİ MİKTARI	: 3004	*	3000	4	+	*	2100	904	+	*		*
* HAYVANSAL PROTEİN MİKTARI	: 36.4 GR.	*				*				*		*
* BİTKİSEL PROTEİN MİKTARI	: 58.5 GR.	*				*				*		*
* TOPLAM PROTEİN MİKTARI	: 94.9 GR.	*	65.0	29.9	+	*	55.0	39.9	+	*	0: yetersiz	*
* YAĞ MİKTARI	: 60.8 GR.	*				*				*		*
* KALSİYUM MİKTARI	: 536 mg.	*	500	36	+	*	500	36	+	*	+: yeterli	*
* DEMİR MİKTARI	: 30.5 mg.	*	10.0	20.5	+	*	22.0	8.5	+	*		*
* A VİTAMİNİ MİKTARI	: 37970 I.U	*	5000	32970	+	*	5000	32970	+	*		*
* THİAMİN MİKTARI	: 1.36 mg.	*	1.20	0.16	+	*	0.90	0.46	+	*		*
* RİBOFLAVİN MİKTARI	: 4.44 mg.	*	1.60	2.84	+	*	1.20	3.24	+	*		*
* NİACİN MİKTARI	: 24.9 mg.	*	19.8	5.1	+	*	14.0	10.9	+	*		*
* C VİTAMİNİ MİKTARI	: 170.6 mg.	*	50.0	120.6	+	*	50.0	120.6	+	*		*
* -----												

* TOPLAM MENU FİYATI : 382 T.L. * 20-39 YAŞ GRUBU ve NORMAL İSTE ÇALIŞANLAR İÇİN DEĞERLENDİRME												

NOTLAR : FIRST DAY IN MS(1) SOLUTION EXAMINED BY GUNIZ.COB

OUTPUT OF HAFTAIZ.COB

REPORT 3

GUNLUK BESİN BİLEŞİM ÇİZELGELERİ:

28/05/1986

* 1. GÜNÜN YEMEK MENUSU	GRAMAJLAR	* ENERJİ	PRO.	KALS.	DEM.	A VİT.	THİ.	RİB.	NI.A.	C VİT	İYAT	*
* -----	-----	* (cal)	(gr)	(mg)	(mg)	(I.U)	(mg)	(mg)	(mg)	(mg)	(T.L)	*

* KAHVALTI :		* 1851	52.61	200	12.71	703	10.30	10.65	6.0	1.8	199	*

* I0001 ÇAY (SEKERLİ)	300 GR.	* 158	0.01	0	0.01	0	10.00	10.00	0.0	0.0	21	*
* K0004 YUMURTA	150 GR.	* 210	16.11	74	2.81	694	10.12	10.40	0.1	0.0	75	*
* K0005 REÇEL	90 GR.	* 244	0.51	18	0.91	9	10.00	10.02	0.1	1.8	36	*
* E0002 EKMEK	450 GR.	* 1237	36.01	108	9.01	0	10.18	10.22	5.8	0.0	67	*

* ÖĞLE YEMEĞİ :		* 3905	1151.11	763	46.61	79178	12.51	11.08	154.8	275.6	623	*

* YE032 ÇİĞER SOTE	600 GR.	* 598	66.31	41	30.31	77163	10.69	19.34	139.0	129.3	342	*
* YZ016 ZEYTİNYAĞLI BAKLA	900 GR.	* 804	35.71	579	5.41	1339	11.52	11.27	8.3	144.3	144	*
* TH010 HURMA TATLISI	390 GR.	* 1265	13.11	34	1.81	676	10.11	10.24	1.7	2.0	70	*
* E0002 EKMEK	450 GR.	* 1237	36.01	108	9.01	0	10.18	10.22	5.8	0.0	67	*

* AKŞAM YEMEĞİ :		* 3254	81.11	644	32.31	34030	11.26	11.61	115.2	234.9	324	*

* YS036 YUMURTALI İSPANAK	540 GR.	* 484	27.51	438	14.71	32456	10.50	11.13	2.4	201.2	162	*
* YU016 BULGUR PILAVI	525 GR.	* 790	17.01	78	7.61	1328	10.50	10.19	6.8	22.9	42	*
* TN004 ELMA KOMPOSTO	660 GR.	* 742	0.51	19	0.91	245	10.07	10.05	0.2	10.8	52	*
* E0002 EKMEK	450 GR.	* 1237	36.01	108	9.01	0	10.18	10.22	5.8	0.0	67	*

* 1. GÜN TOPLAMI :		* 9012	1285.01	1608	91.61	113912	14.08	13.34	176.0	512.3	1147	*

* 2. GÜNÜN YEMEK MENUSU	GRAMAJLAR	* ENERJİ	PRO.	KALS.	DEM.	A VİT.	THİ.	RİB.	NI.A.	C VİT	İYAT	*
* -----	-----	* (cal)	(gr)	(mg)	(mg)	(I.U)	(mg)	(mg)	(mg)	(mg)	(T.L)	*

* KAHVALTI :		* 1744	37.61	190	11.31	225	10.20	10.26	5.9	1.8	205	*

* I0001 ÇAY (SEKERLİ)	300 GR.	* 158	0.01	0	0.01	0	10.00	10.00	0.0	0.0	21	*
* K0005 REÇEL	90 GR.	* 244	0.51	18	0.91	9	10.00	10.02	0.1	1.8	36	*
* K0007 YEŞİL ZEYTİN	90 GR.	* 103	1.01	64	1.41	216	10.01	10.01	0.0	0.0	81	*
* E0002 EKMEK	450 GR.	* 1237	36.01	108	9.01	0	10.18	10.22	5.8	0.0	67	*

* ÖĞLE YEMEĞİ :		* 2396	72.61	180	12.41	1126	10.46	10.51	118.2	19.5	317	*

* YE034 TAVUKLU PILAV	540 GR.	* 919	35.71	43	2.21	753	10.16	10.21	112.0	3.0	205	*
* M0020 ELMA	450 GR.	* 240	0.81	28	1.21	372	10.12	10.08	0.4	16.5	45	*
* E0002 EKMEK	450 GR.	* 1237	36.01	108	9.01	0	10.18	10.22	5.8	0.0	67	*

* AKŞAM YEMEĞİ :		* 5239	1183.11	1058	49.51	17485	14.43	12.47	119.8	280.0	711	*

* YS026 MENEMEN	600 GR.	* 999	43.51	225	8.31	4317	10.43	11.11	1.5	114.1	246	*
* YZ002 Z.YAĞLI BAREUNYA	690 GR.	* 2299	102.81	702	30.61	13085	13.78	11.07	112.2	134.8	345	*
* TN006 AYVA KOMPOSTO	660 GR.	* 702	0.71	22	1.61	83	10.03	10.05	0.3	31.1	52	*
* E0002 EKMEK	450 GR.	* 1237	36.01	108	9.01	0	10.18	10.22	5.8	0.0	67	*

* 2. GÜN TOPLAMI :		* 9380	1293.31	1429	73.41	18837	15.10	13.25	143.9	301.3	1234	*

```

*****
* 3. GUNUN YEMEK MENUSU          GRAMAJLAR * ENERJi: PRO.: KALS.: DEM.: A ViT.: THi.: RiB.: NiA.: C ViT :FiYAT *
* =====                          ===== * (cal) : (gr): (mg) : (mg): (I.U) : (mg): (mg): (mg): (mg) : (T.L) *
*****
*      KAHVALTI :                  * 2118 : 60.3: 1013 : 12.0: 1095 :0.47 :1.36 : 6.5 : 8.7 : 321 *
* -----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*
* I0005 SUT (SEKERLi)              720 GR. * 532 : 22.7: 822 : 0.7: 870 :0.27 :1.10 : 0.6 : 6.9 : 136 *
* K0005 RECEL                      90 GR. * 244 : 0.5: 18 : 0.9: 9 :0.00 :0.02 : 0.1 : 1.8 : 36 *
* K0007 YESIL ZEYTIN              90 GR. * 103 : 1.0: 64 : 1.4: 216 :0.01 :0.01 : 0.0 : 0.0 : 81 *
* E0002 EKMEK                     450 GR. * 1237 : 36.0: 108 : 9.0: 0 :0.18 :0.22 : 5.8 : 0.0 : 67 *
* -----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*
*      OGLE YEMEGI :              * 4028 :112.9: 554 : 34.0: 7700 :1.58 :1.13 :23.8 : 72.5 : 534 *
* -----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*
* YC004 SERZE CORBASI              630 GR. * 282 : 3.3: 64 : 1.6: 4696 :0.10 :0.11 : 1.1 : 42.1 : 25 *
* YS016 ETLI NOHUT                750 GR. * 1079 : 55.2: 254 : 14.3: 858 :0.57 :0.51 : 8.8 : 7.5 : 337 *
* YU016 BULGUR PILAVI            525 GR. * 790 : 17.0: 78 : 7.6: 1328 :0.50 :0.19 : 6.8 : 22.9 : 42 *
* TN018 ERİK KOMPOSTO(TAZE)       690 GR. * 639 : 1.3: 48 : 1.4: 816 :0.21 :0.07 : 1.3 : 0.0 : 62 *
* E0002 EKMEK                     450 GR. * 1237 : 36.0: 108 : 9.0: 0 :0.18 :0.22 : 5.8 : 0.0 : 67 *
* -----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*
*      AKSAM YEMEGI :              * 2880 : 90.0: 294 : 24.2: 11828 :1.34 :1.14 :23.6 : 115.1 : 532 *
* -----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*
* YC006 SEHRIYE CORBA             600 GR. * 369 : 6.5: 35 : 1.5: 1326 :0.09 :0.12 : 1.2 : 25.8 : 30 *
* YS042 KIYMALI REZELYE           750 GR. * 733 : 43.7: 101 : 9.4: 2335 :1.06 :0.68 :14.2 : 80.4 : 367 *
* TN020 KAYISI KOMPOST(KURU)     675 GR. * 540 : 3.7: 50 : 4.2: 8166 :0.00 :0.11 : 2.4 : 8.9 : 67 *
* E0002 EKMEK                     450 GR. * 1237 : 36.0: 108 : 9.0: 0 :0.18 :0.22 : 5.8 : 0.0 : 67 *
*****
* 3. GUN TOPLAMI :                * 9027 :263.3: 1862 : 70.3: 20624 :3.40 :3.64 :53.9 : 196.3 : 1388 *
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* 4. GUNUN YEMEK MENUSU          GRAMAJLAR * ENERJi: PRO.: KALS.: DEM.: A ViT.: THi.: RiB.: NiA.: C ViT :FiYAT *
* =====                          ===== * (cal) : (gr): (mg) : (mg): (I.U) : (mg): (mg): (mg): (mg) : (T.L) *
*****
*      KAHVALTI :                  * 1851 : 52.6: 200 : 12.7: 703 :0.30 :0.65 : 6.0 : 1.8 : 199 *
* -----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*
* I0001 CAY (SEKERLi)             300 GR. * 158 : 0.0: 0 : 0.0: 0 :0.00 :0.00 : 0.0 : 0.0 : 21 *
* K0004 YUMURTA                   150 GR. * 210 : 16.1: 74 : 2.8: 694 :0.12 :0.40 : 0.1 : 0.0 : 75 *
* K0005 RECEL                      90 GR. * 244 : 0.5: 18 : 0.9: 9 :0.00 :0.02 : 0.1 : 1.8 : 36 *
* E0002 EKMEK                     450 GR. * 1237 : 36.0: 108 : 9.0: 0 :0.18 :0.22 : 5.8 : 0.0 : 67 *
* -----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*
*      OGLE YEMEGI :              * 3198 : 86.7: 271 : 16.3: 4778 :0.91 :0.72 :25.9 : 179.3 : 428 *
* -----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*
* S0002 PATATES SALATASI          600 GR. * 680 : 9.6: 82 : 3.7: 1822 :0.42 :0.19 : 6.0 : 130.8 : 108 *
* YC002 T.DOMAT.PIRINC COR.       600 GR. * 361 : 5.2: 37 : 1.3: 2202 :0.14 :0.09 : 2.1 : 45.5 : 48 *
* YE034 TAVUKLU PILAV            540 GR. * 919 : 35.7: 43 : 2.2: 753 :0.16 :0.21 :12.0 : 3.0 : 205 *
* E0002 EKMEK                     450 GR. * 1237 : 36.0: 108 : 9.0: 0 :0.18 :0.22 : 5.8 : 0.0 : 67 *
* -----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*
*      AKSAM YEMEGI :              * 3997 :112.5: 740 : 38.3: 60188 :1.39 :1.41 :27.9 : 395.9 : 613 *
* -----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*
* YS036 YUMURTALI ISPAHAK         540 GR. * 484 : 27.5: 438 : 14.7: 32456 :0.50 :1.13 : 2.4 : 201.2 : 162 *
* S0008 DOMATES SALATASI          450 GR. * 373 : 5.2: 70 : 2.4: 3586 :0.25 :0.17 : 2.7 : 111.1 : 76 *
* YU006 IC PILAV                  540 GR. * 1901 : 43.7: 123 : 12.1: 24145 :0.45 :2.87 :17.0 : 83.6 : 307 *
* E0002 EKMEK                     450 GR. * 1237 : 36.0: 108 : 9.0: 0 :0.18 :0.22 : 5.8 : 0.0 : 67 *
*****
* 4. GUN TOPLAMI :                * 9046 :251.9: 1213 : 67.4: 45670 :2.61 :5.78 :59.8 : 577.0 : 1242 *
*****

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* 5. GUNUN YEMEK MENUSU		GRAMAJLAR	* ENERJİ: PRO.: KALS.: DEM.: A Vit.: THİ.: RİB.: NİA.: C Vit. :FİYAT *
* =====		*****	* (cal) : (gr) : (mg) : (mg) : (I.U) : (mg) : (mg) : (mg) : (T.L) *

* KAHVALTI :		* 1744 37.6 190 11.3 225 10.20 10.26 5.9 1.8 205 *	

* I0001 CAY (SEKERLi)	300 GR.	* 158 0.0 0 0.0 0 10.00 10.00 0.0 0.0 21 *	
* K0005 RECEL	90 GR.	* 244 0.5 18 0.9 9 10.00 10.02 0.1 1.8 36 *	
* K0007 YESİL ZEYTİN	90 GR.	* 103 1.0 64 1.4 216 10.01 10.01 0.0 0.0 81 *	
* E0002 EKMEK	450 GR.	* 1237 36.0 108 9.0 0 10.18 10.22 5.8 0.0 67 *	

* OGLE YEMEGI :		* 3180 93.3 282 25.5 2392 11.42 11.04 127.3 145.0 529 *	

* YS008 KIYMALI PATATES	750 GR.	* 912 39.5 66 7.6 690 10.62 10.54 114.3 105.6 375 *	
* YU016 BULGUR PILAVI	525 GR.	* 790 17.0 78 7.6 1328 10.50 10.19 6.8 22.9 42 *	
* M0020 ELMA	450 GR.	* 240 0.8 28 1.2 372 10.12 10.08 0.4 16.5 45 *	
* E0002 EKMEK	450 GR.	* 1237 36.0 108 9.0 0 10.18 10.22 5.8 0.0 67 *	

* AKSAM YEMEGI :		* 4598 145.9 863 30.4 2213 12.54 12.48 125.9 154.9 636 *	

* YS048 KIYMALI MERCİMEK	750 GR.	* 1049 61.5 148 14.1 873 10.66 10.62 8.8 7.5 352 *	
* YZ016 ZEYTİNYAGLI BAKLA	900 GR.	* 804 35.7 579 5.4 1339 11.52 11.27 8.3 144.3 144 *	
* TH002 LOKMA	450 GR.	* 1507 12.6 28 1.8 0 10.17 10.35 3.0 3.1 72 *	
* E0002 EKMEK	450 GR.	* 1237 36.0 108 9.0 0 10.18 10.22 5.8 0.0 67 *	

* 5. GUN TOPLAMI :		* 9523 276.9 1336 67.4 4830 14.17 13.79 159.1 301.7 1371 *	

* 6. GUNUN YEMEK MENUSU		GRAMAJLAR	* ENERJİ: PRO.: KALS.: DEM.: A Vit.: THİ.: RİB.: NİA.: C Vit. :FİYAT *
* =====		*****	* (cal) : (gr) : (mg) : (mg) : (I.U) : (mg) : (mg) : (mg) : (T.L) *

* KAHVALTI :		* 2225 75.4 1023 13.4 1573 10.58 11.75 6.6 8.7 315 *	

* I0005 SUT (SEKERLi)	720 GR.	* 532 22.7 822 0.7 870 10.27 11.10 0.6 6.9 136 *	
* K0004 YUMURTA	150 GR.	* 210 16.1 74 2.8 694 10.12 10.40 0.1 0.0 75 *	
* K0005 RECEL	90 GR.	* 244 0.5 18 0.9 9 10.00 10.02 0.1 1.8 36 *	
* E0002 EKMEK	450 GR.	* 1237 36.0 108 9.0 0 10.18 10.22 5.8 0.0 67 *	

* OGLE YEMEGI :		* 2919 124.1 334 18.6 7062 11.14 11.08 141.0 125.5 572 *	

* YC004 SERZE CORBASI	630 GR.	* 282 3.3 64 1.6 4696 10.10 10.11 1.1 42.1 25 *	
* YE020 HASLAMA TAVUK	750 GR.	* 1129 82.7 88 6.0 1137 10.53 10.62 132.1 83.4 412 *	
* M0024 ERİK(KIRMIZI)	450 GR.	* 270 2.0 73 2.0 1228 10.32 10.12 2.0 0.0 67 *	
* E0002 EKMEK	450 GR.	* 1237 36.0 108 9.0 0 10.18 10.22 5.8 0.0 67 *	

* AKSAM YEMEGI :		* 4029 112.4 543 25.3 2781 11.56 11.55 118.5 17.9 491 *	

* YC010 DONATES CORBA	600 GR.	* 481 8.1 156 0.8 1372 10.09 10.42 1.1 8.4 54 *	
* YS010 ETLİ KURU FASULYE	750 GR.	* 1045 55.1 244 13.6 732 11.17 10.66 9.9 7.5 300 *	
* TH010 HURMA TATLISI	390 GR.	* 1265 13.1 34 1.8 676 10.11 10.24 1.7 2.0 70 *	
* E0002 EKMEK	450 GR.	* 1237 36.0 108 9.0 0 10.18 10.22 5.8 0.0 67 *	

* 6. GUN TOPLAMI :		* 9174 311.9 1901 57.4 11417 13.28 14.39 166.1 152.1 1379 *	

* 7. GUNUN YEMEK MENUSU			GRAMAJLAR * ENERJİ: PRO.: KALS.: DEN.: A Vit.: THİ.: RİB.: NİA.: C Vit.: FİYAT *									
* =====			* (cal) : (gr) : (mg) : (mg) : (I.U) : (mg) : (mg) : (mg) : (T.L) *									

* KAHVALTI :			* 2118 60.3 1013 12.0 1095 10.47 11.36 6.5 8.7 321 *									

* I0005 SUT (SEKERLi)	720 GR.	*	532		22.7		822		0.7		870	10.27 11.10 0.6 6.9 136 *
* K0005 RECEL	90 GR.	*	244		0.5		18		0.9		9	10.00 10.02 0.1 1.8 36 *
* K0007 YESİL ZEYTİN	90 GR.	*	103		1.0		64		1.4		216	10.01 10.01 0.0 0.0 81 *
* E0002 EKMEK	450 GR.	*	1237		34.0		108		9.0		0	10.18 10.22 5.8 0.0 67 *

* OGLE YEMEGI :			* 2424 111.9 399 43.5 81625 11.56 19.91 149.2 459.4 576 *									

* YE032 CİĞER SOTE	600 GR.	*	598		64.3		41		30.3		77163	10.69 19.34 139.0 129.3 342 *
* S0008 DOMATES SALATASI	450 GR.	*	373		5.2		70		2.4		3586	10.25 10.17 2.7 111.1 76 *
* M0066 PORTAKAL	600 GR.	*	214		4.3		179		1.7		876	10.43 10.17 1.7 219.0 90 *
* E0002 EKMEK	450 GR.	*	1237		36.0		108		9.0		0	10.18 10.22 5.8 0.0 67 *

* AKSAM YEMEGI :			* 4534 1109.3 439 26.8 5646 11.29 11.88 117.1 140.1 427 *									

* YS026 MENEMEN	600 GR.	*	999		43.5		225		8.3		4317	10.43 11.11 1.5 114.1 246 *
* YU016 BULGUR PILAVI	525 GR.	*	790		17.0		78		7.6		1328	10.50 10.19 6.8 22.9 42 *
* TH002 LOKMA	450 GR.	*	1507		12.6		28		1.8		0	10.17 10.35 3.0 3.1 72 *
* E0002 EKMEK	450 GR.	*	1237		36.0		108		9.0		0	10.18 10.22 5.8 0.0 67 *

* 7. GUN TOPLAMI :			* 9077 281.5 1852 82.5 88367 13.33 13.16 172.8 408.2 1324 *									

28/05/1986

HAFTALIK BESİN BİLESİM ÇİZELGESİ:

* HAFTALIK BESİN BİLESİM ÇİZELGESİ			* 4 KİSİLİK AİLE İÇİN				* AÇIKLAMA		
*			* ÖNERİLEN : FARK : DEĞER				*		

* İÇERDİĞİ KALORİ MİKTARI : 64242			* 62300 : 1942 : +				*		
* HAYVANSAL PROTEİN MİKTARI : 666.1 GR.			* : :				*		
* BİTKİSEL PROTEİN MİKTARI : 1298.1 GR.			* : :				*		
* TOPLAM PROTEİN MİKTARI : 1964.2 GR.			* 1323.0 : 641.2 : +				* 0: yetersiz		
* YAĞ MİKTARI : 1568.3 GR.			* : :				*		
* KALSİYUM MİKTARI :11,202 mg.			* 14000 : -2797 : 0				* +: yeterli		
* DEMİR MİKTARI : 510.0 mg.			* 357.0 : 153.0 : +				*		
* A VİTAMİNİ MİKTARI :323658 I.U			* 103370 : 20288 : +				*		
* THİAMİN MİKTARI : 26.00 mg.			* 25.90 : 0.10 : +				*		
* RİBOFLAVİN MİKTARI : 47.38 mg.			* 34.30 : 13.08 : +				*		
* NİACİN MİKTARI : 431.6 mg.			* 412.3 : 19.3 : +				*		
* C VİTAMİNİ MİKTARI : 2648.9 mg.			* 1190.0 : 1458.9 : +				*		

* TOPLAM MENU FİYATI : 9087.60 T.L.			* 4 KİSİLİK AİLE İÇİN DEĞERLENDİRME:				*		

NOTLAR : OUTPUT OF HAFTAIZ.COB (FOR EXAMINATION of a WEEKLY MENU SET)

* NO	MALZEME KODU & ADI		* KULLANILAN MİKTAR *	

* 1)	14016	KOYUN ETİ(ORTA YAG.)	* 150	GR *

* 2)	14024	SIGIR ETİ(ORTA YAGLI	* 645	GR *

* 3)	16008	TAVUK	* 1049	GR *

* 4)	17014	KARACIGER(DANA)	* 782	GR *

* 5)	18014	YUMURTA	* 1505	GR *

* 6)	20008	BARBUNYA	* 414	GR *

* 7)	20026	KURU PASULYE	* 150	GR *

* 8)	20028	MERCİMEK	* 150	GR *

* 9)	20030	NOHUT	* 150	GR *

* 10)	30012	AYVA	* 297	GR *

* 11)	30020	ELMA	* 1197	GR *

* 12)	30024	ERİK(KIRMIZI)	* 749	GR *

* 13)	30042	KARPUZ	* 24	GR *

* 14)	30048	KAYISI(KURU)	* 74	GR *

* 15)	30054	LİMON	* 483	GR *

* 16)	30066	PORTAKAL	* 600	GR *

* 17)	40004	BAKLA(TAZE)	* 1018	GR *

* 18)	40010	BEZELYE(TAZE)	* 450	GR *

* 19)	40014	BİBER(TAZE)	* 150	GR *

* 20)	40022	DOMATES	* 1784	GR *

* 21)	40038	HAVUC	* 221	GR *

* 22)	40052	KEREVİZ	* 59	GR *

* 23)	40058	İSPANAK	* 932	GR *

* 24)	40074	MAYDANOZ	* 44	GR *

* 25)	40088	PATATES	* 1701	GR *

* 26)	40092	PIRASA	* 95	GR *

* 27)	40096	BAS SARIMSAK	* 6	GR *

* 28)	40102	KURU SOĞAN	* 1232	GR *

* 29)	40106	YESİL SOĞAN	* 60	GR *

* 30)	40120	CAY	* 40	GR *

* 31)	50034	İNEK SUTU	* 2193	GR *

*			*			*
*	32)	50054	YOGURT	*	599	GR *
*				*		*
*	33)	60026	RECEL	*	630	GR *
*				*		*
*	34)	60028	SEKER	*	1405	GR *
*				*		*
*	35)	70014	D.R.UN	*	509	GR *
*				*		*
*	36)	70020	BULGUR	*	598	GR *
*				*		*
*	37)	70024	EKMEK	*	9450	GR *
*				*		*
*	38)	70040	IRMIK	*	59	GR *
*				*		*
*	39)	70066	PRINC	*	609	GR *
*				*		*
*	40)	70068	SEHRIYE	*	45	GR *
*				*		*
*	41)	81002	AYCICEK YAGI	*	72	GR *
*				*		*
*	42)	81010	MARGARIN	*	711	GR *
*				*		*
*	43)	81026	ZEYTINYAGI	*	227	GR *
*				*		*
*	44)	91018	KUS UZUMU	*	19	GR *
*				*		*
*	45)	91020	KURU MAYA	*	17	GR *
*				*		*
*	46)	91024	DOMATES SALCASI	*	107	GR *
*				*		*
*	47)	91034	ZEYTIN(YESIL)	*	360	GR *
*				*		*

OUTPUT OF TUMYEM.COB

REPORT 4

* YEMEGİN KODU	* porsiyon GRAMAJI	* ENERJİ	* PRO.	* KALS.	* DEM.	* A Vit.	* THİ.	* RİB.	* NİA.	* C Vit
* (cal)	* (gr)	* (mg)	* (mg)	* (I.U)	* (mg)	* (mg)	* (mg)	* (mg)	* (T.L)	* İFİYAT

* E0002 EKMEK	150 GR.	*	412	112.0	36	3.0	0	10.06	10.07	1.9
									0.0	22
* I0001 ÇAY (SEKERLi)	100 GR.	*	52	0.0	0	0.0	0	10.00	10.00	0.0
									0.0	07
* I0005 SUT (SEKERLi)	240 GR.	*	177	7.5	274	0.2	290	10.09	10.36	0.2
									2.3	45
* K0003 SIYAH ZEYTİN	30 GR.	*	49	0.4	18	0.3	14	10.00	10.00	0.0
									0.0	30
* K0004 YUMURTA	50 GR.	*	70	5.3	24	0.9	231	10.04	10.13	0.0
									0.0	25
* K0005 RECEL	30 GR.	*	81	0.1	8	0.3	3	10.00	10.00	0.0
									0.6	12
* K0006 TEREYAG	30 GR.	*	215	0.2	7	0.0	917	10.00	10.00	0.0
									0.0	48
* K0007 YESİL ZEYTİN	30 GR.	*	34	0.3	21	0.4	72	10.00	10.00	0.0
									0.0	27
* K0008 BEYAZ PEYNİR(YAGLI)	30 GR.	*	86	6.7	48	0.1	216	10.02	10.09	0.1
									0.0	36
* K0009 KASAR PEYNİRİ	30 GR.	*	121	8.1	210	0.3	300	10.00	10.14	0.0
									0.0	60
* K0010 MARGARİN	30 GR.	*	220	0.1	1	0.0	600	10.00	10.00	0.0
									0.0	21
* M0008 ARMUT	200 GR.	*	111	1.2	14	0.5	36	10.03	10.07	0.1
									7.2	30
* M0016 ÇİLEK	150 GR.	*	53	1.0	30	1.4	86	10.04	10.10	0.8
									84.9	45
* M0018 SEFTALİ	200 GR.	*	66	1.0	15	0.8	2314	10.03	10.08	1.7
									12.1	60
* M0020 ELMA	150 GR.	*	80	0.2	9	0.4	124	10.04	10.02	0.1
									5.5	15
* M0024 ERİK(KIRMIZI)	150 GR.	*	90	0.6	24	0.6	409	10.10	10.04	0.6
									0.0	22
* M0032 GREYFRUT	200 GR.	*	40	0.4	15	0.3	78	10.03	10.01	0.1
									37.2	20
* M0038 İNCİR(TAZE)	150 GR.	*	115	1.7	51	0.8	115	10.08	10.08	0.5
									2.8	30
* M0042 KARPUZ	500 GR.	*	59	1.1	16	1.1	1357	10.06	10.06	0.4
									16.1	50
* M0044 KAVUN	500 GR.	*	108	2.6	46	1.3	924	10.13	10.09	1.9
									75.9	75
* M0046 KAYISI(TAZE)	150 GR.	*	71	1.4	22	0.7	3807	10.04	10.05	0.8
									14.1	60
* M0052 KIRAZ	150 GR.	*	94	1.7	29	0.8	148	10.06	10.08	0.5
									13.5	30
* M0058 MANDALİNA	200 GR.	*	61	1.0	53	0.5	562	10.08	10.02	0.1
									71.0	30
* M0060 MUZ	150 GR.	*	86	1.1	8	0.7	193	10.05	10.06	0.7
									10.2	90
* M0066 PORTAKAL	200 GR.	*	71	1.4	59	0.5	292	10.14	10.05	0.5
									73.0	30
* M0072 ÜZÜM	150 GR.	*	95	0.8	17	0.5	142	10.07	10.04	0.4
									5.7	30
* M0078 VİŞNE	150 GR.	*	78	1.6	29	0.5	1350	10.06	10.08	0.5
									13.5	60
* S0002 PATATES SALATASI	200 GR.	*	226	3.2	27	1.2	607	10.14	10.06	2.0
									43.6	36

* YEMEGİN KODU&ADI	porsiyon GRAMAJI	* ENERJİ: PRO.: KALS.: DEM.: A VİT.: THİ.: RİB.: NİA.: C VİT :FİYAT *
*	*	* (cal) : (gr): (mg) : (mg): (I.U) : (mg): (mg): (mg): (mg) : (T.L) *

* S0004 CACIK	230 GR. *	131 : 5.1 : 173 : 0.8 : 321 : 10.05 : 10.20 : 0.2 : 8.4 : 55 *
* S0006 KARISIK SALATA	150 GR. *	103 : 1.5 : 33 : 1.2 : 1046 : 10.05 : 10.05 : 0.5 : 31.6 : 33 *
* S0008 DOMATES SALATASI	150 GR. *	124 : 1.7 : 23 : 0.8 : 1195 : 10.08 : 10.05 : 0.9 : 37.0 : 25 *
* S0010 KIR.LAHANA SALATA	110 GR. *	113 : 2.6 : 56 : 1.1 : 52 : 10.11 : 10.07 : 0.4 : 84.7 : 41 *
* S0012 HAVLIC SALATA	130 GR. *	127 : 1.5 : 51 : 1.0 : 13723 : 10.08 : 10.06 : 0.7 : 20.5 : 46 *
* S0014 KIVIRCIK SALATA	80 GR. *	90 : 1.4 : 65 : 1.4 : 2439 : 10.05 : 10.10 : 0.3 : 18.0 : 33 *
* TH002 LOKMA	150 GR. *	502 : 4.2 : 9 : 0.6 : 0 : 10.05 : 10.11 : 1.0 : 1.0 : 24 *
* TH004 IRNİK HELVASI	175 GR. *	550 : 5.9 : 13 : 0.8 : 490 : 10.02 : 10.05 : 0.3 : 0.0 : 33 *
* TH006 TEL KADAYIF	150 GR. *	429 : 6.4 : 37 : 4.2 : 210 : 10.30 : 10.00 : 2.4 : 0.0 : 150 *
* TH008 HANIM GÖBECİ	200 GR. *	428 : 3.8 : 13 : 0.5 : 163 : 10.02 : 10.05 : 0.1 : 0.7 : 24 *
* TH010 HURMA TATLISI	130 GR. *	421 : 4.3 : 11 : 0.6 : 225 : 10.03 : 10.08 : 0.5 : 0.6 : 23 *
* TH002 KABAK TATLISI	200 GR. *	248 : 1.3 : 22 : 0.8 : 1492 : 10.05 : 10.10 : 0.5 : 14.0 : 28 *
* TH004 ELMA KOMPOSTO	220 GR. *	247 : 0.1 : 6 : 0.3 : 81 : 10.02 : 10.01 : 0.0 : 3.6 : 17 *
* TH006 AYVA KOMPOSTO	220 GR. *	234 : 0.2 : 7 : 0.5 : 27 : 10.01 : 10.01 : 0.1 : 10.3 : 17 *
* TH008 KURU ERİK KOMPOSTOSU	225 GR. *	168 : 0.4 : 11 : 0.8 : 348 : 10.01 : 10.03 : 0.3 : 0.6 : 22 *
* TH010 SUTLAC	250 GR. *	342 : 7.9 : 264 : 0.3 : 277 : 10.09 : 10.35 : 0.3 : 2.2 : 52 *
* TH012 TAHİN HELVASI	100 GR. *	516 : 10.5 : 91 : 9.0 : 0 : 10.35 : 10.05 : 1.5 : 0.0 : 60 *
* TH014 YOĞURT	250 GR. *	152 : 8.7 : 302 : 0.2 : 307 : 10.07 : 10.35 : 0.2 : 2.5 : 75 *
* TH016 KAYISI KOMPOST(TAZE)	230 GR. *	201 : 0.9 : 14 : 0.5 : 2533 : 10.02 : 10.03 : 0.5 : 9.3 : 46 *
* TH018 ERİK KOMPOSTO(TAZE)	230 GR. *	213 : 0.4 : 16 : 0.4 : 272 : 10.07 : 10.02 : 0.4 : 0.0 : 20 *
* TH020 KAYISI KOMPOST(KURU)	225 GR. *	180 : 1.2 : 16 : 1.4 : 2722 : 10.00 : 10.03 : 0.8 : 2.9 : 22 *
* TH022 KURU ÜZÜM HOSAFI	225 GR. *	187 : 0.6 : 15 : 0.9 : 4 : 10.02 : 10.01 : 0.1 : 0.2 : 20 *
* TH026 SEFTALİ KOMPOSTO	220 GR. *	186 : 0.5 : 7 : 0.4 : 1155 : 10.01 : 10.04 : 0.8 : 6.0 : 35 *
* TH028 VİSNE KOMPOSTO	230 GR. *	205 : 1.0 : 19 : 0.3 : 898 : 10.04 : 10.05 : 0.3 : 8.9 : 46 *
* YC002 T.DOMAT.PİRİNC COR.	200 GR. *	120 : 1.7 : 12 : 0.4 : 734 : 10.04 : 10.03 : 0.7 : 15.1 : 16 *
* YC004 SEBZE CORBASI	210 GR. *	94 : 1.1 : 21 : 0.5 : 1565 : 10.03 : 10.03 : 0.3 : 14.0 : 08 *
* YC006 SEHRIYE CORBA	200 GR. *	123 : 2.1 : 11 : 0.5 : 442 : 10.03 : 10.04 : 0.4 : 8.6 : 10 *
* YC008 UN CORBASI	200 GR. *	131 : 1.2 : 3 : 0.1 : 277 : 10.00 : 10.03 : 0.1 : 0.9 : 08 *

* YEMEGİN KODU&ADI	porsiyon GRAMAJI	* ENERJİ: PRO.:	KALS.:	DEM.:	A Vit.:	THI.:	RiB.:	NiA.:	C Vit	FIYAT	
*		* (cal) :	(gr):	(mg) :	(mg):	(I.U) :	(mg):	(mg):	(mg):	(T.L) *	

* YC010 DOMATES CORBA	200 GR.	* 160 :	2.7 :	52 :	0.2 :	457 :	10.03 :	10.14 :	0.3 :	2.8 :	18 *

* YC012 MERCİMEK CORBA	200 GR.	* 165 :	7.6 :	26 :	2.0 :	182 :	10.11 :	10.07 :	0.6 :	1.0 :	18 *

* YC014 YAYLA CORBA	200 GR.	* 142 :	3.1 :	44 :	0.2 :	243 :	10.02 :	10.07 :	0.1 :	0.3 :	16 *

* YC016 PATATES EZME CORBA	210 GR.	* 174 :	3.4 :	75 :	0.6 :	3683 :	10.08 :	10.11 :	1.0 :	13.6 :	25 *

* YC018 DUGUN CORBA	210 GR.	* 138 :	7.1 :	12 :	1.0 :	65 :	10.03 :	10.07 :	1.1 :	2.0 :	58 *

* YD002 YOG.PATL.BIB.KIZART	250 GR.	* 172 :	4.5 :	122 :	0.9 :	290 :	10.09 :	10.19 :	0.7 :	57.4 :	60 *

* YD004 YOGUR KARNİBAHAR KIZ	250 GR.	* 376 :	6.3 :	103 :	1.2 :	167 :	10.12 :	10.19 :	0.7 :	68.9 :	60 *

* YD006 YOG HAVUC KIZARTMA	250 GR.	* 256 :	6.8 :	175 :	1.2 :	14330 :	10.11 :	10.23 :	0.9 :	11.2 :	72 *

* YE002 CİFTLİK KOFTE	250 GR.	* 418 :	120.3 :	47 :	3.9 :	5522 :	10.19 :	10.23 :	5.6 :	26.0 :	202 *

* YE004 BAHCEVAN KEBAP	250 GR.	* 439 :	126.4 :	41 :	4.8 :	3784 :	10.20 :	10.28 :	6.9 :	17.8 :	297 *

* YE006 FIRINDA TAVUK	250 GR.	* 417 :	131.7 :	19 :	1.5 :	393 :	10.10 :	10.21 :	11.5 :	3.7 :	165 *

* YE008 TAS KEBABI	220 GR.	* 365 :	119.5 :	22 :	2.0 :	1847 :	10.24 :	10.27 :	6.4 :	18.1 :	198 *

* YE010 İZMİR KOFTE	250 GR.	* 307 :	116.5 :	36 :	3.3 :	691 :	10.16 :	10.19 :	4.7 :	33.1 :	152 *

* YE012 FIRIN KOFTE	160 GR.	* 340 :	116.8 :	70 :	2.8 :	344 :	10.15 :	10.21 :	4.3 :	19.3 :	163 *

* YE014 TERBİYALİ KOFTE	200 GR.	* 212 :	111.2 :	18 :	1.8 :	328 :	10.05 :	10.10 :	2.5 :	6.6 :	120 *

* YE016 KADIN BUDU KOFTE	200 GR.	* 471 :	118.8 :	80 :	3.1 :	461 :	10.17 :	10.26 :	4.3 :	19.5 :	178 *

* YE018 FIRINDA KOYUN	200 GR.	* 382 :	121.3 :	21 :	1.7 :	409 :	10.21 :	10.27 :	6.2 :	9.0 :	228 *

* YE020 HASLAMA TAVUK	250 GR.	* 376 :	127.6 :	29 :	2.0 :	379 :	10.17 :	10.20 :	10.7 :	27.8 :	137 *

* YE026 ROSTO(KIZART.PATATE)	160 GR.	* 380 :	119.4 :	17 :	3.2 :	155 :	10.16 :	10.20 :	5.4 :	18.0 :	209 *

* YE028 ROSTO(HASLAMA PATAT)	160 GR.	* 371 :	121.5 :	18 :	3.5 :	174 :	10.16 :	10.22 :	5.9 :	17.0 :	233 *

* YE030 SEHRIYELİ GÜVEC	250 GR.	* 568 :	128.8 :	30 :	4.3 :	343 :	10.17 :	10.24 :	6.4 :	1.7 :	285 *

* YE032 CİĞER SÖTE	200 GR.	* 199 :	122.1 :	13 :	10.1 :	25721 :	10.23 :	13.11 :	113.0 :	43.1 :	114 *

* YE034 TAVUKLU PİLAV	180 GR.	* 306 :	111.9 :	14 :	0.7 :	251 :	10.05 :	10.07 :	4.0 :	1.0 :	68 *

* YS002 KIY. TAZE FASULYE	250 GR.	* 259 :	114.6 :	101 :	3.1 :	1411 :	10.19 :	10.28 :	3.6 :	39.9 :	205 *

* YS004 ETLİ YAZ TURLUSU	250 GR.	* 272 :	113.0 :	57 :	2.0 :	914 :	10.23 :	10.24 :	4.6 :	38.9 :	152 *

* YS006 ETLİ BİBER DOLMA	220 GR.	* 238 :	111.6 :	22 :	1.5 :	632 :	10.16 :	10.21 :	3.4 :	110.2 :	125 *

* YS008 KIYMALI PATATES	250 GR.	* 304 :	113.1 :	22 :	2.5 :	230 :	10.20 :	10.18 :	4.7 :	35.2 :	125 *

* YS010 ETLİ KURU FASULYE	250 GR.	* 348 :	118.4 :	81 :	4.5 :	244 :	10.39 :	10.22 :	3.3 :	2.5 :	100 *

* YEMEGİN KODU&ADI	porsiyon GRAMAJI	* ENERJİ	PRD.	KALS.	DEM.	A Vit.	Thi.	RiB.	NiA.	C Vit	FIYAT	*
		* (cal)	(gr)	(mg)	(mg)	(I.U)	(mg)	(mg)	(mg)	(mg)	(T.L)	*

* YS012 KIYMALI YAPRAK SARMA	150 GR.	* 331	116.7	274	3.4	6609	10.17	10.27	2.9	48.2	175	*

* YS014 KIYMALI SEMİZ OTU	320 GR.	* 314	116.7	290	6.5	4693	10.23	10.43	3.2	63.1	156	*

* YS016 ETLİ NOHUT	250 GR.	* 359	118.4	84	4.7	286	10.19	10.17	2.9	2.5	112	*

* YS018 FATLİCAN MUSAKKA	250 GR.	* 287	111.2	37	2.8	744	10.13	10.19	3.3	22.7	142	*

* YS020 KABAK KALYE	350 GR.	* 260	114.2	178	2.2	1012	10.15	10.32	3.8	40.7	171	*

* YS022 FATLİCAN KEBAP	250 GR.	* 488	123.1	38	2.8	406	10.28	10.34	7.1	15.7	270	*

* YS024 KIYMALI-PIRASA	250 GR.	* 247	112.5	77	2.9	265	10.18	10.18	2.9	24.3	135	*

* YS026 MENEMEN	200 GR.	* 333	114.5	75	2.7	1439	10.14	10.37	0.5	38.0	82	*

* YS028 KARNİYARIK	220 GR.	* 279	110.7	28	2.5	140	10.11	10.16	3.0	15.7	140	*

* YS030 KIYMALI KAPUSKA	230 GR.	* 204	111.0	89	2.0	411	10.12	10.18	2.5	79.4	121	*

* YS032 KIYMALI KARNİBAHAR	250 GR.	* 217	113.9	56	3.5	313	10.24	10.28	3.4	149.3	152	*

* YS034 KIYMALI İSPANAK	320 GR.	* 290	117.7	278	6.4	13025	10.22	10.53	3.1	83.2	160	*

* YS036 YUMURTALI İSPANAK	180 GR.	* 161	9.1	146	4.9	10818	10.16	10.37	0.8	67.0	54	*

* YS040 ETLİ KIS TURLUSU	250 GR.	* 298	112.2	75	2.4	2029	10.17	10.22	3.1	28.9	127	*

* YS042 KIYMALI REZELYE	250 GR.	* 244	114.6	33	3.1	778	10.35	10.22	4.7	26.8	122	*

* YS046 KABAK DOLMA	300 GR.	* 214	112.8	58	2.4	938	10.13	10.20	4.3	41.2	168	*

* YS048 KIYMALI MERCİMEK	250 GR.	* 349	120.5	49	4.7	291	10.22	10.20	2.9	2.5	117	*

* YU002 FIRIN MAKARNA	250 GR.	* 477	117.7	275	1.1	550	10.07	10.24	1.1	0.4	87	*

* YU004 DOMATES SOSLU MAKAR.	240 GR.	* 307	7.8	17	0.8	271	10.05	10.06	1.0	0.8	19	*

* YU006 İÇ PILAV	180 GR.	* 633	114.5	41	4.0	8048	10.15	10.95	5.6	27.8	102	*

* YU008 PEYNİRLİ TEPSİ BÖREK	200 GR.	* 260	9.1	93	0.6	482	10.04	10.17	0.3	3.9	62	*

* YU010 PİRİNÇ PILAV	175 GR.	* 326	4.0	14	0.4	297	10.04	10.01	0.9	0.0	31	*

* YU012 SERPME BÖREK	250 GR.	* 491	9.9	23	1.3	864	10.04	10.09	1.6	5.1	87	*

* YU014 PEYNİRLİ MAKARNA	200 GR.	* 355	111.6	121	0.9	350	10.05	10.10	1.0	0.0	50	*

* YU016 BULGUR PILAVI	175 GR.	* 263	5.6	26	2.5	442	10.16	10.06	2.2	7.6	14	*

* YU018 TALAS BÖREĞİ	175 GR.	* 692	111.2	27	1.0	1197	10.08	10.11	2.1	6.1	110	*

* YU020 ŞEHİRİYELİ PILAV	175 GR.	* 340	4.8	16	0.6	319	10.05	10.02	1.0	0.0	31	*

* YZ002 Z.YAĞLI BARBUNYA	230 GR.	* 766	134.2	234	10.2	4361	11.26	10.35	4.0	44.9	115	*

* YEMEGİN KODU&ADI	porsiyon GRAMAJI	*	ENERJİ:	PRO.:	KALS.:	DEM.:	A Vit.:	THİ.:	RİB.:	NİA.:	C Vit	FİYAT *
*		*	(cal)	(gr)	(mg)	(mg)	(I.U)	(mg)	(mg)	(mg)	(mg)	(T.L) *

* YZ004 İNAN BAYILDI	150 GR.	*	192	7.6	24	1.8	383	10.09	10.12	2.1	17.3	97 *
-----*												
* YZ006 Z.YAGLI TAZE FASULYE	200 GR.	*	153	3.4	93	1.5	1202	10.14	10.19	1.0	37.8	84 *
-----*												
* YZ008 Z.YAGLI PIRASA	200 GR.	*	201	3.5	79	1.7	3484	10.15	10.09	0.8	28.7	44 *
-----*												
* YZ010 Z.YAGLI BIBER DOLMA	150 GR.	*	233	3.7	29	1.2	637	10.10	10.09	1.0	120.6	45 *
-----*												
* YZ012 KABAK BAYILDI	150 GR.	*	136	2.5	60	1.0	1136	10.10	10.11	1.9	48.8	55 *
-----*												
* YZ016 ZEYTİNYAGLI BAKLA	300 GR.	*	268	11.9	193	1.8	446	10.50	10.42	2.7	48.1	48 *
-----*												

OUTPUT OF THE LP MODEL

REPORT 5

OUTPUT OBTAINED FROM THE L.P. MODEL

* 4 KiSiLiK AiLE iCin LP iLE HAZIRLANAN AYLIK GIDA MADDELERi Listesi *				

* KODU : BESin MADDESinin ADI : FIYAT(TL/kg): MIKTAR (kg): TUTAR (TL) *				

* 50012	: COKELEX(TAZE)	:	500.00	: 0.300 : 150.00 *
-----*				
* 70020	: BULGUR	:	170.00	: 6.000 : 1020.00 *
-----*				
* 30066	: PORTAKAL	:	140.00	: 2.000 : 280.00 *
-----*				
* 30054	: LIMON	:	300.00	: 0.500 : 150.00 *
-----*				
* 40052	: KEREVIZ	:	50.00	: 1.000 : 50.00 *
-----*				
* 70064	: UN	:	140.00	: 3.500 : 490.00 *
-----*				
* 30074	: UZUM(KURU)	:	700.00	: 0.200 : 140.00 *
-----*				
* 14024	: SIGIR ETI(ORTA YAGLI	:	1000.00	: 1.000 : 1000.00 *
-----*				
* 16008	: TAVUK	:	700.00	: 1.500 : 1050.00 *
-----*				
* 40092	: PIRASA	:	50.00	: 3.000 : 150.00 *
-----*				
* 30032	: GREYFURT	:	80.00	: 2.000 : 160.00 *
-----*				
* 20028	: MERCIMEK	:	600.00	: 0.750 : 450.00 *
-----*				
* 40058	: ISPANAK	:	70.00	: 4.141 : 289.93 *
-----*				
* 30020	: ELMA	:	80.00	: 1.500 : 120.00 *
-----*				
* 17014	: KARACIGER(DANA)	:	900.00	: 0.835 : 751.86 *
-----*				
* 40003	: BAL KABAGI	:	130.00	: 1.500 : 195.00 *
-----*				
* 40038	: HAVUC	:	60.00	: 0.500 : 30.00 *
-----*				
* 40074	: MAYDANOZ	:	200.00	: 0.250 : 50.00 *
-----*				
* 40088	: PATATES	:	60.00	: 4.000 : 240.00 *
-----*				
* 40096	: BAS SARIMSAK	:	1000.00	: 0.015 : 15.00 *
-----*				
* 40102	: KURU SOGAN	:	30.00	: 3.000 : 90.00 *
-----*				
* 40120	: CAY	:	1800.00	: 0.200 : 360.00 *
-----*				
* 18014	: YUMURTA	:	560.00	: 2.500 : 1400.00 *
-----*				
* 70010	: BUGDAY	:	120.00	: 0.500 : 60.00 *
-----*				
* 50034	: INEK SUTU	:	220.00	: 10.000 : 2200.00 *
-----*				
* 50008	: BEYAZ PEYNIR(YAGSIZ)	:	1000.00	: 0.900 : 900.00 *
-----*				
* 60026	: RECEL	:	400.00	: 0.250 : 100.00 *
-----*				

```

*****
* KODU | BESİN MADDESİNİN ADI | FİYAT(TL/Kg) | MİKTAR (kg) | TUTAR (TL) *
*****
* 60028 | SEKER | 220.00 | 2.500 | 550.00 *
*-----*
* 91028 | TAHİN | 500.00 | 0.500 | 250.00 *
*-----*
* 70024 | EKMEK | 150.00 | 40.000 | 6000.00 *
*-----*
* 40060 | LAHANA | 60.00 | 0.000 | 0.00 *
*-----*
* 70048 | MAKARNA | 200.00 | 1.000 | 200.00 *
*-----*
* 70054 | NISASTA | 200.00 | 0.075 | 15.00 *
*-----*
* 20030 | NOHUT | 400.00 | 1.500 | 600.00 *
*-----*
* 70066 | PRINC | 300.00 | 1.000 | 300.00 *
*-----*
* 60024 | PEKMEZ(UZUM) | 440.00 | 0.750 | 330.00 *
*-----*
* 70068 | SEHRIYE | 200.00 | 1.000 | 200.00 *
*-----*
* 81002 | AYCICEK YAGI | 560.00 | 1.000 | 560.00 *
*-----*
* 81010 | MARGARIN | 680.00 | 3.000 | 2040.00 *
*-----*
* 91020 | KURU MAYA | 1000.00 | 0.160 | 160.00 *
*-----*
* 91024 | DOMATES SALCASI | 500.00 | 0.300 | 150.00 *
*-----*
* 20026 | KURU FASULYE | 500.00 | 0.750 | 375.00 *
*-----*
* 50054 | YOGURT | 250.00 | 8.000 | 2000.00 *
*-----*
* 70040 | IRMİK | 200.00 | 0.936 | 187.33 *
*-----*
*****
* TOPLAM FİYAT : 25809.13 TL
*****
* BESİN OGELERİ BİLANÇOSU * GEREKEN MİK. * FARK *
*****
* ENERJİ MİKTARI : 249459.34 Kcal. * 249100.00 Kcal. * 359.34 Kcal. *
*-----*
* PROTEİN MİKTARI : 8041.38 gr. * 5292.00 gr. * 2749.38 gr. *
*-----*
* KALSİYUM MİKTARI: 56078.37 mgr. * 56000.00 mgr. * 78.37 mgr. *
*-----*
* DEMİR MİKTARI : 1453.12 mgr. * 1428.00 mgr. * 25.12 mgr. *
*-----*
* A VİTAMİNİ MİK. : 668471.53 IU. * 413480.00 IU. * 254991.53 IU. *
*-----*
* THİAMİN MİKTARI : 116.83 mgr. * 103.00 mgr. * 13.83 mgr. *
*-----*
* RİBOFLAVİN MİK. : 137.56 mgr. * 137.00 mgr. * 0.56 mgr. *
*-----*
* C VİTAMİNİ MİK. : 5531.25 mgr. * 4760.00 mgr. * 771.25 mgr. *
*****

```

APPENDIX C

PROGRAM LISTS

1. BESCIR.COB
2. BESDUZ.COB
3. YEMGIR.COB
4. YEMDUZ.COB
5. YBEDH.COB
6. YEMIZ.COB
7. GUNIZ.COB
8. HAFTAIZ.COB
9. TUMYEM.COB
10. FIY.COB
11. OR.COB
12. DEG.COB
13. SON.COB
14. IS.COB
15. DAT.COB

PROGRAM LIST OF BESGIR.COB

IDENTIFICATION DIVISION.
 PROGRAM-ID. BESIN-DEGERI-GIRISI.
 AUTHOR. HAKAN GURDAL.
 ENVIRONMENT DIVISION.
 INPUT-OUTPUT SECTION.
 FILE-CONTROL.

SELECT BESDEG-KUTUGU ASSIGN TO 'MLZK.DAT'
 ORGANIZATION INDEXED
 ACCESS DYNAMIC
 RECORD KEY MLZKOD.

DATA DIVISION.

FILE SECTION.

FD BESDEG-KUTUGU.

01 BESDEG-YAZILIM.

03 MLZKOD PIC X(5).

03 MLZAD PIC X(20).

03 BESIN.

05 KALORI PIC 9V9(2).

05 HPROTEIN PIC V9(3).

05 BPROTEIN PIC V9(3).

05 YAG PIC V9(3).

05 KALSIYUM PIC 99V9(2).

05 DEMIR PIC V9(3).

05 AVIT PIC 9(3)V99.

05 TIAMIN PIC V9(4).

05 RIBOF PIC V9(4).

05 NIAS PIC V9(3).

05 CVIT PIC 9V9(3).

05 ARTIK PIC V99.

03 FIYAT PIC 99V9(3).

WORKING-STORAGE SECTION.

01 I PIC 99 VALUE 0.

01 KALORI1 PIC 999 VALUE 0.

01 HPROTEIN1 PIC 99V9 VALUE 0.

01 BPROTEIN1 PIC 99V9 VALUE 0.

01 YAG1 PIC 99V9 VALUE 0.

01 KALSIYUM1 PIC 9999 VALUE 0.

01 DEMIR1 PIC 99V9 VALUE 0.

01 AVIT1 PIC 99999 VALUE 0.

01 TIAMIN1 PIC 9V99 VALUE 0.

01 RIBOF1 PIC 9V99 VALUE 0.

01 NIAS1 PIC 99V9 VALUE 0.

01 CVIT1 PIC 999 VALUE 0.

01 FIYAT1 PIC 9999 VALUE 0.

01 ARTIK1 PIC V99.

PROCEDURE DIVISION.

KUTUKAC.

OPEN I-O BESDEG-KUTUGU.

CALL "SCR\$ERASE_PAGE" USING BY VALUE 1,1.

SORU.

DISPLAY "I1;1HGIDA MADDESININ KODU : -----".

DISPLAY "I2;1H(I1M(RETURN)e basarak programdan CIXILIR!M".

DISPLAY "I1;24H" NO.

ACCEPT MLZKOD.

DISPLAY "I23;1H

IF MLZKOD = SPACES GO BITTI.

READ BESDEG-KUTUGU INVALID GO TAMAM.

DISPLAY "I23;1H(I7M" MLZAD

"I23;13H'in DEGERLERI MEVCUTTUR!".

GO SORU.

TAMAM.

```

DISPLAY "C2;1HBESİN MADDESİNİN ADI : -----",
DISPLAY "C3;1HİCERDİĞİ KALORİ MİKTARI [9999] : ---",
DISPLAY "C4;1HHAYVANSAL PROTEİN MİKTARI [99099] : --- gr",
DISPLAY "C5;1HBİTKİSEL PROTEİN MİKTARI [99099] : --- gr",
DISPLAY "C6;1HYAG MİKTARI [99099] : --- gr",
DISPLAY "C7;1HKALSİYUM MİKTARI [99999] : ---- mg",
DISPLAY "C8;1HDEMİR MİKTARI [99099] : --- mg",
DISPLAY "C9;1HA VİTAMİNİ MİKTARI (I,U) [999999] : ----- I.U.",
DISPLAY "C10;1HTHİAMİN MİKTARI [90999] : --- mg",
DISPLAY "C11;1HRİBOFLAVİN MİKTARI [90999] : --- mg",
DISPLAY "C12;1HNIACİN MİKTARI [99099] : --- mg",
DISPLAY "C13;1HC VİTAMİNİ MİKTARI [999099] : ---- mg",
DISPLAY "C14;1HARTIK MADDE ORANI [0999] : -- ",
DISPLAY "C15;1HFİYATİ (TL) [99999] : ---- T.L.",
DISPLAY "C18;1H100 GR.LİK"
DISPLAY "C18;28H" NO.
DISPLAY MLZKOD.
DISPLAY "C18;40H" IN BESİN DEĞERLERİ GİRİLMELİDİR".
DISPLAY "C2;24H" NO.
ACCEPT MLZAD.

```

- K1.
 DISPLAY "C3;37H" NO.
 ACCEPT KALORI1.
 IF KALORI1 NOT NUMERIC GO K1.
- K2.
 DISPLAY "C4;37H" NO.
 ACCEPT HPROTEIN1.
 IF HPROTEIN1 NOT NUMERIC GO K2.
- K3.
 DISPLAY "C5;37H" NO.
 ACCEPT BPROTEIN1.
 IF BPROTEIN1 NOT NUMERIC GO K3.
- K4.
 DISPLAY "C6;37H" NO.
 ACCEPT YAG1.
 IF YAG1 NOT NUMERIC GO K4.
- K5.
 DISPLAY "C7;37H" NO.
 ACCEPT KALSİYUM1.
 IF KALSİYUM1 NOT NUMERIC GO K5.
- K6.
 DISPLAY "C8;37H" NO.
 ACCEPT DEMİR1.
 IF DEMİR1 NOT NUMERIC GO K6.
- K7.
 DISPLAY "C9;37H" NO.
 ACCEPT AVİT1.
 IF AVİT1 NOT NUMERIC GO K7.
- K8.
 DISPLAY "C10;37H" NO.
 ACCEPT TİAMİN1.
 IF TİAMİN1 NOT NUMERIC GO K8.
- K9.
 DISPLAY "C11;37H" NO.
 ACCEPT RİBOF1.
 IF RİBOF1 NOT NUMERIC GO K9.
- K10.
 DISPLAY "C12;37H" NO.
 ACCEPT NİAS1.
 IF NİAS1 NOT NUMERIC GO K10.
- K11.

```
      DISPLAY "L13;37H" NO.
      ACCEPT CVIT1.
      IF CVIT1 NOT NUMERIC GO K11.
K12.  DISPLAY "L14;37H" NO.
      ACCEPT ARTIK.
      IF ARTIK NOT NUMERIC GO K12.
K13.  DISPLAY "L15;37H" NO.
      ACCEPT FIYAT1.
      IF FIYAT1 NOT NUMERIC GO K13.
      COMPUTE FIYAT = FIYAT1 / 100.
      COMPUTE CVIT = CVIT1 / 100.
      COMPUTE NIAS = NIAS1 / 100.
      COMPUTE RIBOF = RIBOF1 / 100.
      COMPUTE TIAMIN = TIAMIN1 / 100.
      COMPUTE AVIT = AVIT1 / 100.
      COMPUTE DEMIR = DEMIR1 / 100.
      COMPUTE KALSIYUM = KALSIYUM1 / 100.
      COMPUTE YAG = YAG1 / 100.
      COMPUTE BPROTEIN = BPROTEIN1 / 100.
      COMPUTE HPROTEIN = HPROTEIN1 / 100.
      COMPUTE KALORI = KALORI1 / 100.
      WRITE BESDEG-YAZILIM INVALID DISPLAY "YAZMA HATASI" GO BITTI.
      CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.
      GO SORU.
BITTI.
      CLOSE BESDEG-KUTUGU.
      STOP RUN.
```

PROGRAM LIST OF BESDUZ.COB

IDENTIFICATION DIVISION,
 PROGRAM-ID. BESIN-DEGERI-GIRISI,
 AUTHOR. HAKAN GURDAL,
 ENVIRONMENT DIVISION,
 INPUT-OUTPUT SECTION,
 FILE-CONTROL.

SELECT BESDEG-KUTUGU ASSIGN TO 'MLZK.DAT'
 ORGANIZATION INDEXED
 ACCESS DYNAMIC
 RECORD KEY MLZKOD.

DATA DIVISION.

FILE SECTION.

FD BESDEG-KUTUGU.

01 BESDEG-YAZILIM.

03 MLZKOD PIC X(5).

03 MLZADI PIC X(20).

03 BESIN.

05 KALORI PIC 9V9(2).

05 HPROTEIN PIC V9(3).

05 BPROTEIN PIC V9(3).

05 YAG PIC V9(3).

05 KALSIYUM PIC 99V9(2).

05 DEMIR PIC V9(3).

05 AVIT PIC 9(3)V99.

05 TIAMIN PIC V9(4).

05 RIBOF PIC V9(4).

05 NIAS PIC V9(3).

05 CVIT PIC 9V9(3).

05 ARTIK PIC V99.

03 FIYAT PIC 99V9(3).

WORKING-STORAGE SECTION.

01 ARTIK PIC 999V99.

01 I PIC 99 VALUE 0.

01 KALORI1 PIC 999 VALUE 0.

01 HPROTEIN1 PIC 99V9 VALUE 0.

01 BPROTEIN1 PIC 99V9 VALUE 0.

01 YAG1 PIC 99V9 VALUE 0.

01 KALSIYUM1 PIC 9999 VALUE 0.

01 DEMIR1 PIC 99V9 VALUE 0.

01 AVIT1 PIC 99999 VALUE 0.

01 TIAMIN1 PIC 9V99 VALUE 0.

01 RIBOF1 PIC 9V99 VALUE 0.

01 NIAS1 PIC 99V9 VALUE 0.

01 CVIT1 PIC 999 VALUE 0.

01 FIYAT1 PIC 9999 VALUE 0.

01 KALORI2 PIC 999 VALUE 0.

01 HPROTEIN2 PIC 99V9 VALUE 0.

01 BPROTEIN2 PIC 99V9 VALUE 0.

01 YAG2 PIC 99V9 VALUE 0.

01 KALSIYUM2 PIC 9999 VALUE 0.

01 DEMIR2 PIC 99V9 VALUE 0.

01 AVIT2 PIC 99999 VALUE 0.

01 TIAMIN2 PIC 9V99 VALUE 0.

01 RIBOF2 PIC 9V99 VALUE 0.

01 NIAS2 PIC 99V9 VALUE 0.

01 CVIT2 PIC 999 VALUE 0.

01 FIYAT2 PIC 9999 VALUE 0.

01 HPROTEIN21 PIC 99.9.

01 BPROTEIN21 PIC 99.9.

01 YAG21 PIC 99.9.

01 DEMIR21 PIC 99.9.

```

01      TIAMIN21      PIC 9.99,
01      RIBOF21      PIC 9.99,
01      NIAS21      PIC 99.9,
01      CVIT21      PIC 999,
01      ARTIK21      PIC .99,
01      DOGAN      PIC 99.

```

PROCEDURE DIVISION.
KUTUKAC.

```

OPEN I-O BESDEG-KUTUGU.
MOVE 100 TO ARTIKQ.
CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.

```

SORU.

```

DISPLAY "[1;1H]GIDA MADDESİNİN KODU : -----",
display "[2;1h[1m<RETURN>e basarak programdan ÇIKILIR![m",
DISPLAY "[1;24H" NO.
ACCEPT MLZKOD.
DISPLAY "[23;1H]OK"
IF MLZKOD = SPACES GO BITTI.
READ BESDEG-KUTUGU INVALID
DISPLAY "[23;1H]7m" MLZKOD
"[m[23;13H'in DEGERLERİ MEVCUT DEĞİLDİR!"
GO SORU.

```

TAMAM.

```

MULTIPLY KALORI BY ARTIKQ GIVING KALORI2.
MULTIPLY HPROTEIN BY ARTIKQ GIVING HPROTEIN2.
MULTIPLY BPROTEIN BY ARTIKQ GIVING BPROTEIN2.
MULTIPLY YAG BY ARTIKQ GIVING YAG2.
MULTIPLY KALSIYUM BY ARTIKQ GIVING KALSIYUM2.
MULTIPLY DEMIR BY ARTIKQ GIVING DEMIR2.
MULTIPLY AVIT BY ARTIKQ GIVING AVIT2.
MULTIPLY TIAMIN BY ARTIKQ GIVING TIAMIN2.
MULTIPLY RIBOF BY ARTIKQ GIVING RIBOF2.
MULTIPLY NIAS BY ARTIKQ GIVING NIAS2.
MULTIPLY CVIT BY ARTIKQ GIVING CVIT2.
MULTIPLY FIYAT BY 100 GIVING FIYAT2.
MOVE CVIT2 TO CVIT21.
MOVE NIAS2 TO NIAS21.
MOVE RIBOF2 TO RIBOF21.
MOVE TIAMIN2 TO TIAMIN21.
MOVE DEMIR2 TO DEMIR21.
MOVE YAG2 TO YAG21.
MOVE ARTIK TO ARTIK21.
MOVE BPROTEIN2 TO BPROTEIN21.
MOVE HPROTEIN2 TO HPROTEIN21.

```

GOSTER.

```

CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.
DISPLAY "[1;1H#6" MLZKOD .
DISPLAY "[2;1H1.BESİN MADDESİNİN ADI      :      ".
DISPLAY "[3;1H2.İCERDİĞİ ENERJİ MİKTARI :      KALORI".
DISPLAY "[4;1H3.HAYVANSAL PROTEİN MİKTARI:      GR ".
DISPLAY "[5;1H4.BİTKİSEL PROTEİN MİKTARI :      GR".
DISPLAY "[6;1H5.YAG MİKTARI                :      GR".
DISPLAY "[7;1H6.KALSIYUM MİKTARI           :      mg".
DISPLAY "[8;1H7.DEMİR MİKTARI              :      mg".
DISPLAY "[9;1H8.A VİTAMİNİ MİKTARI (I.U) :      I.U.".
DISPLAY "[10;1H9.THİAMİN MİKTARI           :      mg".
DISPLAY "[11;1H10.RİBOFLAVİN MİKTARI       :      mg".
DISPLAY "[12;1H11.NİACİN MİKTARI          :      mg".
DISPLAY "[13;1H12.C VİTAMİNİ MİKTARI      :      mg".
DISPLAY "[14;1H13.ARTİK MİKTARI            :      ".
DISPLAY "[15;1H14.FİYATI (TL)             :      T.L.".

```

```
DISPLAY "I2;29H" MLZADI,  
DISPLAY "I3;29H" KALORI2,  
DISPLAY "I4;29H" HPROTEIN21,  
DISPLAY "I5;29H" BPROTEIN21,  
DISPLAY "I6;29H" YAG21,  
DISPLAY "I7;29H" KALSIYUM2,  
DISPLAY "I9;29H" AVIT2,  
DISPLAY "I8;29H" DEMIR21,  
DISPLAY "I10;29H" TIAMIN21,  
DISPLAY "I11;29H" RIBOF21,  
DISPLAY "I12;29H" NIAS21,  
DISPLAY "I13;29H" CVIT21,  
DISPLAY "I14;29H" ARTIK21,  
DISPLAY "I15;29H" FIYAT2.
```

```
SSS,  
DISPLAY "I21;1H DUZELTMEK ISTEDIGINIZ ALANIN NO.SUNU",  
DISPLAY "I22;1H GIRINIZ (I1m(DEVAM iCin 00 GIRINIZ)Im: -- ",  
DISPLAY "I22;35H" NO.  
ACCEPT DOGAN.  
DISPLAY "I20;1HLOK".  
IF DOGAN = 0 GO YAZ.  
if dogan not numeric go sss.
```

```
DUZELT,  
IF DOGAN = 1  
DISPLAY "I2;50H-----"  
DISPLAY "I2;50H" NO  
ACCEPT MLZADI  
GO GOSTER.
```

```
Q1,  
IF DOGAN = 2  
DISPLAY "I3;43H [999] ----"  
DISPLAY "I3;50H" NO  
ACCEPT KALORI1  
IF KALORI1 NOT NUMERIC GO Q1 ELSE  
MOVE KALORI1 TO KALORI2  
GO GOSTER.
```

```
Q2,  
IF DOGAN = 3  
DISPLAY "I4;43H[99V9] ----"  
DISPLAY "I4;50H" NO  
ACCEPT HPROTEIN1  
IF HPROTEIN1 NOT NUMERIC GO Q2 ELSE  
MOVE HPROTEIN1 TO HPROTEIN21 HPROTEIN2  
GO GOSTER.
```

```
Q3,  
IF DOGAN = 4  
DISPLAY "I5;43H[99V9] ----"  
DISPLAY "I5;50H" NO  
ACCEPT BPROTEIN1  
IF BPROTEIN1 NOT NUMERIC GO Q3 ELSE  
MOVE BPROTEIN1 TO BPROTEIN21 BPROTEIN2  
GO GOSTER.
```

```
Q4,  
IF DOGAN = 5  
DISPLAY "I6;43H[99V9] ----"  
DISPLAY "I6;50H" NO  
ACCEPT YAG1  
IF YAG1 NOT NUMERIC GO Q4 ELSE  
MOVE YAG1 TO YAG21 YAG2  
GO GOSTER.
```

```
Q5,
```

```
IF DOGAN = 6
DISPLAY "[7;43H[9999] ----"
DISPLAY "[7;50H" NO
ACCEPT KALSIYUM1
IF KALSIYUM1 NOT NUMERIC GO Q5 ELSE
MOVE KALSIYUM1 TO KALSIYUM2
GO GOSTER.
```

Q6.

```
IF DOGAN = 8
DISPLAY "[9;43H[99999] ----"
DISPLAY "[9;51H" NO
ACCEPT AVIT1
IF AVIT1 NOT NUMERIC GO Q6 ELSE
MOVE AVIT1 TO AVIT2
GO GOSTER.
```

Q7.

```
IF DOGAN = 7
DISPLAY "[8;43H[9999] ----"
DISPLAY "[8;50H" NO
ACCEPT DEMIR1
IF DEMIR1 NOT NUMERIC GO Q7 ELSE
MOVE DEMIR1 TO DEMIR21 DEMIR2
GO GOSTER.
```

Q8.

```
IF DOGAN = 9
DISPLAY "[10;43H[9999] ----"
DISPLAY "[10;50H" NO
ACCEPT TIAMIN1
IF TIAMIN1 NOT NUMERIC GO Q8 ELSE
MOVE TIAMIN1 TO TIAMIN2 TIAMIN21
GO GOSTER.
```

Q9.

```
IF DOGAN = 10
DISPLAY "[11;43H[9999] ----"
DISPLAY "[11;50H" NO
ACCEPT RIBOF1
IF RIBOF1 NOT NUMERIC GO Q9 ELSE
MOVE RIBOF1 TO RIBOF2 RIBOF21
GO GOSTER.
```

Q10.

```
IF DOGAN = 11
DISPLAY "[12;43H[9999] ----"
DISPLAY "[12;50H" NO
ACCEPT NIAS1
IF NIAS1 NOT NUMERIC GO Q10 ELSE
MOVE NIAS1 TO NIAS2 NIAS21
GO GOSTER.
```

Q11.

```
IF DOGAN = 12
DISPLAY "[13;43H [999] ----"
DISPLAY "[13;50H" NO
ACCEPT CVIT1
IF CVIT1 NOT NUMERIC GO Q11 ELSE
MOVE CVIT1 TO CVIT2 CVIT21
GO GOSTER.
```

Q12.

```
IF DOGAN = 13
DISPLAY "[14;43H [999] --"
DISPLAY "[14;50H" NO
ACCEPT ARTIK
IF ARTIK NOT NUMERIC GO Q12 ELSE
```

MOVE ARTIK TO ARTIK21
GO GOSTER.

Q13.
IF DOGAN = 14
DISPLAY "[15;43H[9999] ----"
DISPLAY "[15;50H" NO
ACCEPT FIYAT1
IF FIYAT1 NOT NUMERIC GO Q13 ELSE
MOVE FIYAT1 TO FIYAT2
GO GOSTER.
DISPLAY "[20;1H[7mYANLIS NUMARA GİRMEYİNİZ!m",
GO GOSTER.

YAZ.
COMPUTE FIYAT = FIYAT2 / 100.
COMPUTE CVIT = CVIT2 / 100.
COMPUTE NIAS = NIAS2 / 100.
COMPUTE RIBOF = RIBOF2 / 100.
COMPUTE TIAMIN = TIAMIN2 / 100.
COMPUTE AVIT = AVIT2 / 100.
COMPUTE DEMIR = DEMIR2 / 100.
COMPUTE KALSIYUM = KALSIYUM2 / 100.
COMPUTE YAG = YAG2 / 100.
COMPUTE BPROTEIN = BPROTEIN2 / 100.
COMPUTE HPROTEIN = HPROTEIN2 / 100.
COMPUTE KALORI = KALORI2 / 100.
REWRITE BESDEG-YAZILIM INVALID DISPLAY "YAZMA HATASI" GO BITTI.
CALL "SCR\$ERASE_PAGE" USING BY VALUE 1,1.
GO SORU.

BITTI.
CLOSE BESDEG-KUTUGU.
STOP RUN.

PROGRAM LIST OF YEMGIR.COB

IDENTIFICATION DIVISION,
PROGRAM-ID, YEMEK-BESIN-DEGERI-HESABI,
AUTHOR, HAXAN GURDAL,
ENVIRONMENT DIVISION,
CONFIGURATION SECTION,
SPECIAL-NAMES,

SYMBOLIC CHARACTERS ESCAPER PARM1 PARM2 PARM3
28 92 60 103,

INPUT-OUTPUT SECTION,
FILE-CONTROL,

SELECT YEMEK-KUTUGU ASSIGN TO INFILE
ORGANIZATION INDEXED
ACCESS DYNAMIC
RECORD KEY KOD,

DATA DIVISION,

FILE SECTION,

FD YEMEK-KUTUGU

VALUE OF ID DNAME,

01 YEMEK-YAZILIM,

03 KOD PIC X(5),
03 YEMEKADI PIC X(20),
03 MALZEME-SAYISI PIC 99,
03 FORSIYON PIC 999,
03 TOTAL-BESIN,

05 TKALORI PIC 99V9999,
05 THPROTEIN PIC 9V9999,
05 TBPROTEIN PIC 9V9999,
05 TYAG PIC 9V9999,
05 TKALSIYUM PIC 999V9999,
05 TDEMIR PIC 9V9(5),
05 TAVIT PIC 999V999,
05 TTIAMIN PIC V9(5),
05 TRIBOF PIC V9(5),
05 TNIAS PIC 9V9(4),
05 TCVIT PIC 99V9999,

03 TOTAL-FIYAT PIC 9(3)V99,

03 MLZ OCCURS 15 TIMES,

05 MLZKOD1 PIC X(5),
05 MLZMIK PIC 9V999,

WORKING-STORAGE SECTION,

01 DNAME PIC X(10),
01 FB PIC X,

01 MIKTAR PIC 999,

01 POS,

02 FILLER PIC X VALUE ESCAPER,
02 FILLER PIC X VALUE PARM1,
02 LI PIC 99 VALUE 00,
02 FILLER PIC X VALUE PARM2,
02 CL PIC 99 VALUE 00,
02 FILLER PIC X VALUE PARM3,

01 ICON PIC 99,

01 DUMMY PIC X(5),

01 I PIC 99,

01 MLZMIKX PIC 999,

PROCEDURE DIVISION,

KUTUKAC,

DISPLAY "I2J",

DISPLAY "I2;1HCL7mYEMEK DOSYASININ ADI :[m -----",

DISPLAY "I4;10HCL7;1mSECENEKLER :[m",

display "I5;10HSTANDARD YEMEKLER ICIN:YEM.DAT",

DISPLAY "I6;10HTUREMIS YEMEKLER ICIN:YEM2.DAT",

```
DISPLAY "I2;24H" NO.  
ACCEPT DNAME.  
IF DNAME = SPACES STOP RUN.  
DISPLAY "I2J".  
OPEN I-O YEMEK-KUTUGU.
```

OKU.

```
DISPLAY "I1;1HYEMEGİN KODU : -----".  
DISPLAY  
"I2;1HI1m(RETURN)e basarak programdan ÇIKILIR!Im".  
DISPLAY "I1;16H" NO.  
ACCEPT DUMMY.  
IF DUMMY = SPACES GO 444.  
DISPLAY "I22;1HI2K".  
DISPLAY "I23;1HI2K".  
MOVE DUMMY TO KOD.  
READ YEMEK-KUTUGU INVALID GO 70.  
DISPLAY "I22;10H" YEMEKADI "I22;35H MEVCUT!".  
DISPLAY "I23;1HMEVCUT Bilgiyi Silmek için [E] BASINIZ:-".  
DISPLAY "I23;40H" NO.  
ACCEPT FB.  
IF FB NOT = "E" GO OKU.  
CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.  
DISPLAY "I3;1H" KOD "I3;6H'I SILECEĞİNİZE EMİN MİSİNİZ?(E/H):-".  
DISPLAY "I3;41H" NO.  
ACCEPT FB.  
IF FB = "E" PERFORM SIL.  
DISPLAY "I3;1HI2K".  
GO OKU.
```

70.

```
DISPLAY "I2;1HYEMEGİN İSMİ : -----".  
DISPLAY "I2;16H" NO.  
ACCEPT YEMEKADI.
```

71.

```
DISPLAY "I3;1HGİRDİĞİNİZ PORSYONUN GRAMAJI : ---".  
DISPLAY "I3;32H" NO.  
ACCEPT MIKTAR.  
IF MIKTAR = 0 GO 71.  
IF MIKTAR NOT NUMERIC GO 71.  
MOVE MIKTAR TO FORSIYON.
```

72.

```
DISPLAY "I4;1HYEMEKTEKİ MALZEME ADEDİ : --".  
DISPLAY "I4;27H" NO.  
ACCEPT MALZEME-SAYISI.  
IF MALZEME-SAYISI NOT NUMERIC GO 72.  
DISPLAY "I4;27H" NO.  
DISPLAY MALZEME-SAYISI.  
IF MALZEME-SAYISI = 0 DISPLAY "I23;10HLUTFEN 0 GİRMEYİNİZ" GO 72.  
DISPLAY "I23;10X".  
PERFORM 66 THRU 68.  
MOVE 0 TO TOTAL-FİYAT.  
WRITE YEMEK-YAZILIM INVALID DISPLAY "YAZMA HATASI" GO 444.  
MOVE 1 TO I.
```

333.

```
ADD 1 TO I.  
MOVE 0 TO MLZMIK(I).MOVE SPACES TO MLZKOD1(I).  
IF I NOT = 15 GO 333.  
CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.  
GO OKU.
```

444.

```
CLOSE YEMEK-KUTUGU.  
STOP RUN.
```

66. MOVE 5 TO LI.
 MOVE 1 TO CL.
 MOVE 0 TO ICON.

67. ADD 1 TO ICON.
 IF ICON > MALZEME-SAYISI GO 68.
 DISPLAY POS NO.
 DISPLAY "MALZEME KODU : -----",
 MOVE 30 TO CL.
 DISPLAY POS NO.
 DISPLAY "MALZEME MIKTARI : ----",
 MOVE 16 TO CL.
 DISPLAY POS NO.
 ACCEPT MLZKOD1(ICON).
 MOVE 48 TO CL.
 DISPLAY POS NO.
 ACCEPT MLZMIKX.
 COMPUTE MLZMIK(ICON) = MLZMIKX / MIKTAR.
 DISPLAY POS NO.
 DISPLAY MLZMIKX.
 ADD 1 TO LI.
 MOVE 1 TO CL.
 GO 67.

68. EXIT.

SIL. DELETE YEMEK-KUTUGU INVALID DISPLAY "SILENEDI".

PROGRAM LIST OF YEMDUZ.COB

IDENTIFICATION DIVISION.
 PROGRAM-ID, YEMEK-BESIN-DEGERI-HESABI.
 AUTHOR, HAKAN GURDAL.
 ENVIRONMENT DIVISION.
 CONFIGURATION SECTION.
 SPECIAL-NAMES.

SYMBOLIC CHARACTERS ESCAPER PARM1 PARM2 PARM3
 28 92 60 103.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT YEMEK-KUTUGU ASSIGN TO INFIL
 ORGANIZATION INDEXED
 ACCESS RANDOM
 RECORD KEY KOD.

DATA DIVISION.

FILE SECTION.

FD YEMEK-KUTUGU VALUE OF ID DNAME.

01 YEMEK-YAZILIM.

03 KOD PIC X(5).
 03 YEMEKADI PIC X(20).
 03 MALZEME-SAYISI PIC 99.
 03 FORSIYONX PIC 999.
 03 TOTAL-BESIN.
 05 TKALORI PIC 9909999.
 05 THPROTEIN PIC 909999.
 05 TBPROTEIN PIC 909999.
 05 TYAG PIC 909999.
 05 TKALSIYUM PIC 99909999.
 05 TDEMIR PIC 909(5).
 05 TAVIT PIC 9990999.
 05 TTIAMIN PIC 09(5).
 05 TRIBOF PIC 09(5).
 05 TNIAS PIC 909(4).
 05 TCVIT PIC 9909999.
 03 TOTAL-FIYAT PIC 9(3)099.
 03 MLZ OCCURS 15 TIMES.
 05 MLZKOD1 PIC X(5).
 05 MLZMIK PIC 90999.

WORKING-STORAGE SECTION.

01 DNAME PIC X(10).
 01 DUMMY PIC X(5).
 01 MLZM.
 03 MLZMIKX OCCURS 15 TIMES PIC 999.
 01 YIRMI.
 03 FILLER PIC X(5) VALUE ALL '-'.
 01 UC.
 03 FILLER PIC XXX VALUE '---'.
 01 MIKTAR PIC 999.
 01 POS.
 02 FILLER PIC X VALUE ESCAPER.
 02 FILLER PIC X VALUE PARM1.
 02 LI PIC 99 VALUE 00.
 02 FILLER PIC X VALUE PARM2.
 02 CL PIC 99 VALUE 00.
 02 FILLER PIC X VALUE PARM3.
 01 GGH PIC 999.
 01 GG PIC 99.
 01 H PIC 9.
 01 I PIC 99 VALUE 0.

PROCEDURE DIVISION.

KUTUKAC.

```

DISPLAY "C2J",
DISPLAY "C2;1HC7mYEMEK DOSYASININ ADI :Cm -----",
DISPLAY "C4;10HC7;1mSECENEKLER :Cm",
display "C5;10HSTANDARD YEMEKLER ICIN:YEM.DAT",
DISPLAY "C6;10HTUREMIS YEMEKLER ICIN:YEM2.DAT",
DISPLAY "C2;24H" NO,
ACCEPT DNAME,
IF DNAME = SPACES STOP RUN,
DISPLAY "C2J",
OPEN I-O YEMEK-KUTUGU,

```

OKU,

```

DISPLAY "C1;1HYEMEGİN KODU : -----",
DISPLAY
"C2;1HC1m(RETURN)e basarak programdan CIKILIR!Cm",
DISPLAY "C1;16H" NO,
ACCEPT DUMMY,
DISPLAY "C23;10HC0X"
IF DUMMY = SPACES GO 444,
MOVE DUMMY TO KOD,
READ YEMEK-KUTUGU INVALID
DISPLAY "C23;10HC7mBU YEMEK MEVCUT DEĞİL!Cm"
GO OKU,
DISPLAY "C2;1H001.YEMEGİN İSMİ :",
DISPLAY "C2;19HC4m" YEMEKADI "Cm",

```

70,

```

DISPLAY "C3;1HGİRECEĞİNİZ PORSYONUN GRAMAJI : ---",
DISPLAY "C3;33H" NO,
ACCEPT MIKTAR,
IF MIKTAR = 0 OR MIKTAR NOT NUMERIC GO 70,
DISPLAY "C3;33H" MIKTAR,
DISPLAY "C3;38H002.STANDARD PORSIYONU(gr):" PORSIYONX,
DISPLAY "C4;1H003.YEMEKTEKİ MALZEME ADEDİ :",
DISPLAY "C4;30H" MALZEME-SAYISI,
MOVE 0 TO I,
MOVE 5 TO LI,

```

HHH,

```

MOVE 2 TO CL,
ADD 1 TO I,
ADD 1 TO LI,
DISPLAY POS NO,
DISPLAY I,
MOVE 4 TO CL,
DISPLAY POS NO,
DISPLAY "0) MALZEME :",
MOVE 15 TO CL,
DISPLAY POS NO,
DISPLAY MLZKOD1(I),
COMPUTE MLZMIKX(I) ROUNDED = MLZMIK(I) * MIKTAR,
MOVE 50 TO CL,
DISPLAY POS NO,
DISPLAY I MOVE 52 TO CL DISPLAY POS NO
DISPLAY "1) MIKTAR :",
MOVE 64 TO CL,
DISPLAY POS NO,
DISPLAY MLZMIKX(I),
IF I = MALZEME-SAYISI GO SORUS,
GO HHH,

```

SORUS,

```

DISPLAY "C21;1HHANGİ NUMARALI ALANI DÜZELTECEKSİNİZ? : ---",
DISPLAY "C22;1HC1m 000 ile basa donulebilir!Cm",
MOVE 21 TO LI,

```

```
MOVE 41 TO CL.DISPLAY POS NO.
ACCEPT GGH.
IF GGH NOT NUMERIC GO SORUS.
DISPLAY "L23;50H1K".
IF GGH = 1 DISPLAY "L2;45H-----"
    MOVE 2 TO LI MOVE 45 TO CL DISPLAY POS NO
    ACCEPT YEMEKADI
    DISPLAY "L2;19H" YEMEKADI
    DISPLAY "L2;45H"
    GO SORUS.
IF GGH = 2 DISPLAY "L3;72H--- GR"
    MOVE 3 TO LI MOVE 72 TO CL DISPLAY POS NO
    ACCEPT FORSIYONX
    DISPLAY "L3;65H" FORSIYONX
    DISPLAY "L3;72H"
    GO SORUS.
IF GGH = 3 DISPLAY "L4;40H--"
    MOVE 4 TO LI MOVE 40 TO CL DISPLAY POS NO
    ACCEPT MALZEME-SAYISI
    DISPLAY "L4;30H" MALZEME-SAYISI
    DISPLAY "L4;40H"
    MOVE 0 TO I
    MOVE 5 TO LI
    GO HHH.
IF GGH = 0 GO YYY.
MOVE GGH TO H.
DIVIDE GGH BY 10 GIVING GG.
IF GG > MALZEME-SAYISI
DISPLAY "L23;1L7mBU ALAN MEVCUT DEGIL!Lm"
GO SORUS.
IF H = 1 GO DEV.
IF H = 0 GO DEV.
DISPLAY "L23;1L7mBU ALAN MEVCUT DEGIL!Lm".
GO SORUS.
```

DEV.

```
COMPUTE LI = GG + 5.
IF H = 1 MOVE 70 TO CL
    DISPLAY POS NO
    DISPLAY UC MOVE 70 TO CL
    DISPLAY POS NO
    ACCEPT MLZMIKX(GG)
    IF MLZMIKX(GG) NOT NUMERIC GO DEV ELSE
    MOVE 70 TO CL DISPLAY POS NO DISPLAY "
    MOVE 64 TO CL DISPLAY POS NO DISPLAY MLZMIKX(GG)
    GO SORUS.
IF H = 0 MOVE 27 TO CL
    DISPLAY POS NO
    DISPLAY YIRMI MOVE 27 TO CL
    DISPLAY POS NO
    ACCEPT MLZKOD1(GG)
    MOVE 27 TO CL DISPLAY POS NO
    DISPLAY "
    MOVE 15 TO CL DISPLAY POS NO
    DISPLAY MLZKOD1(GG)
    GO SORUS.
```

YYY.

MOVE 0 TO I.

YYY2.

```
ADD 1 TO I.
COMPUTE MLZMIK(I) = MLZMIKX(I) / MIKTAR.
IF I NOT = MALZEME-SAYISI GO YYY2.
```

REWRITE YEMEK-YAZILIM INVALID DISPLAY "YAZMA HATASI" GO 444.
CALL "SCR\$ERASE_PAGE" USING BY VALUE 1,1.
GO OKU.

444.

CLOSE YEMEK-KUTUGU.
STOP RUN.

PROGRAM LIST OF YBEDH.COB

IDENTIFICATION DIVISION.

PROGRAM-ID. YEMEK-BESIN-DEGERI-HESABI.

AUTHOR. HAKAN GURDAL.

ENVIRONMENT DIVISION.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT YEMEK-KUTUGU ASSIGN TO INFIL

ORGANIZATION INDEXED

ACCESS DYNAMIC

RECORD KEY KOD.

SELECT BESDEG-KUTUGU ASSIGN TO 'MLZK.DAT'

ORGANIZATION INDEXED

ACCESS DYNAMIC

RECORD KEY MLZKOD.

DATA DIVISION.

FILE SECTION.

FD YEMEK-KUTUGU VALUE OF ID DNAME.

01 YEMEK-YAZILIM.

03 KOD PIC X(5).

03 YEMEKADI PIC X(20).

03 MALZEME-SAYISI PIC 99.

03 FORSIYON PIC 999.

03 TOTAL-BESIN.

05 TKALORI PIC 9(2)V9(4).

05 THPROTEIN PIC 9V9(4).

05 TBPROTEIN PIC 9V9(4).

05 TYAG PIC 9V9(4).

05 TKALSIYUM PIC 9(3)V9(4).

05 TDEMIR PIC 9V9(5).

05 TAVIT PIC 9(3)V9(3).

05 TTIAMIN PIC V9(5).

05 TRIBOF PIC V9(5).

05 TNIAS PIC 9V9(4).

05 TCVIT PIC 9(2)V9(4).

03 TOTAL-FIYAT PIC 9(3)V99.

03 MLZ OCCURS 15 TIMES.

05 MLZKOD1 PIC X(5).

05 MLZMIK PIC 9V999.

FD BESDEG-KUTUGU.

01 BESDEG-YAZILIM.

03 MLZKOD PIC X(5).

03 MLZAD PIC X(20).

03 RESIN.

05 KALORI PIC 9V9(2).

05 HPROTEIN PIC V9(3).

05 BPROTEIN PIC V9(3).

05 YAG PIC V9(3).

05 KALSIYUM PIC 99V99.

05 DEMIR PIC V9(3).

05 AVIT PIC 9(3)V99.

05 TIAMIN PIC V9(4).

05 RIBOF PIC V9(4).

05 NIAS PIC V9(3).

05 CVIT PIC 9V9(3).

05 ARTIK PIC V99.

03 FIYAT PIC 99V9(3).

WORKING-STORAGE SECTION.

01 DNAME PIC X(10).

01 BIR PIC 99V999 VALUE 1.

01 ARTIKO PIC 9V99.

01 I PIC 99 VALUE 0.

```

01 THPROTEIN1 PIC 9999V99999.
01 TKALORI1 PIC 9999V9(5).
01 TBPROTEIN1 PIC 999V9(5).
01 TYAG1 PIC 999V99999.
01 TKALSIYUM1 PIC 99999V99999.
01 TDEMIR1 PIC 999V9(6).
01 TAVIT1 PIC 9(5)V9(3).
01 TTIAMIN1 PIC 999V9(6).
01 TRIBOF1 PIC 999V9(6).
01 TNIAS1 PIC 999V9(6).
01 TCVIT1 PIC 9(4)V9999.
01 TFIYAT1 PIC 99999V99999.

```

PROCEDURE DIVISION.
KUTUKAC.

```

    DISPLAY "I2J".
    DISPLAY "I2;1H17mYEMEK DOSYASININ ADI :[m -----".
    DISPLAY "I4;10H17;1mSECENEKLER :[m".
    display "I5;10HSTANDARD YEMEKLER ICIN:YEM.DAT".
    DISPLAY "I6;10HTUREMIS YEMEKLER ICIN:YEM2.DAT".
    DISPLAY "I2;24H" NO.
    ACCEPT DNAME.
    DISPLAY "I2J".

```

```

OPEN I-O YEMEK-KUTUGU.
OPEN INPUT BESDEG-KUTUGU.
MOVE SPACES TO YEMEKADI.
START YEMEK-KUTUGU KEY NOT LESS THAN KOD
    INVALID KEY DISPLAY 'HATA1'
    STOP RUN.

```

OKU.

```

READ YEMEK-KUTUGU NEXT AT END GO BITTI.
MOVE ZEROS TO TKALORI THPROTEIN TBPROTEIN TYAG TOTAL-FIYAT
    TKALSIYUM TDEMIR TAVIT TTIAMIN TRIBOF TNIAS TCVIT.

```

TEKRAR.

```

    ADD 1 TO I.
    IF I > MALZEME-SAYISI GO YAZI.
    MOVE MLZKOD1(I) TO MLZKOD.
    READ BESDEG-KUTUGU INVALID KEY DISPLAY KOD ' icinde '
    MLZKOD 'BULUNAMADI' GO TEKRAR.
    COMPUTE ARTIKQ = BIR - ARTIK.
    COMPUTE TKALORI1 = KALORI * MLZMIK(I) * ARTIKQ.
    COMPUTE THPROTEIN1 = HPROTEIN * MLZMIK(I) * ARTIKQ.
    COMPUTE TBPROTEIN1 = BPROTEIN * MLZMIK(I) * ARTIKQ.
    COMPUTE TYAG1 = YAG * MLZMIK(I) * ARTIKQ.
    COMPUTE TKALSIYUM1 = KALSIYUM * MLZMIK(I) * ARTIKQ.
    COMPUTE TDEMIR1 = DEMIR * MLZMIK(I) * ARTIKQ.
    COMPUTE TAVIT1 = AVIT * MLZMIK(I) * ARTIKQ.
    COMPUTE TTIAMIN1 = TIAMIN * MLZMIK(I) * ARTIKQ.
    COMPUTE TRIBOF1 = RIBOF * MLZMIK(I) * ARTIKQ.
    COMPUTE TNIAS1 = NIAS * MLZMIK(I) * ARTIKQ.
    COMPUTE TCVIT1 = CVIT * MLZMIK(I) * ARTIKQ.
    COMPUTE TFIYAT1 = FIYAT * MLZMIK(I).
    COMPUTE TOTAL-FIYAT = TOTAL-FIYAT + TFIYAT1.
    COMPUTE TKALORI = TKALORI + TKALORI1.
    COMPUTE THPROTEIN = THPROTEIN + THPROTEIN1.
    COMPUTE TBPROTEIN = TBPROTEIN + TBPROTEIN1.
    COMPUTE TYAG = TYAG + TYAG1.
    COMPUTE TKALSIYUM = TKALSIYUM + TKALSIYUM1.
    COMPUTE TDEMIR = TDEMIR + TDEMIR1.
    COMPUTE TAVIT = TAVIT + TAVIT1.
    COMPUTE TTIAMIN = TTIAMIN + TTIAMIN1.
    COMPUTE TRIBOF = TRIBOF + TRIBOF1.

```

COMPUTE TNIAS = TNIAS + TNIAS1.

COMPUTE TCVIT = TCVIT + TCVIT1.

GO TEKRAR.

YAZI.

REWRITE YEMEK-YAZILIM INVALID KEY DISPLAY 'YAZAMADI'.

MOVE 0 TO I.

GO OKU.

BITTI.

CLOSE YEMEK-KUTUGU BESDEG-KUTUGU.

STOP RUN.

PROGRAM LIST OF YEMIZ.COB

IDENTIFICATION DIVISION.

PROGRAM-ID. YEMEK-BESIN-DEGER-IZLENMESI.

AUTHOR. HAKAN GURDAL.

ENVIRONMENT DIVISION.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT YEMEK-KUTUGU ASSIGN TO INFILE

ORGANIZATION INDEXED

ACCESS DYNAMIC

RECORD KEY KOD.

SELECT BESDEG-KUTUGU ASSIGN TO 'MLZK.DAT'

ORGANIZATION INDEXED

ACCESS DYNAMIC

RECORD KEY MLZKOD.

SELECT CIKTI-KUTUGU ASSIGN TO 'MENU2.DAT'.

DATA DIVISION.

FILE SECTION.

FD CIKTI-KUTUGU LABEL RECORDS ARE OMITTED.

01 SATIR PIC X(132).

FD BESDEG-KUTUGU.

01 BESDEG-YAZILIM.

03 MLZKOD PIC X(5).

03 MLZAD PIC X(20).

03 FILLER PIC X(46).

FD YEMEK-KUTUGU VALUE OF ID DNAME.

01 YEMEK-YAZILIM.

03 KOD PIC X(5).

03 YEMEKADI PIC X(20).

03 MALZEME-SAYISI PIC 99.

03 PORSIYONX PIC 999.

03 TOTAL-BESIN.

05 KALORI PIC 99V9(4).

05 HPROTEIN PIC 9V9(4).

05 BPROTEIN PIC 9V9(4).

05 YAG PIC 9V9(4).

05 KALSIYUM PIC 999V9(4).

05 DEMIR PIC 9V9(5).

05 AVIT PIC 9(3)V999.

05 TIAMIN PIC V9(5).

05 RIBOF PIC V9(5).

05 NIAS PIC 9V9(4).

05 CVIT PIC 99V9(4).

03 FIYAT PIC 999V9(2).

03 MLZ OCCURS 1 TO 15 TIMES

DEPENDING ON MALZEME-SAYISI.

05 MLZKOD1 PIC X(5).

05 MLZMIK PIC 9V999.

WORKING-STORAGE SECTION.

01 DNAME PIC X(10).

01 TABLO PIC 99 VALUE 0.

01 J PIC 99 VALUE 0.

01 CIZGI1.

03 FILLER PIC X VALUE "*".

03 FILLER PIC X(48) VALUE ALL "-".

03 FILLER PIC X VALUE "*".

03 MAL3 PIC BBBBXX(20)BB.

03 MIK3 PIC ZZZB.

03 BIR3 PIC XXX.

01 CIZGI2.

03 FILLER PIC X VALUE "*".

03 FILLER PIC X(48) VALUE ALL "-".

```

03      FILLER  PIC X VALUE "*",
03      MAL15   PIC BBBBX(20)BB,
03      MIK15   PIC ZZZ,
03      BIR15   PIC XXX,
01 YILDIZ,
03      FILLER  PIC X(50) VALUE ALL "*",
01 YILDIZ1,
03      FILLER  PIC X(50) VALUE ALL "*",
03      FILLER  PIC X(30) VALUE "  1 PORS. iCİNDEKİ MALZEMELER",
01 LIN1,
03      FILLER  PIC X(22) VALUE "* YEMEĞİN ADI      :",
03      YEMEKADIY PIC X(20)B(7),
03      FILLER  PIC X VALUE "*",
03      FILLER  PIC X(30) VALUE "  =====",
01 LIN2,
03      FILLER  PIC X(22) VALUE "* PORSİYON GRAMAJI  :",
03      GRAMAJY   PIC ZZZ,
03      FILLER  PIC XXXX VALUE " GR.",
03      FILLER  PIC X(20) VALUE SPACES,
03      FILLER  PIC XXXXX VALUE "*      ",
03      MAL1     PIC X(20)BB,
03      MIK1     PIC ZZZ,
03      BIR1     PIC BXXX,
01 LIN3,
03      FILLER  PIC X(29) VALUE "* İCERDİĞİ KALORİ MİKTARI :",
03      KALORIY   PIC BBBZZ9,
03      FILLER  PIC X(14) VALUE SPACES,
03      FILLER  PIC X VALUE "*",
03      MAL2     PIC BBBBX(20)BB,
03      MIK2     PIC ZZZ,
03      BIR2     PIC BXXX,
01 LIN4,
03      FILLER  PIC X(29) VALUE "* HAYVANSAL PROTEİN MİKTARI :",
03      HPROTEINY PIC BBBZZ9.9,
03      FILLER  PIC XXXXX VALUE " GR.",
03      FILLER  PIC X(7) VALUE SPACES,
03      FILLER  PIC X VALUE "*",
03      MAL4     PIC BBBBX(20)BB,
03      MIK4     PIC ZZZ,
03      BIR4     PIC BXXX,
01 LIN5,
03      FILLER  PIC X(29) VALUE "* BİTKİSEL PROTEİN MİKTARI :",
03      BPROTEINY PIC BBBZZ9.9,
03      FILLER  PIC XXXXX VALUE " GR.",
03      FILLER  PIC X(7) VALUE SPACES,
03      FILLER  PIC X VALUE "*",
03      MAL5     PIC BBBBX(20)BB,
03      MIK5     PIC ZZZ,
03      BIR5     PIC BXXX,
01 LIN51,
03      FILLER  PIC X(29) VALUE "* TOPLAM PROTEİN MİKTARI :",
03      TPROTEINY PIC BBBZZ9.9,
03      FILLER  PIC XXXXX VALUE " GR.",
03      FILLER  PIC X(7) VALUE SPACES,
03      FILLER  PIC X VALUE "*",
03      MAL6     PIC BBBBX(20)BB,
03      MIK6     PIC ZZZ,
03      BIR6     PIC BXXX,
01 LIN6,
03      FILLER  PIC X(29) VALUE "* YAĞ MİKTARI      :",
03      YAGY     PIC BBBBZ9.9,

```

03 FILLER PIC XXXXX VALUE " GR.",
 03 FILLER PIC X(7) VALUE SPACES.
 03 FILLER PIC X VALUE "*",
 03 MAL7 PIC BBBBX(20)BB.
 03 MIK7 PIC ZZZ.
 03 BIR7 PIC BXXX.

01 LIN61.

03 FILLER PIC X(29) VALUE "* KALSİYUM MIKTARI :".
 03 KALSİYUMY PIC BZ,ZZ9.
 03 FILLER PIC XXXXXXXX VALUE " mg.",
 03 FILLER PIC X(7) VALUE SPACES.
 03 FILLER PIC X VALUE "*",
 03 MAL8 PIC BBBBX(20)BB.
 03 MIK8 PIC ZZZ.
 03 BIR8 PIC BXXX.

01 LIN7.

03 FILLER PIC X(29) VALUE "* DEMİR MIKTARI :".
 03 DEMİRY PIC BBBBZ9.9.
 03 FILLER PIC XXXXX VALUE " mg.",
 03 FILLER PIC X(7) VALUE SPACES.
 03 FILLER PIC X VALUE "*",
 03 MAL9 PIC BBBBX(20)BB.
 03 MIK9 PIC ZZZ.
 03 BIR9 PIC BXXX.

01 LIN8.

03 FILLER PIC X(29) VALUE "* A VİTAMİNİ MIKTARI :".
 03 AVİTY PIC ZZ,ZZ9.
 03 FILLER PIC XXXXXXXX VALUE " I.U".
 03 FILLER PIC X(7) VALUE SPACES.
 03 FILLER PIC X VALUE "*",
 03 MAL10 PIC BBBBX(20)BB.
 03 MIK10 PIC ZZZ.
 03 BIR10 PIC BXXX.

01 LIN9.

03 FILLER PIC X(29) VALUE "* THİAMİN MIKTARI :".
 03 TİAMİNY PIC BBBB9.99.
 03 FILLER PIC XXXX VALUE " mg.",
 03 FILLER PIC X(7) VALUE SPACES.
 03 FILLER PIC X VALUE "*",
 03 MAL11 PIC BBBBX(20)BB.
 03 MIK11 PIC ZZZ.
 03 BIR11 PIC BXXX.

01 LIN10.

03 FILLER PIC X(29) VALUE "* RİBOFLAVİN MIKTARI :".
 03 RİBOFY PIC BBBB9.99.
 03 FILLER PIC XXXX VALUE " mg.",
 03 FILLER PIC X(7) VALUE SPACES.
 03 FILLER PIC X VALUE "*",
 03 MAL12 PIC BBBBX(20)BB.
 03 MIK12 PIC ZZZ.
 03 BIR12 PIC BXXX.

01 LIN11.

03 FILLER PIC X(29) VALUE "* NİACİN MIKTARI :".
 03 NİASY PIC BBBBZ9.9.
 03 FILLER PIC XXXXX VALUE " mg.",
 03 FILLER PIC X(7) VALUE SPACES.
 03 FILLER PIC X VALUE "*",
 03 MAL13 PIC BBBBX(20)BB.
 03 MIK13 PIC ZZZ.
 03 BIR13 PIC BXXX.

01 LIN12.

```

03      FILLER  PIC X(29) VALUE "* C VITAMINI MIKTARI      :".
03      CVITY   PIC BBBZZ9.9.
03      FILLER  PIC XXXXX VALUE "  mg.".
03      FILLER  PIC X(7) VALUE SPACES.
03      FILLER  PIC X VALUE "*".
03      MAL14   PIC BBBBX(20)BB.
03      MIK14   PIC ZZZ.
03      BIR14   PIC BXXX.
01      LIN13.
03      FILLER  PIC X(29) VALUE "* PORSIYON FIYATI      :".
03      FIYATY  PIC BZZ,ZZ9.
03      FILLER  PIC XXXXXXX VALUE "  T.L.".
03      FILLER  PIC X(6) VALUE SPACES.
03      FILLER  PIC X VALUE "*".
01      GRAMAJ  PIC 999.
01      DUMMY   PIC X.
01      KALORI1X PIC 999.
01      HPROTEIN1X PIC 999V9.
01      BPROTEIN1X PIC 999V9.
01      TPROTEIN1X PIC 999V9.
01      YAG1X   PIC 99V9.
01      KALSIYUM1X PIC 9999.
01      DEMIR1X  PIC 99V9.
01      AVIT1X   PIC 99999.
01      TIAMIN1X PIC 9V99.
01      RIBOF1X  PIC 9V99.
01      NIAS1X   PIC 99V9.
01      CVIT1X   PIC 999V9.
01      FIYAT1X  PIC 99999V99.
01      ANS      PIC X.

```

PROCEDURE DIVISION.

KUTUKAC.

DISPLAY "C2J".

DISPLAY "C1;1HC17mPORSYON GRAMAJLARI DOSYADAN MI ALINACAK(E/H):[m-".

DISPLAY "C1;46H" NO.

ACCEPT ANS.

DISPLAY "C2;1HC17mYEMEK DOSYASININ ADI :[m -----".

DISPLAY "C4;10HC17;1mSECENEKLER :[m".

display "C5;10HSTANDARD.YEMEKLER ICIN:YEM.DAT".

DISPLAY "C6;10HTUREMIS YEMEKLER ICIN:YEM2.DAT".

DISPLAY "C2;24H" NO.

ACCEPT DNAME.

IF DNAME = SPACES STOP RUN.

DISPLAY "C2J".

OPEN OUTPUT CIKTI-KUTUGU.

OPEN INPUT BESDEG-KUTUGU.

OPEN INPUT YEMEK-KUTUGU.

SORU.

DISPLAY "C1;1HYEMEGIN KODU : -----".

display

"C2;1HC1m(RETURN)e basarak programdan CIKILIR!Cm".

DISPLAY "C1;20H" NO.

ACCEPT KOD.

DISPLAY "C23;1H

IF KOD = SPACES GO BITTI.

READ YEMEK-KUTUGU INVALID

DISPLAY "C23;1H" KOD "C23;13HMEVCUT DEGILDIR!"

GO SORU.

TAMAM.

IF ANS = "E" MOVE PORSIYONX TO GRAMAJ

GO TAMAM2.

DISPLAY "L2;1HPORSİYON GRAMAJI : --- gr",

DISPLAY "L2;20H" NO.

ACCEPT GRAMAJ.

IF GRAMAJ NOT NUMERIC GO TAMAM.

TAMAM2.

MOVE GRAMAJ TO GRAMAJY.

MOVE YEMEKADI TO YEMEKADIY.

COMPUTE FIYAT1X ROUNDED = FIYAT * GRAMAJ.

COMPUTE CVIT1X ROUNDED = CVIT * GRAMAJ.

COMPUTE NIAS1X ROUNDED = NIAS * GRAMAJ.

COMPUTE RIBOF1X ROUNDED = RIBOF * GRAMAJ.

COMPUTE TIAMIN1X ROUNDED = TIAMIN * GRAMAJ.

COMPUTE AVIT1X ROUNDED = AVIT * GRAMAJ.

COMPUTE DEMIR1X ROUNDED = DEMIR * GRAMAJ.

COMPUTE KALSIYUM1X ROUNDED = KALSIYUM * GRAMAJ.

COMPUTE YAG1X ROUNDED = YAG * GRAMAJ.

COMPUTE BPROTEIN1X ROUNDED = BPROTEIN * GRAMAJ.

COMPUTE HPROTEIN1X ROUNDED = HPROTEIN * GRAMAJ.

COMPUTE TPROTEIN1X = HPROTEIN1X + BPROTEIN1X.

COMPUTE KALORI1X ROUNDED = KALORI * GRAMAJ.

MOVE FIYAT1X TO FIYATY.

MOVE CVIT1X TO CVITY.

MOVE NIAS1X TO NIASY.

MOVE RIBOF1X TO RIBOFY.

MOVE TIAMIN1X TO TIAMINY.

MOVE AVIT1X TO AVITY.

MOVE DEMIR1X TO DEMIRY.

MOVE KALSIYUM1X TO KALSIYUMY.

MOVE YAG1X TO YAGY.

MOVE BPROTEIN1X TO BPROTEINY.

MOVE HPROTEIN1X TO HPROTEINY.

MOVE TPROTEIN1X TO TPROTEINY.

MOVE KALORI1X TO KALORIY.

MOVE 0 TO J.

HHH.

ADD 1 TO J.

IF J < MALZEME-SAYISI GO HHH.

IF J = MALZEME-SAYISI GO HHH.

IF J = 16 GO DEVAM.

MOVE 0 TO MLZMIK(J).

MOVE SPACES TO MLZKOD1(J).

GO HHH.

DEVAM.

MOVE MLZKOD1(1) TO MLZKOD.

READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.

MOVE MLZAD TO MAL1.

COMPUTE MIK1 ROUNDED = MLZMIK(1) * GRAMAJ.

MOVE MLZKOD1(2) TO MLZKOD.

READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.

MOVE MLZAD TO MAL2.

COMPUTE MIK2 ROUNDED = MLZMIK(2) * GRAMAJ.

MOVE MLZKOD1(3) TO MLZKOD.

READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.

MOVE MLZAD TO MAL3.

COMPUTE MIK3 ROUNDED = MLZMIK(3) * GRAMAJ.

MOVE MLZKOD1(4) TO MLZKOD.

READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.

MOVE MLZAD TO MAL4.

COMPUTE MIK4 ROUNDED = MLZMIK(4) * GRAMAJ.

MOVE MLZKOD1(5) TO MLZKOD.

READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.

```
MOVE MLZAD TO MAL5,
COMPUTE MIK5 ROUNDED = MLZMIK(5) * GRAMAJ.
MOVE MLZKOD1(6) TO MLZKOD,
READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.
MOVE MLZAD TO MAL6,
COMPUTE MIK6 ROUNDED = MLZMIK(6) * GRAMAJ.
MOVE MLZKOD1(7) TO MLZKOD,
READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.
MOVE MLZAD TO MAL7,
COMPUTE MIK7 ROUNDED = MLZMIK(7) * GRAMAJ.
MOVE MLZKOD1(8) TO MLZKOD,
READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.
MOVE MLZAD TO MAL8,
COMPUTE MIK8 ROUNDED = MLZMIK(8) * GRAMAJ.
MOVE MLZKOD1(9) TO MLZKOD,
READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.
MOVE MLZAD TO MAL9,
COMPUTE MIK9 ROUNDED = MLZMIK(9) * GRAMAJ.
MOVE MLZKOD1(10) TO MLZKOD,
READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.
MOVE MLZAD TO MAL10,
COMPUTE MIK10 ROUNDED = MLZMIK(10) * GRAMAJ.
MOVE MLZKOD1(11) TO MLZKOD,
READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.
MOVE MLZAD TO MAL11,
COMPUTE MIK11 ROUNDED = MLZMIK(11) * GRAMAJ.
MOVE MLZKOD1(12) TO MLZKOD,
READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.
MOVE MLZAD TO MAL12,
COMPUTE MIK12 ROUNDED = MLZMIK(12) * GRAMAJ.
MOVE MLZKOD1(13) TO MLZKOD,
READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.
MOVE MLZAD TO MAL13,
COMPUTE MIK13 ROUNDED = MLZMIK(13) * GRAMAJ.
MOVE MLZKOD1(14) TO MLZKOD,
READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.
MOVE MLZAD TO MAL14,
COMPUTE MIK14 ROUNDED = MLZMIK(14) * GRAMAJ.
MOVE MLZKOD1(15) TO MLZKOD,
READ BESDEG-KUTUGU INVALID KEY MOVE SPACES TO MLZAD.
MOVE MLZAD TO MAL15,
COMPUTE MIK15 ROUNDED = MLZMIK(15) * GRAMAJ.
MOVE SPACES TO BIR1 BIR2 BIR3 BIR4 BIR5 BIR6 BIR7 BIR8 BIR9
      BIR10 BIR11 BIR12 BIR13 BIR14 BIR15,
IF MLZKOD1(1) NOT = SPACES MOVE "GR." TO BIR1,
IF MLZKOD1(2) NOT = SPACES MOVE "GR." TO BIR2,
IF MLZKOD1(3) NOT = SPACES MOVE "GR." TO BIR3,
IF MLZKOD1(4) NOT = SPACES MOVE "GR." TO BIR4,
IF MLZKOD1(5) NOT = SPACES MOVE "GR." TO BIR5,
IF MLZKOD1(6) NOT = SPACES MOVE "GR." TO BIR6,
IF MLZKOD1(7) NOT = SPACES MOVE "GR." TO BIR7,
IF MLZKOD1(8) NOT = SPACES MOVE "GR." TO BIR8,
IF MLZKOD1(9) NOT = SPACES MOVE "GR." TO BIR9,
IF MLZKOD1(10) NOT = SPACES MOVE "GR." TO BIR10,
IF MLZKOD1(11) NOT = SPACES MOVE "GR." TO BIR11,
IF MLZKOD1(12) NOT = SPACES MOVE "GR." TO BIR12,
IF MLZKOD1(13) NOT = SPACES MOVE "GR." TO BIR13,
IF MLZKOD1(14) NOT = SPACES MOVE "GR." TO BIR14,
IF MLZKOD1(15) NOT = SPACES MOVE "GR." TO BIR15,
DISPLAY "11;1H" YILDIZI,
DISPLAY LIN1.
```

```
DISPLAY LIN2.  
DISPLAY CIZGI1.  
DISPLAY LIN3.  
DISPLAY LIN4.  
DISPLAY LIN5.  
DISPLAY LIN51.  
DISPLAY LIN6.  
DISPLAY LIN61.  
DISPLAY LIN7.  
DISPLAY LIN8.  
DISPLAY LIN9.  
DISPLAY LIN10.  
DISPLAY LIN11.  
DISPLAY LIN12.  
DISPLAY CIZGI2.  
DISPLAY LIN13.  
DISPLAY YILDIZ.  
DISPLAY "C20;1HBU TABLONUN CIKTISINI ALMAK iCin (e) ".  
DISPLAY "C22;1HDEVAM ETMEK iCin (RETURN) TUSUNA BASINIZ!".  
ACCEPT DUMMY.  
CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.  
IF DUMMY = "E" OR DUMMY = "e" GO YAZIL.  
GO SORU.
```

BITTI.

```
CLOSE YEMEK-KUTUGU CIKTI-KUTUGU.  
STOP RUN.
```

YAZIL.

```
ADD 1 TO TABLO.  
IF TABLO = 4 MOVE 1 TO TABLO.  
IF TABLO = 1  
WRITE SATIR FROM YILDIZ1 AFTER PAGE ELSE  
WRITE SATIR FROM YILDIZ1 AFTER 3.  
WRITE SATIR FROM LIN1.  
WRITE SATIR FROM LIN2.  
WRITE SATIR FROM CIZGI1.  
WRITE SATIR FROM LIN3.  
WRITE SATIR FROM LIN4.  
WRITE SATIR FROM LIN5.  
WRITE SATIR FROM LIN51.  
WRITE SATIR FROM LIN6.  
WRITE SATIR FROM LIN61.  
WRITE SATIR FROM LIN7.  
WRITE SATIR FROM LIN8.  
WRITE SATIR FROM LIN9.  
WRITE SATIR FROM LIN10.  
WRITE SATIR FROM LIN11.  
WRITE SATIR FROM LIN12.  
WRITE SATIR FROM CIZGI2.  
WRITE SATIR FROM LIN13.  
WRITE SATIR FROM YILDIZ.  
GO SORU.
```

PROGRAM LIST OF GUNIZ.COB

IDENTIFICATION DIVISION.

PROGRAM-ID. GUN-YEMEK-BESIN-DEG-IZLEME.

AUTHOR. HAKAN GURDAL.

ENVIRONMENT DIVISION.

CONFIGURATION SECTION.

SPECIAL-NAMES.

SYMBOLIC CHARACTERS CR C1 C2 C3 C4 SDW EDW

ESCAPER PARM1 PARM2 PARM3

14 19 26 27 21 15 16 28 92 60 103.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT YEMEK-KUTUGU ASSIGN TO INFILE

ORGANIZATION INDEXED

ACCESS DYNAMIC

RECORD KEY KOD.

SELECT ST-KUTUGU ASSIGN TO 'STANDART.DAT'.

SELECT CIKTI-KUTUGU ASSIGN TO 'MENU.DAT'.

DATA DIVISION.

FILE SECTION.

FD CIKTI-KUTUGU LABEL RECORDS ARE OMITTED.

01 SATIR PIC X(132).

FD ST-KUTUGU RECORD CONTAINS 91 CHARACTERS.

01 ST-YAZILIM.

03 YAS PIC 999.

03 FILLER PIC X.

03 YGR PIC X(5).

03 FILLER PIC X.

03 EKAL PIC 9(4).

03 FILLER PIC X.

03 EPROT PIC 99V9.

03 FILLER PIC X.

03 ECAL PIC 9(4).

03 FILLER PIC X.

03 EDEM PIC 99V9.

03 FILLER PIC X.

03 EAVIT PIC 9(5).

03 FILLER PIC X.

03 ETH PIC 9V99.

03 FILLER PIC X.

03 ERIB PIC 9V99.

03 FILLER PIC X.

03 ENIA PIC 99V9.

03 FILLER PIC X.

03 ECVIT PIC 999V9.

03 FILLER PIC X.

03 KKAL PIC 9(4).

03 FILLER PIC X.

03 KPROT PIC 99V9.

03 FILLER PIC X.

03 KCAL PIC 9(4).

03 FILLER PIC X.

03 KDEM PIC 99V9.

03 FILLER PIC X.

03 KAVIT PIC 9(5).

03 FILLER PIC X.

03 KTH PIC 9V99.

03 FILLER PIC X.

03 KRIB PIC 9V99.

03 FILLER PIC X.

03 KNIA PIC 99V9.

03 FILLER PIC X.

```

03 KCVIT          PIC 999V9.
'D YEMEK-KUTUGU
  VALUE OF ID DNAME.
01 YEMEK-YAZILIM.
    03 KOD          PIC X(5).
    03 YEMEKADIX    PIC X(20).
    03 MALZEME-SAYISI PIC 99.
    03 FORSIYONX    PIC 999.
    03 TOTAL-RESIN.
      05 KALORI     PIC 99V9(4).
      05 HPROTEIN   PIC 9V9(4).
      05 BPROTEIN   PIC 9V9(4).
      05 YAG        PIC 9V9(4).
      05 KALSIYUM   PIC 999V9(4).
      05 DEMIR      PIC 9V9(5).
      05 AVIT       PIC 9(3)V999.
      05 TIAMIN     PIC V9(5).
      05 RIBOF      PIC V9(5).
      05 NIAS       PIC 9V9(4).
      05 CVIT       PIC 99V9(4).
    03 FIYAT       PIC 999V9(2).
    03 MLZ OCCURS 15 TIMES.
      05 MLZKOD1    PIC X(5).
      05 MLZMIK     PIC 9V999.

WORKING-STORAGE SECTION.
01 DNAME          PIC X(10).
01 POS.
    02 FILLER      PIC X VALUE ESCAPER.
    02 FILLER      PIC X VALUE PARM1.
    02 LI          PIC 99 VALUE 00.
    02 FILLER      PIC X VALUE PARM2.
    02 CL          PIC 99 VALUE 00.
    02 FILLER      PIC X VALUE PARM3.
01 DEGSAT.
    02 VAKIT       PIC X(6).
    02 SSAY1       PIC 99.
    02 XSAY1       PIC 9 VALUE 0.
    02 FILLER      PIC X VALUE ")".
    02 YKODD       PIC X(5).
    02 FILLER      PIC X(7) VALUE SPACES.
    02 YADD        PIC X(20).
    02 FILLER      PIC X VALUE SPACES.
    02 SSAY2       PIC 99.
    02 XSAY2       PIC 9 VALUE 1.
    02 FILLER      PIC X VALUE ")".
    02 GRD         PIC 999.
01 DEGBAS.
    02 FILLER      PIC X(30) VALUE "*****KOD*****AD*****".
    02 FILLER      PIC X(30) VALUE "*****GRAMAJ*****".
01 DEGSAY.
    02 SAT         PIC 99.
    02 YER         PIC 9.
01 YASX          PIC 999.
01 YASY          PIC 99.
01 KFARK         PIC 99999V9999.
01 PFARK         PIC 999V9999.
01 KQ            PIC 99 VALUE 0.
01 BEKL          PIC X.
01 CIZGI.
    03 FILLER      PIC X VALUE "*".
    03 FILLER      PIC X(43) VALUE ALL "-".

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03      FILLER  PIC X VALUE "*",
03      FILLER  PIC X(67) VALUE ALL "-".
03      FILLER  PIC XX VALUE "-*",
01  CIZGI2.
03      FILLER  PIC X VALUE "*",
03      FILLER  PIC X(43) VALUE ALL "-".
03      FILLER  PIC X VALUE "*",
03      FILLER  PIC X(26) VALUE ALL "-".
03      FILLER  PIC X VALUE "*",
03      FILLER  PIC X(26) VALUE ALL "-".
03      FILLER  PIC X VALUE "*",
03      FILLER  PIC X(13) VALUE ALL "-".
03      FILLER  PIC XX VALUE "-*",
01  LINI2.
03      FILLER  PIC X VALUE "*",
03      FILLER  PIC X(43) VALUE SPACES.
03      FILLER  PIC X VALUE "*",
03      FILLER  PIC X(67) VALUE SPACES.
03      FILLER  PIC XX VALUE " *",
01  YILDIZ.
03      FILLER  PIC X(114) VALUE ALL "*",
01  LINB1.
03      FILLER  PIC X VALUE "*",
03      FILLER  PIC X(20) VALUE " GUNLUX YEMEK MENUSU",
03      FILLER  PIC X(5) VALUE SPACES.
03      FILLER  PIC X(20) VALUE "          GRAMAJLAR *",
03      FILLER  PIC X(8) VALUE " ENERJİ!",
03      FILLER  PIC X(6) VALUE " PRO.!",
03      FILLER  PIC X(7) VALUE " KALS.!",
03      FILLER  PIC X(6) VALUE " DEM.!",
03      FILLER  PIC X(8) VALUE " A Vit.!",
03      FILLER  PIC X(6) VALUE " THİ.!",
03      FILLER  PIC X(6) VALUE " RİB.!",
03      FILLER  PIC X(6) VALUE " NİA.!",
03      FILLER  PIC X(8) VALUE " C Vit !",
03      FILLER  PIC X(7) VALUE "FİYAT *",
01  LINB2.
03      FILLER  PIC X VALUE "*",
03      FILLER  PIC X(20) VALUE " =====",
03      FILLER  PIC X(25) VALUE "          ===== * ",
03      FILLER  PIC X(8) VALUE " (cal) !",
03      FILLER  PIC X(6) VALUE " (gr)!",
03      FILLER  PIC X(7) VALUE " (mg) !",
03      FILLER  PIC X(6) VALUE " (mg)!",
03      FILLER  PIC X(8) VALUE " (I,U) !",
03      FILLER  PIC X(6) VALUE " (mg)!",
03      FILLER  PIC X(6) VALUE " (mg)!",
03      FILLER  PIC X(6) VALUE " (mg)!",
03      FILLER  PIC X(8) VALUE " (mg) !",
03      FILLER  PIC X(7) VALUE "(T.L) *",
01  LINAI.
03      FILLER  PIC X(2) VALUE " * ",
03      YKODY1  PIC X(5)B.
03      YEMEKADIY1 PIC X(20)B(7).
03      GRAMAJY1 PIC ZZZ.
03      FILLER  PIC XXXX VALUE " GR.",
03      FILLER  PIC X(2) VALUE SPACES.
03      FILLER  PIC X  VALUE "*",
03      KALORIY1 PIC BBBBZZ9.
03      FILLER  PIC XX VALUE " !",
03      TPROTEINY1 PIC Z9.9.

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03 FILLER PIC XXX VALUE " ! ",
03 KALSIYUMY1 PIC ZZZ9.
03 FILLER PIC XX VALUE " ! ",
03 DEMIRY1 PIC Z9.9.
03 FILLER PIC XXX VALUE " ! ",
03 AVITY1 PIC ZZZZ9.
03 FILLER PIC XX VALUE " ! ",
03 TIAMINY1 PIC 9.99.
03 FILLER PIC XX VALUE " ! ",
03 RIBOFY1 PIC 9.99.
03 FILLER PIC XX VALUE " ! ",
03 NIASY1 PIC Z9.9.
03 FILLER PIC XXX VALUE " ! ",
03 CVITY1 PIC ZZ9.9.
03 FILLER PIC XXX VALUE " ! ",
03 FIYATY1 PIC ZZ99.
03 FILLER PIC XX VALUE " *",
01 LIN99.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(13) VALUE SPACES.
03 FILLER PIC X(23) VALUE "BESİN BİLEŞİM ÇİZELGESİ".
03 FILLER PIC X(7) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(27) VALUE " E R K E K *",
03 FILLER PIC X(27) VALUE " K A D I N *",
03 FILLER PIC X(14) VALUE " ACIKLAMA ",
03 FILLER PIC X VALUE "*".
01 LIN99B.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(43) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(27) VALUE " ONERİLEN! PARK İDEGER *",
03 FILLER PIC X(27) VALUE " ONERİLEN! PARK İDEGER *",
03 FILLER PIC X(14) VALUE SPACES.
03 FILLER PIC X VALUE "*".
01 LIN3.
03 FILLER PIC X(29) VALUE "* İCERDİĞİ KALORİ MİKTARI :".
03 KALORIY PIC BZZZZ9.
03 FILLER PIC X(9) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 EKAL1 PIC BZZZ9BBBB.
03 FILLER PIC X VALUE "!",
03 EKALF PIC -ZZZ9BBBB.
03 FILLER PIC X VALUE "!",
03 EKALD PIC BBXBBB.
03 FILLER PIC X VALUE "*".
03 KKAL1 PIC BZZZ9BBBB.
03 FILLER PIC X VALUE "!",
03 KKALF PIC -ZZZ9BBB.
03 FILLER PIC X VALUE "!",
03 KKALD PIC BBXBBB.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(14) VALUE SPACES.
03 FILLER PIC X VALUE "*".
01 LIN4.
03 FILLER PIC X(29) VALUE "* HAYVANSAL PROTEİN MİKTARI :".
03 HPROTEINY PIC BBBZZ9.9.
03 FILLER PIC XXXXX VALUE " GR.",
03 FILLER PIC X(2) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(9) VALUE SPACES.

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03 FILLER PIC X VALUE "1".
03 FILLER PIC X(9) VALUE SPACES.
03 FILLER PIC X VALUE "1".
03 FILLER PIC X(7) VALUE "      *".
03 FILLER PIC X(9) VALUE SPACES.
03 FILLER PIC X VALUE "1".
03 FILLER PIC X(9) VALUE SPACES.
03 FILLER PIC X VALUE "1".
03 FILLER PIC X(7) VALUE "      *".
03 FILLER PIC X(14) VALUE SPACES.
03 FILLER PIC X VALUE "*".

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01 LIN5.

```

03 FILLER PIC X(29) VALUE "* BitKISEL PROTEiN MIKTARI :".
03 BPROTEINY PIC BBBZZ9.9.
03 FILLER PIC XXXXX VALUE " GR.".
03 FILLER PIC X(2) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(9) VALUE SPACES.
03 FILLER PIC X VALUE "1".
03 FILLER PIC X(9) VALUE SPACES.
03 FILLER PIC X VALUE "1".
03 FILLER PIC X(7) VALUE "      *".
03 FILLER PIC X(9) VALUE SPACES.
03 FILLER PIC X VALUE "1".
03 FILLER PIC X(9) VALUE SPACES.
03 FILLER PIC X VALUE "1".
03 FILLER PIC X(7) VALUE "      *".
03 FILLER PIC X(14) VALUE SPACES.
03 FILLER PIC X VALUE "*".

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01 LIN51.

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03 FILLER PIC X(29) VALUE "* TOPLAM PROTEiN MIKTARI :".
03 TPROTEINY PIC BBBZZ9.9.
03 FILLER PIC XXXXX VALUE " GR.".
03 FILLER PIC X(2) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 EPROT1 PIC BBBZ9.9BB.
03 FILLER PIC X VALUE "1".
03 EPROTF PIC -(5)9.9B.
03 FILLER PIC X VALUE "1".
03 EPROTD PIC BBXBBB.
03 FILLER PIC X VALUE "*".
03 KPROT1 PIC BBBBZ9.9B.
03 FILLER PIC X VALUE "1".
03 KPROTF PIC -(5)9.9B.
03 FILLER PIC X VALUE "1".
03 KPROTD PIC BBXBBB.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(14) VALUE " 0: yetersiz ".
03 FILLER PIC X VALUE "*".

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01 LIN6.

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03 FILLER PIC X(29) VALUE "* YAG MIKTARI :".
03 YAGY PIC BBBBZ9.9.
03 FILLER PIC XXXXX VALUE " GR.".
03 FILLER PIC X(2) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(9) VALUE SPACES.
03 FILLER PIC X VALUE "1".
03 FILLER PIC X(9) VALUE SPACES.
03 FILLER PIC X VALUE "1".
03 FILLER PIC X(7) VALUE "      *".
03 FILLER PIC X(9) VALUE SPACES.

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```
03 FILLER PIC X VALUE "1".
03 FILLER PIC X(9) VALUE SPACES.
03 FILLER PIC X VALUE "1".
03 FILLER PIC X(7) VALUE "      *",
03 FILLER PIC X(14) VALUE SPACES.
03 FILLER PIC X VALUE "*".
01 LIN61.
03 FILLER PIC X(29) VALUE "* KALSIYUM MIKTARI      :".
03 KALSIYUM PIC BZ,ZZ9.
03 FILLER PIC XXXXXX VALUE "      mg.".
03 FILLER PIC X(2) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 ECAL1 PIC BZZZ9BBBB.
03 FILLER PIC X VALUE "1".
03 ECALF PIC -(5)9BBB.
03 FILLER PIC X VALUE "1".
03 ECALD PIC BBXBBB.
03 FILLER PIC X VALUE "*".
03 KCAL1 PIC BZZZ9BBBB.
03 FILLER PIC X VALUE "1".
03 KCALF PIC -(5)9BBB.
03 FILLER PIC X VALUE "1".
03 KCALD PIC BBXBBB.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(14) VALUE "      +: yeterli ".
03 FILLER PIC X VALUE "*".
01 LIN7.
03 FILLER PIC X(29) VALUE "* DEMIR MIKTARI      :".
03 DEMIRY PIC BBBBZ9.9.
03 FILLER PIC XXXXX VALUE "      mg.".
03 FILLER PIC X(2) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 EDEM1 PIC BBBZ9.9BB.
03 FILLER PIC X VALUE "1".
03 EDEM1 PIC -(5)9.9B.
03 FILLER PIC X VALUE "1".
03 EDEM1 PIC BBXBBB.
03 FILLER PIC X VALUE "*".
03 KDEM1 PIC BBBZ9.9BB.
03 FILLER PIC X VALUE "1".
03 KDEM1 PIC -(5)9.9B.
03 FILLER PIC X VALUE "1".
03 KDEM1 PIC BBXBBB.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(14) VALUE SPACES.
03 FILLER PIC X VALUE "*".
01 LIN8.
03 FILLER PIC X(29) VALUE "* A VITAMINI MIKTARI      :".
03 AVITY PIC BZZZZ9.
03 FILLER PIC XXXXXX VALUE "      I.U.".
03 FILLER PIC X(2) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 EAVIT1 PIC BZZZ9BBBB.
03 FILLER PIC X VALUE "1".
03 EAVITF PIC -(5)9BBB.
03 FILLER PIC X VALUE "1".
03 EAVITD PIC BBXBBB.
03 FILLER PIC X VALUE "*".
03 KAVIT1 PIC BZZZ9BBBB.
03 FILLER PIC X VALUE "1".
03 KAVITF PIC -(5)9BBB.
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```
03      FILLER PIC X VALUE "I",
03      KAVITD PIC BBXBBB.
03      FILLER PIC X VALUE "*",
03      FILLER PIC X(14) VALUE SPACES.
03      FILLER PIC X VALUE "*",
01 LIN9.
03      FILLER PIC X(29) VALUE "* THIAMIN MIKTARI           :",
03      TIAMINY PIC BBBBZ9.99,
03      FILLER PIC XXXX VALUE " mg.",
03      FILLER PIC X(2) VALUE SPACES,
03      FILLER PIC X VALUE "*",
03      ETHI PIC BBBZ9.99B,
03      FILLER PIC X VALUE "I",
03      ETHF PIC -(5)9.99,
03      FILLER PIC X VALUE "I",
03      ETHD PIC BBXBBB,
03      FILLER PIC X VALUE "*",
03      KTHI PIC BBBZ9.99B,
03      FILLER PIC X VALUE "I",
03      KTHF PIC -(5)9.99,
03      FILLER PIC X VALUE "I",
03      KTHD PIC BBXBBB,
03      FILLER PIC X VALUE "*",
03      FILLER PIC X(14) VALUE SPACES,
03      FILLER PIC X VALUE "*",
01 LIN10.
03      FILLER PIC X(29) VALUE "* RIBOFLAVIN MIKTARI         :",
03      RIBOFY PIC BBBBZ9.99,
03      FILLER PIC XXXX VALUE " mg.",
03      FILLER PIC X(2) VALUE SPACES,
03      FILLER PIC X VALUE "*",
03      ERIBI PIC BBBZ9.99B,
03      FILLER PIC X VALUE "I",
03      ERIBF PIC -(5)9.99,
03      FILLER PIC X VALUE "I",
03      ERIBD PIC BBXBBB,
03      FILLER PIC X VALUE "*",
03      KRIBI PIC BBBZ9.99B,
03      FILLER PIC X VALUE "I",
03      KRIBF PIC -(5)9.99,
03      FILLER PIC X VALUE "I",
03      KRIDB PIC BBXBBB,
03      FILLER PIC X VALUE "*",
03      FILLER PIC X(14) VALUE SPACES,
03      FILLER PIC X VALUE "*",
01 LIN11.
03      FILLER PIC X(29) VALUE "* NIACIN MIKTARI             :",
03      NIASY PIC BBBBZ9.9,
03      FILLER PIC XXXXX VALUE " mg.",
03      FILLER PIC X(2) VALUE SPACES,
03      FILLER PIC X VALUE "*",
03      ENIAI PIC BBBZ9.99B,
03      FILLER PIC X VALUE "I",
03      ENIAF PIC -(5)9.99,
03      FILLER PIC X VALUE "I",
03      ENIAD PIC BBXBBB,
03      FILLER PIC X VALUE "*",
03      KNIAI PIC BBBZ9.99B,
03      FILLER PIC X VALUE "I",
03      KNIAF PIC -(5)9.99,
03      FILLER PIC X VALUE "I",
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03      KNIAD PIC BBXBBB.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(14) VALUE SPACES.
03      FILLER PIC X VALUE "*".
01  LIN12.
03      FILLER PIC X(29) VALUE "* C VITAMİNİ MİKTARI      :".
03      CVITY PIC BZZZZ9.9.
03      FILLER PIC XXXXX VALUE " mg.".
03      FILLER PIC X(2) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      ECVIT1 PIC BZZZZ9.9BB.
03      FILLER PIC X VALUE "1".
03      ECVITF PIC -(5)9.9B.
03      FILLER PIC X VALUE "1".
03      ECVITD PIC BBXBBB.
03      FILLER PIC X VALUE "*".
03      KCVIT1 PIC BZZZZ9.9BB.
03      FILLER PIC X VALUE "1".
03      KCVITF PIC -(5)9.9B.
03      FILLER PIC X VALUE "1".
03      KCVITD PIC BBXBBB.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(14) VALUE SPACES.
03      FILLER PIC X VALUE "*".
01  LIN13.
03      FILLER PIC X(29) VALUE "* TOPLAM MENU FİYATI      :".
03      FİYATY PIC BZZZZ9.9.
03      FILLER PIC XXXXXXXX VALUE " T.L.".
03      FILLER PIC X VALUE SPACES.
03      FILLER PIC XX VALUE "* ".
03      YASGR PIC X(5).
03      FILLER PIC X(14) VALUE " YAS GRUBU ve ".
03      ISTUR PIC X(6).
03      FILLER PIC X(22) VALUE " İSTE CALISANLAR İÇİN ".
03      FILLER PIC X(21) VALUE "DEĞERLENDİRME      *".
01  I PIC 99 VALUE 1.
01  GR.
03      GRAMAJ OCCURS 15 TIMES PIC 999.
01  YM.
03      YEMEKADI OCCURS 15 TIMES PIC X(20).
01  KD.
03      YKOD OCCURS 15 TIMES PIC X(5).
01  DUMMY PIC X.
01  YAG1X PIC 999V99.
01  HPROTEIN1X PIC 999V99.
01  BPROTEIN1X PIC 999V99.
01  TOTFIYAT PIC 9999999V99.
01  TOTCVIT PIC 9999V9.
01  TOTNIAS PIC 999V9.
01  TOTRIBOF PIC 99V999.
01  TOTTIAMIN PIC 99V999.
01  TOTAVIT PIC 9(6)V9.
01  TOTDEMİR PIC 999V999.
01  TOTKALSIYUM PIC 9(5)V99.
01  TOTYAG PIC 999V99.
01  TOTBPROTEIN PIC 999V99.
01  TOTHPROTEIN PIC 999V99.
01  TOTTPROTEIN PIC 999V99.
01  TOTKALORI PIC 999999V99.
01  TOTFI.
03      FİYATQ OCCURS 15 TIMES PIC 9999V99.

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01 TOTCV.
01 03 CVITQ OCCURS 15 TIMES PIC 9999V9.
01 TOTNI.
01 03 NIASQ OCCURS 15 TIMES PIC 999V9.
01 TOTRI.
01 03 RIBOFQ OCCURS 15 TIMES PIC 99V999.
01 TOTTI.
01 03 TIAMINQ OCCURS 15 TIMES PIC 99V999.
01 TOTAV.
01 03 AVITQ OCCURS 15 TIMES PIC 9(6)V9.
01 TOTDE.
01 03 DEMIRQ OCCURS 15 TIMES PIC 999V999.
01 TOTKA.
01 03 KALSIYUMQ OCCURS 15 TIMES PIC 9(5)V99.
01 TOTTPR.
01 03 TPROTEINQ OCCURS 15 TIMES PIC 999V99.
01 TOTKAL.
01 03 KALORIQ OCCURS 15 TIMES PIC 99999V99.
01 ETOTFI.
01 03 EFIYATQ OCCURS 3 TIMES PIC 9999V99.
01 ETOTCV.
01 03 ECVITQ OCCURS 3 TIMES PIC 9999V9.
01 ETOTNI.
01 03 ENIASQ OCCURS 3 TIMES PIC 999V9.
01 ETOTRI.
01 03 ERIBOFQ OCCURS 3 TIMES PIC 99V999.
01 ETOTTI.
01 03 ETIAMINQ OCCURS 3 TIMES PIC 99V999.
01 ETOTAV.
01 03 EAVITQ OCCURS 3 TIMES PIC 9(6)V9.
01 ETOTDE.
01 03 EDEMIRQ OCCURS 3 TIMES PIC 999V999.
01 ETOTKA.
01 03 EKALSIYUMQ OCCURS 3 TIMES PIC 9(5)V99.
01 ETOTTPR.
01 03 ETPROTEINQ OCCURS 3 TIMES PIC 999V99.
01 ETOTKAL.
01 03 EKALORIQ OCCURS 3 TIMES PIC 99999V99.
01 KAH.
03 FILLER PIC XX VALUE "* ".
03 FILLER PIC X(9) VALUE SPACES.
03 YENCES PIC X(20).
03 FILLER PIC X(13) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 TKALORIY1 PIC BBBZZZ9.
03 FILLER PIC XX VALUE " !".
03 TTPROTEINY1 PIC Z9.9.
03 FILLER PIC XXX VALUE " ! ".
03 TKALSIYUMY1 PIC ZZZ9.
03 FILLER PIC XX VALUE " !".
03 TDEMIRY1 PIC Z9.9.
03 FILLER PIC XXX VALUE " ! ".
03 TAVITY1 PIC ZZZZ9.
03 FILLER PIC XX VALUE " !".
03 TTIAMINY1 PIC 9.99.
03 FILLER PIC XX VALUE " !".
03 TRIBOFY1 PIC 9.99.
03 FILLER PIC XX VALUE " !".
03 TNIASY1 PIC Z9.9.
03 FILLER PIC XXX VALUE " ! ".
03 TCVITY1 PIC ZZ9.9.

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01          J PIC 99 VALUE 1.
01          ICIK      PIC 9 VALUE 0.
01          IST       PIC X.
01          KFK       PIC S9999.
01          KFE       PIC S9999.
01          NOTSATIRI.
02          FILLER PIC X(11) VALUE ' NOTLAR :
02          NOTX      PIC X(50).
01          LINBO.
03          FILLER PIC X(10) VALUE SPACES.
03          FILLER PIC X VALUE C1.
03          FILLER PIC X VALUE SDW.
03          FILLER PIC X(31) VALUE
          "GUNLUK BESİN BİLEŞİM CİZELGESİ:".
01          03       FILLER PIC X VALUE EDW.
          TARIH.
02          FILLER PIC X(80) VALUE SPACES.
02          FILLER PIC X VALUE C1.
02          FILLER PIC X VALUE SDW.
02          GUN      PIC XX/.
02          AY       PIC XX/.
02          FILLER PIC XX VALUE '19'.
02          YIL      PIC XX.
02          FILLER PIC X VALUE EDW.

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PROCEDURE DIVISION.
KUTUKAC.

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ACCEPT TARIXH FROM DATE.
DISPLAY "I?5hI8;6H" NO.
DISPLAY "I8;2H" NO.
DISPLAY "#3 GUNLUK BESİN BİLESİMİ İZLEME".
DISPLAY "I9;2H" NO.
DISPLAY "#4 GUNLUK BESİN BİLESİMİ İZLEME".
DISPLAY "I10;1H" NO.
DISPLAY "I20;3H#6 TUBITAK"
DISPLAY "I21;3H#6 YONEYLEM ARASTIRMASI BOLUMU &".
DISPLAY "I22;3H#6 BESLENME ve GIDA TEKNOLOJISI BOLUMU".
DISPLAY "I23;60HHAKAN GURDAL".
ACCEPT GRDUM.
DISPLAY "#5I?5I".
MOVE YILX TO YIL,MOVE AXX TO AY,MOVE GUNX TO GUN.

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ACILIS.
CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.
DISPLAY "[7m[1;1HGRAMAJLAR DOSYADAN MI ALINACAK(E/H):[m-".
DISPLAY "[1;38H" NO.
ACCEPT GRDUM.
DISPLAY "[7m[2;1HHANGi YAS iCiN :[m--".

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DISPLAY "L2;17H" NO.
 ACCEPT YASY.
 IF YASY NOT NUMERIC GO ACILIS.

ACIL2.
 DISPLAY "L7mL3;1HiS DURUMU [H hafif,N normal,A agir] :Lm -".
 DISPLAY "L3;39H" NO.
 ACCEPT IST.
 DISPLAY "L7mL5;1HYEMEK DOSYASININ ADI : -----Lm".
 DISPLAY "L7;1mL7;10H MEVCUT SECENEXLER:Lm".
 DISPLAY "L8;10H STANDARD YEMEKLER ICIN = YEM.DAT".
 DISPLAY "L9;10H TUREMIS YEMEKLER ICIN = YEM2.DAT".
 DISPLAY "L5;24H" NO.
 ACCEPT DNAME.
 OPEN INPUT YEMEK-KUTUGU.
 IF IST = "H" MOVE "HAFIF" TO ISTUR COMPUTE KFE = 0 - 300
 COMPUTE KFK = 0 - 200 GO KAPAN.
 IF IST = "A" MOVE "AGIR " TO ISTUR MOVE 1200 TO KFE MOVE 500 TO KFK GO KAPAN.
 IF IST = "N" MOVE "NORMAL" TO ISTUR MOVE 0 TO KFE KFK GO KAPAN.
 GO ACIL2.

KAPAN.
 CALL "SCR\$ERASE_PAGE" USING BY VALUE 1,1.
 MOVE " KAHVALTI : " TO YEMCES.

SORU.
 DISPLAY "L1;1HiL7m#3" YEMCES "Lm".
 DISPLAY "L2;1HiL7m#4" YEMCES "Lm".
 MOVE 0 TO TOTKALORI TOTFIYAT TOTCVIT TOTNIAS TOTRIBOF TOTHPROTEIN
 TOTTIAMIN TOTAVIT TOTDEMIR TOTKALSIYUM TOTYAG TOTBPROTEIN
 TOTTPROTEIN.
 MOVE 0 TO KQ.

SIFIRLA.
 ADD 1 TO KQ.
 IF KQ > 3 GO SIFIRLA2.
 MOVE 0 TO EFIYATQ(KQ) ECVITQ(KQ) ENIASQ(KQ) ERIBOFQ(KQ)
 ETIAMINQ(KQ) EAVITQ(KQ) ETPROTEINQ(KQ) EDEMIRQ(KQ)
 EKALSIYUMQ(KQ) EKALORIQ(KQ).

SIFIRLA2.
 MOVE 0 TO FIYATQ(KQ) CVITQ(KQ) NIASQ(KQ) RIBOFQ(KQ)
 TIAMINQ(KQ) AVITQ(KQ) TPROTEINQ(KQ) DEMIRQ(KQ)
 KALSIYUMQ(KQ) KALORIQ(KQ).
 IF KQ < 15 GO SIFIRLA.

WQWQ.
 DISPLAY "L3;1H" J.
 DISPLAY "L3;3H.YEMEGIN KODU : -----".
 DISPLAY "L4;1H :".
 DISPLAY "L3;23H" NO.
 ACCEPT YKOD(I).
 DISPLAY "L23;1H L2K".
 IF YKOD(1) = SPACES GO BITTI.
 IF YKOD(1) = SPACES GO ARA.
 MOVE YKOD(1) TO KOD.
 READ YEMEK-KUTUGU INVALID
 DISPLAY "L23;1H" YKOD(1) "L23;13HMEVCUT DEGILDIR!"
 GO SORU.

TAMAM.
 if grdum='E' go tamam1.
 DISPLAY "L4;1HPORSIYON GRAMAJI : --- gr".
 DISPLAY "L4;20H" NO.
 ACCEPT GRAMAJ(I).
 GO TAMAM2.

tamam1.
 move porsiyonx to gramaaj(i).

tamam2.

ADD 1 TO I J.

IF I = 6 MOVE "OGLE YEMEGI :" TO YEMCES MOVE 1 TO J GO SORU.

IF I = 11 MOVE "AKSAM YEMEGI :" TO YEMCES MOVE 1 TO J GO SORU.

IF I < 16 GO SORU ELSE MOVE 1 TO I GO HES.

ARA.

MOVE SPACES TO YKOD(I).

MOVE SPACES TO YEMEKADI(I).

MOVE 0 TO GRAMAJ(I).

ADD 1 TO I.

IF I = 6 MOVE "OGLE YEMEGI :" TO YEMCES MOVE 1 TO J GO SORU.

IF I = 11 MOVE "AKSAM YEMEGI :" TO YEMCES MOVE 1 TO J GO SORU.

IF I < 16 GO ARA.

MOVE 1 TO I.

HES.

IF I = 6 MOVE TOTFIYAT TO EFIYATQ(1)

MOVE TOTCVIT TO ECVITQ(1)

MOVE TOTNIAS TO ENIASQ(1)

MOVE TOTRIBOF TO ERIBOFQ(1)

MOVE TOTTIAMIN TO ETIAMINQ(1)

MOVE TOTAVIT TO EAVITQ(1)

MOVE TOTDEMIR TO EDEMIRQ(1)

MOVE TOTKALSIYUM TO EKALSIYUMQ(1)

MOVE TOTTPROTEIN TO ETPROTEINQ(1)

MOVE TOTKALORI TO EKALORIQ(1).

IF I = 11

SUBTRACT EFIYATQ(1) FROM TOTFIYAT GIVING EFIYATQ(2)

SUBTRACT ECVITQ(1) FROM TOTCVIT GIVING ECVITQ(2)

SUBTRACT ENIASQ(1) FROM TOTNIAS GIVING ENIASQ(2)

SUBTRACT ERIBOFQ(1) FROM TOTRIBOF GIVING ERIBOFQ(2)

SUBTRACT ETIAMINQ(1) FROM TOTTIAMIN GIVING ETIAMINQ(2)

SUBTRACT EAVITQ(1) FROM TOTAVIT GIVING EAVITQ(2)

SUBTRACT EDEMIRQ(1) FROM TOTDEMIR GIVING EDEMIRQ(2)

SUBTRACT EKALSIYUMQ(1) FROM TOTKALSIYUM GIVING EKALSIYUMQ(2)

SUBTRACT ETPROTEINQ(1) FROM TOTTPROTEIN GIVING ETPROTEINQ(2)

SUBTRACT EKALORIQ(1) FROM TOTKALORI GIVING EKALORIQ(2).

IF I = 16

COMPUTE EFIYATQ(3) = TOTFIYAT - (EFIYATQ(1) + EFIYATQ(2))

COMPUTE ECVITQ(3) = TOTCVIT - (ECVITQ(1) + ECVITQ(2))

COMPUTE ENIASQ(3) = TOTNIAS - (ENIASQ(1) + ENIASQ(2))

COMPUTE ERIBOFQ(3) = TOTRIBOF - (ERIBOFQ(1) + ERIBOFQ(2))

COMPUTE ETIAMINQ(3) = TOTTIAMIN - (ETIAMINQ(1) + ETIAMINQ(2))

COMPUTE EAVITQ(3) = TOTAVIT - (EAVITQ(1) + EAVITQ(2))

COMPUTE EDEMIRQ(3) = TOTDEMIR - (EDEMIRQ(1) + EDEMIRQ(2))

COMPUTE KFARK = EKALSIYUMQ(1) + EKALSIYUMQ(2)

COMPUTE EKALSIYUMQ(3) = TOTKALSIYUM - KFARK

COMPUTE PFARK = ETPROTEINQ(1) + ETPROTEINQ(2)

COMPUTE ETPROTEINQ(3) = TOTTPROTEIN - PFARK

COMPUTE EKALORIQ(3) = TOTKALORI - (EKALORIQ(1) + EKALORIQ(2))

GO TTT.

IF YKOD(I) = SPACES ADD 1 TO I GO HES.

MOVE YKOD(I) TO KOD.

READ YEMEK-KUTUGU INVALID DISPLAY ' '.

MOVE YEMEKADIX TO YEMEKADI(I).

COMPUTE FIYATQ(I) = FIYAT * GRAMAJ(I).

COMPUTE CVITQ(I) = CVIT * GRAMAJ(I).

COMPUTE NIASQ(I) = NIAS * GRAMAJ(I).

COMPUTE RIBOFQ(I) = RIBOF * GRAMAJ(I).

COMPUTE TIAMINQ(I) = TIAMIN * GRAMAJ(I).

COMPUTE AVITQ(I) = AVIT * GRAMAJ(I).

COMPUTE DEMIRQ(I) = DEMIR * GRAMAJ(I).

```
COMPUTE KALSIYUMQ(I) = KALSIYUM * GRAMAJ(I).
COMPUTE YAGIX = YAG * GRAMAJ(I).
COMPUTE BPROTEINIX = BPROTEIN * GRAMAJ(I).
COMPUTE HPROTEINIX = HPROTEIN * GRAMAJ(I).
COMPUTE TPROTEINQ(I) = BPROTEINIX + HPROTEINIX.
COMPUTE KALORIQ(I) = KALORI * GRAMAJ(I).
ADD FIYATQ(I) TO TOTFIYAT.
ADD CVITQ(I) TO TOTCVIT.
ADD NIASQ(I) TO TOTNIAS.
ADD RIBOFQ(I) TO TOTRIBOF.
ADD TIAMINQ(I) TO TOTTIAMIN.
ADD AVITQ(I) TO TOTAVIT.
ADD DEMIRQ(I) TO TOTDEMIR.
ADD KALSIYUMQ(I) TO TOTKALSIYUM.
ADD YAGIX TO TOTYAG.
ADD BPROTEINIX TO TOTBPROTEIN.
ADD HPROTEINIX TO TOTHPROTEIN.
ADD TPROTEINQ(I) TO TOTTPROTEIN.
ADD KALORIQ(I) TO TOTKALORI.
ADD 1 TO I.
GO HES.
```

TTT.

```
DISPLAY "E?3h".
MOVE TOTFIYAT TO FIYATY.
MOVE TOTCVIT TO CVITY.
MOVE TOTNIAS TO NIASY.
MOVE TOTRIBOF TO RIBOFY.
MOVE TOTTIAMIN TO TIAMINY.
MOVE TOTAVIT TO AVITY.
MOVE TOTDEMIR TO DEMIRY.
MOVE TOTKALSIYUM TO KALSIYUMY.
MOVE TOTYAG TO YAGY.
MOVE TOTBPROTEIN TO BPROTEINY.
MOVE TOTHPROTEIN TO HPROTEINY.
MOVE TOTTPROTEIN TO TPROTEINY.
MOVE TOTKALORI TO KALORIY.
GO TABLO.
```

HAKGUR.

```
DISPLAY "E1;1H#5" YILDIZ.
DISPLAY LINB1.
DISPLAY LINB2.
DISPLAY YILDIZ.
MOVE 1 TO I.
MOVE " KAHVALTI :" TO YEMCES.
MOVE EFIYATQ(1) TO TFIYATY1.
MOVE ECVITQ(1) TO TCVITY1.
MOVE ENIASQ(1) TO TNIASY1.
MOVE ERIBOFQ(1) TO TRIBOFY1.
MOVE ETIAMINQ(1) TO TTIAMINY1.
MOVE EAVITQ(1) TO TAVITY1.
MOVE EDEMIRQ(1) TO TDEMIRY1.
MOVE EKALSIYUMQ(1) TO TKALSIYUMY1.
MOVE ETPROTEINQ(1) TO TTPROTEINY1.
MOVE EKALORIQ(1) TO TKALORIY1.
GO HG.
```

FFF.

DISPLAY CIZGI.

HG.

```
DISPLAY "#5" KAH.
DISPLAY CIZGI.
```

FFF2.

```
MOVE YKOD(I) TO YKODY1.
MOVE YEMEKADI(I) TO YEMEKADIY1.
MOVE GRAMAJ(I) TO GRAMAJY1.
MOVE FIYATQ(I) TO FIYATY1.
MOVE CVITQ(I) TO CVITY1.
MOVE NIASQ(I) TO NIASY1.
MOVE RIBOFQ(I) TO RIBOFY1.
MOVE TIAMINQ(I) TO TIAMINY1.
MOVE AVITQ(I) TO AVITY1.
MOVE DEMIRQ(I) TO DEMIRY1.
MOVE KALSIYUMQ(I) TO KALSIYUMY1.
MOVE TPROTEINQ(I) TO TPROTEINY1.
MOVE KALORIQ(I) TO KALORIY1.
IF YKOD(I) NOT = SPACES DISPLAY LINA1.
ADD 1 TO I.
IF I = 6 MOVE "      OGLE YEMEGI :" TO YEMCES
  MOVE EFIYATQ(2) TO TFIYATY1
  MOVE ECVITQ(2) TO TCVITY1
  MOVE ENIASQ(2) TO TNIASY1
  MOVE ERIBOFQ(2) TO TRIBOFY1
  MOVE ETIAMINQ(2) TO TTIAMINY1
  MOVE EAVITQ(2) TO TAVITY1
  MOVE EDEMIRQ(2) TO TDEMIRY1
  MOVE EKALSIYUMQ(2) TO TKALSIYUMY1
  MOVE ETPROTEINQ(2) TO TTPROTEINY1
  MOVE EKALORIQ(2) TO TKALORIY1
  GO FFF.
IF I = 11 MOVE "      AKSAM YEMEGI :" TO YEMCES
  MOVE EFIYATQ(3) TO TFIYATY1
  MOVE ECVITQ(3) TO TCVITY1
  MOVE ENIASQ(3) TO TNIASY1
  MOVE ERIBOFQ(3) TO TRIBOFY1
  MOVE ETIAMINQ(3) TO TTIAMINY1
  MOVE EAVITQ(3) TO TAVITY1
  MOVE EDEMIRQ(3) TO TDEMIRY1
  MOVE EKALSIYUMQ(3) TO TKALSIYUMY1
  MOVE ETPROTEINQ(3) TO TTPROTEINY1
  MOVE EKALORIQ(3) TO TKALORIY1
  GO FFF.
IF I < 16 GO FFF2.
DISPLAY YILDIZ.
DISPLAY "[23;8H[7mDEVAM iCiN (RETURN) e BASINIZ!["".
ACCEPT REKL.
CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.
DISPLAY "[1;2H#6GUNLUK BESiN BiLESiM CiZELGESi:".
DISPLAY YILDIZ.
DISPLAY LIN99.
DISPLAY LIN99B.
DISPLAY CIZGI2.
DISPLAY LIN3.
DISPLAY LIN4.
DISPLAY LIN5.
DISPLAY LIN51.
DISPLAY LIN6.
DISPLAY LIN61.
DISPLAY LIN7.
DISPLAY LIN8.
DISPLAY LIN8.
DISPLAY LIN9.
DISPLAY LIN10.
DISPLAY LIN11.
DISPLAY LIN12.
```

DISPLAY CIZGI.
DISPLAY LIN13.
DISPLAY YILDIZ.
DISPLAY "BU TABLONUN CIKTISINI ALMAK iCiN <e> DUZELTME iCiN <d>,HEM CIKTI ALMA HEM
MOVE 1 TO I J.
DISPLAY "DEVAM ETMEK iCiN <RETURN> TUSUNA BASINIZ!".
ACCEPT DUMMY.
CALL "SCR\$ERASE_PAGE" USING BY VALUE 1,1.
DISPLAY "[?3]",
IF DUMMY = "E" OR DUMMY = "e" PERFORM YAZIL THRU FFG.
IF DUMMY = "D" OR DUMMY = "d" GO DEGIS.
IF DUMMY = "B" OR DUMMY = "b" PERFORM YAZIL THRU FFG GO DEGIS.
MOVE "KAHVALTI :" TO YEMCES.
GO SORU.

BITTI.
CLOSE YEMEK-KUTUGU CIKTI-KUTUGU.
STOP RUN.

YAZIL.
IF ICIK = 1 WRITE SATIR FROM TARIH AFTER PAGE
ELSE WRITE SATIR FROM TARIH.
MOVE 1 TO ICIK.
WRITE SATIR FROM LINB0.
WRITE SATIR FROM YILDIZ.
WRITE SATIR FROM LINB1.
WRITE SATIR FROM LINB2.
WRITE SATIR FROM YILDIZ.
MOVE 1 TO I.
MOVE "KAHVALTI :" TO YEMCES.
MOVE EPIYATQ(1) TO TFIYATY1.
MOVE ECVITQ(1) TO TCVITY1.
MOVE ENIASQ(1) TO TNIASY1.
MOVE ERIBOFQ(1) TO TRIBOFY1.
MOVE ETIAMINQ(1) TO TTIAMINY1.
MOVE EAVITQ(1) TO TAVITY1.
MOVE EDEMIRQ(1) TO TDEMIRY1.
MOVE EKALSIYUMQ(1) TO TKALSIYUMY1.
MOVE ETPROTEINQ(1) TO TTPROTEINY1.
MOVE EKALORIQ(1) TO TKALORIY1.
WRITE SATIR FROM KAH.
WRITE SATIR FROM CIZGI.

FFG.
MOVE YKOD(1) TO YKODY1.
MOVE YEMEKADI(1) TO YEMEKADIY1.
MOVE GRAMAJ(1) TO GRAMAJY1.
MOVE FIYATQ(1) TO FIYATY1.
MOVE CVITQ(1) TO CVITY1.
MOVE NIASQ(1) TO NIASY1.
MOVE RIBOFQ(1) TO RIBOFY1.
MOVE TIAMINQ(1) TO TIAMINY1.
MOVE AVITQ(1) TO AVITY1.
MOVE DEMIRQ(1) TO DEMIRY1.
MOVE KALSIYUMQ(1) TO KALSIYUMY1.
MOVE TPROTEINQ(1) TO TPROTEINY1.
MOVE KALORIQ(1) TO KALORIY1.
IF YKOD(1) NOT = SPACES WRITE SATIR FROM LINA1.
ADD 1 TO I.
IF I = 6 MOVE "OGLE YEMEGI :" TO YEMCES
MOVE EPIYATQ(2) TO TFIYATY1
MOVE ECVITQ(2) TO TCVITY1
MOVE ENIASQ(2) TO TNIASY1
MOVE ERIBOFQ(2) TO TRIBOFY1

```

MOVE ETIAMINQ(2) TO TTIAMINY1
MOVE EAVITQ(2) TO TAVITY1
MOVE EDEMIRQ(2) TO TDEMIRY1
MOVE EKALSIYUMQ(2) TO TKALSIYUMY1
MOVE ETPROTEINQ(2) TO TTPROTEINY1
MOVE EKALORIQ(2) TO TKALORIY1
WRITE SATIR FROM CIZGI
WRITE SATIR FROM KAH
WRITE SATIR FROM CIZGI.

```

```

IF I = 11 MOVE "AKSAM YEMEGI :" TO YEMCES

```

```

MOVE EFIYATQ(3) TO TFIYATY1
MOVE ECVITQ(3) TO TCVITY1
MOVE ENIASQ(3) TO TNIASY1
MOVE ERIBOFQ(3) TO TRIBOFY1
MOVE ETIAMINQ(3) TO TTIAMINY1
MOVE EAVITQ(3) TO TAVITY1
MOVE EDEMIRQ(3) TO TDEMIRY1
MOVE EKALSIYUMQ(3) TO TKALSIYUMY1
MOVE ETPROTEINQ(3) TO TTPROTEINY1
MOVE EKALORIQ(3) TO TKALORIY1
WRITE SATIR FROM CIZGI
WRITE SATIR FROM KAH
WRITE SATIR FROM CIZGI.

```

```

IF I < 16 GO FFG.

```

```

MOVE 1 TO I J,
WRITE SATIR FROM YILDIZ.
WRITE SATIR FROM LIN99.
WRITE SATIR FROM LIN99B.
WRITE SATIR FROM CIZGI2.
WRITE SATIR FROM LIN3.
WRITE SATIR FROM LIN4.
WRITE SATIR FROM LIN5.
WRITE SATIR FROM LIN51.
WRITE SATIR FROM LIN6.
WRITE SATIR FROM LIN61.
WRITE SATIR FROM LIN7.
WRITE SATIR FROM LIN8.
WRITE SATIR FROM LIN9.
WRITE SATIR FROM LIN10.
WRITE SATIR FROM LIN11.
WRITE SATIR FROM LIN12.
WRITE SATIR FROM CIZGI2.
WRITE SATIR FROM LIN13.
WRITE SATIR FROM YILDIZ.

```

```

DISPLAY

```

```

' [15;1HNOT:-----'

```

```

DISPLAY ' [15;5H' NO.

```

```

ACCEPT NOTX.

```

```

CALL "SCR$ERASE PAGE" USING BY VALUE 1,1.

```

```

IF NOTX NOT EQUAL SPACES WRITE SATIR FROM NOTSATIRI AFTER 2.

```

```

TABLO.

```

```

OPEN INPUT ST-KUTUGU.

```

```

TABLO2.

```

```

READ ST-KUTUGU AT END DISPLAY "H".

```

```

COMPUTE YASX = YASY * 10.

```

```

IF YASX > YAS GO TABLO2.

```

```

MOVE YGR TO YASGR.

```

```

COMPUTE EKAL1 = EKAL + KFE.

```

```

MOVE EPROT TO EPROT1.

```

```

MOVE ECAL TO ECAL1.

```

```

MOVE EDEM TO EDEM1.

```

```
MOVE EAVIT TO EAVIT1.
MOVE ETH TO ETH1.
MOVE ERIB TO ERIB1.
MOVE ENIA TO ENIA1.
MOVE ECVIT TO ECVIT1.
COMPUTE KKAL1 = KKAL + KFK.
MOVE KPROT TO KPROT1.
MOVE KCAL TO KCAL1.
MOVE KDEM TO KDEM1.
MOVE KAVIT TO KAVIT1.
MOVE KTH TO KTH1.
MOVE KRIB TO KRIB1.
MOVE KNIA TO KNIA1.
MOVE KCVIT TO KCVIT1.
COMPUTE EKALF = TOTKALORI - ( EKAL + KFE ).
COMPUTE EPROTF = TOTTPROTEIN - EPROT.
COMPUTE ECALF = TOTKALSIYUM - ECAL.
COMPUTE EDEMFP = TOTDEMIR - EDEM.
COMPUTE EAVITF = TOTAVIT - EAVIT.
COMPUTE ETHF = TOTTIAMIN - ETH.
COMPUTE ERIBF = TOTRIBOF - ERIB.
COMPUTE ENIAF = TOTNIAS - ENIA.
COMPUTE ECVITF = TOTCVIT - ECVIT.
COMPUTE KKALF = TOTKALORI - (KKAL + KFK).
COMPUTE KPROTF = TOTTPROTEIN - KPROT.
COMPUTE KCALF = TOTKALSIYUM - KCAL.
COMPUTE KDEMFP = TOTDEMIR - KDEM.
COMPUTE KAVITF = TOTAVIT - KAVIT.
COMPUTE KTHF = TOTTIAMIN - KTH.
COMPUTE KRIBF = TOTRIBOF - KRIB.
COMPUTE KNIAF = TOTNIAS - KNIA.
COMPUTE KCVITF = TOTCVIT - KCVIT.
IF EKAL > TOTKALORI MOVE "0" TO EKALD
ELSE MOVE "+" TO EKALD.
IF EPROT > TOTTPROTEIN MOVE "0" TO EPROTD
ELSE MOVE "+" TO EPROTD.
IF ECAL > TOTKALSIYUM MOVE "0" TO ECALD
ELSE MOVE "+" TO ECALD.
IF EDEM > TOTDEMIR MOVE "0" TO EDEMD
ELSE MOVE "+" TO EDEMD.
IF EAVIT > TOTAVIT MOVE "0" TO EAVITD
ELSE MOVE "+" TO EAVITD.
IF ETH > TOTTIAMIN MOVE "0" TO ETHD
ELSE MOVE "+" TO ETHD.
IF ERIB > TOTRIBOF MOVE "0" TO ERIBD
ELSE MOVE "+" TO ERIBD.
IF ENIA > TOTNIAS MOVE "0" TO ENIAD
ELSE MOVE "+" TO ENIAD.
IF ECVIT > TOTCVIT MOVE "0" TO ECVITD
ELSE MOVE "+" TO ECVITD.
IF KKAL > TOTKALORI MOVE "0" TO KKALD
ELSE MOVE "+" TO KKALD.
IF KPROT > TOTTPROTEIN MOVE "0" TO KPROTD
ELSE MOVE "+" TO KPROTD.
IF KCAL > TOTKALSIYUM MOVE "0" TO KCALD
ELSE MOVE "+" TO KCALD.
IF KDEM > TOTDEMIR MOVE "0" TO KDEM1D
ELSE MOVE "+" TO KDEM1D.
IF KAVIT > TOTAVIT MOVE "0" TO KAVITD
ELSE MOVE "+" TO KAVITD.
IF KTH > TOTTIAMIN MOVE "0" TO KTHD
```

```
ELSE MOVE "+" TO KTHD.  
IF KRIB > TOTRIBOF MOVE "0" TO KRIED  
ELSE MOVE "+" TO KRIED.  
IF KNIA > TOTNIAS MOVE "0" TO KNIAD  
ELSE MOVE "+" TO KNIAD.  
IF KCVIT > TOTCVIT MOVE "0" TO KCVITD  
ELSE MOVE "+" TO KCVITD.  
CLOSE ST-KUTUGU.  
GO HAKGUR.
```

```
DEGIS.  
PERFORM SIFIRLA THRU SIFIRLA2.  
MOVE 0 TO TOTKALORI TOTFIYAT TOTCVIT TOTNIAS TOTRIBOF TOTHPROTEIN  
TOTTIAMIN TOTAVIT TOTDEMIR TOTKALSIYUM TOTYAG TOTBPROTEIN  
TOTTPROTEIN.  
MOVE 1 TO I.  
DISPLAY "[1;1HC7m" DEGBAS "[m"  
MOVE "SABAH" TO VAKIT.
```

```
DEG1.  
MOVE YKOD(I) TO YKODD.  
MOVE YEMEKADI(I) TO YADD.  
MOVE GRAMAJ(I) TO GRD.  
MOVE I TO SSAY1 SSAY2.  
DISPLAY DEGSAT.  
ADD 1 TO I.  
MOVE SPACES TO VAKIT.  
IF I = 6 MOVE "OGLE " TO VAKIT.  
IF I = 11 MOVE "AKSAM" TO VAKIT.  
IF I = 16 GO DEGKAB.  
GO TO DEG1.
```

```
DEGKAB.  
DISPLAY "[20;1HHANGI ALANI DEGISTIRECEKSiNiZ?: ---".  
DISPLAY "[20;33H" NO.  
ACCEPT DEGSAY.  
IF DEGSAY = ZERO MOVE 1 TO I GO HES.  
COMPUTE LI = SAT + 1.
```

```
DEGKAB2.  
IF YER = 0 MOVE 17 TO CL  
DISPLAY POS NO  
DISPLAY "-----"  
MOVE 17 TO CL  
DISPLAY POS NO  
ACCEPT YKODD  
MOVE YKODD TO YKOD(SAT) KOD  
MOVE GRAMAJ(SAT) TO GRD  
MOVE SAT TO SSAY1 SSAY2  
GO TO TEK.  
IF YER = 1 MOVE 48 TO CL  
DISPLAY POS NO  
DISPLAY "----"  
MOVE 48 TO CL  
DISPLAY POS NO  
ACCEPT GRD  
MOVE GRD TO GRAMAJ(SAT)  
MOVE YKOD(SAT) TO YKODD  
MOVE YEMEKADI(SAT) TO YADD  
MOVE 1 TO CL  
DISPLAY POS NO  
MOVE SAT TO SSAY1 SSAY2  
DISPLAY DEGSAT GO DEGKAB.  
GO DEGKAB.
```

```
TEK.
```

```
IF YKODD = SPACES MOVE SPACES TO YKOD(SAT) YEMEKADI(SAT) YADD  
MOVE ZERO TO GRD GRAMAJ(SAT) GO TEKE.  
READ YEMEK-KUTUGU INVALID GO DEGKAB2.  
MOVE YEMEKADIX TO YADD YEMEKADI(SAT).
```

TEKE.

```
MOVE 1 TO CL.  
DISPLAY POS NO.  
DISPLAY DEGSAT GO TO DEGKAB.
```

PROGRAM LIST OF HAFTAIZ.COB

IDENTIFICATION DIVISION.
PROGRAM-ID, HAFTALIK-YEMEK-BESIN-DEG-IZLEME.
AUTHOR, HAKAN GURDAL.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SPECIAL-NAMES.

SYMBOLIC CHARACTERS CR C1 C2 C3 C4 SDW EDW
ESCAPER PARM1 PARM2 PARM3
14 19 26 27 21 15 16 28 92 60 103.

INPUT-OUTPUT SECTION.
FILE-CONTROL.

SELECT YEMEK-KUTUGU ASSIGN TO INFILE
ORGANIZATION INDEXED
ACCESS RANDOM
RECORD KEY KOD.
SELECT BESDEG-KUTUGU ASSIGN TO 'MLZK.DAT'
ORGANIZATION INDEXED
ACCESS RANDOM
RECORD KEY MLZKOD.
SELECT TOPLAM-FILE ASSIGN TO 'MIKTAR.DAT'
ORGANIZATION INDEXED
ACCESS DYNAMIC
RECORD KEY ANAH.
SELECT ST-KUTUGU ASSIGN TO 'AILE.DAT'.
SELECT CIKTI-KUTUGU ASSIGN TO 'HAFTA.DAT'.

DATA DIVISION.

FILE SECTION.

FD TOPLAM-FILE.

01 KAC-REC.

03 ANAH PIC X(5).
03 ICMIK PIC 9(6)V99.

FD BESDEG-KUTUGU.

01 BESDEG-YAZILIM.

03 MLZKOD PIC X(5).
03 MLZAD PIC X(20).
03 FILLER PIC X(46).

FD CIKTI-KUTUGU LABEL RECORDS ARE OMITTED.

01 SATIR PIC X(132).

FD ST-KUTUGU RECORD CONTAINS 56 CHARACTERS.

01 ST-YAZILIM.

03 EKAL PIC 9(6).
03 FILLER PIC X.
03 EPROT PIC 9(4)V9.
03 FILLER PIC X.
03 ECAL PIC 9(6).
03 FILLER PIC X.
03 EDEM PIC 9(4)V9.
03 FILLER PIC X.
03 EAVIT PIC 9(6).
03 FILLER PIC X.
03 ETH PIC 9(3)V99.
03 FILLER PIC X.
03 ERIB PIC 9(3)V99.
03 FILLER PIC X.
03 ENIA PIC 9(4)V9.
03 FILLER PIC X.
03 ECVIT PIC 9(4)V9.

FD YEMEK-KUTUGU

VALUE OF ID DNAME.

01 YEMEK-YAZILIM.

03 KOD PIC X(5).

03 YEMEKADIX PIC X(20).
 03 MALZEME-SAYISI PIC 99.
 03 PORSIYONX PIC 999.
 03 TOTAL-BESIN.
 05 KALORI PIC 99V9(4).
 05 HPROTEIN PIC 9V9(4).
 05 BPROTEIN PIC 9V9(4).
 05 YAG PIC 9V9(4).
 05 KALSIYUM PIC 999V9(4).
 05 DEMIR PIC 9V9(5).
 05 AVIT PIC 9(3)V999.
 05 TIAMIN PIC V9(5).
 05 RIBOF PIC V9(5).
 05 NIAS PIC 9V9(4).
 05 CVIT PIC 99V9(4).
 03 FIYAT PIC 999V9(2).
 03 MLZ OCCURS 15 TIMES.

 05 MLZKOD1 PIC X(5).
 05 MLZMIK PIC 9V999.

WORKING-STORAGE SECTION.

01 ICMIK1 PIC 9(6)V99.
 01 ICSAY1 PIC 999.
 01 ICSATIR.
 03 FILLER PIC XXXX VALUE "*" ".
 03 ICSAY PIC ZZ9.
 03 FILLER PIC XX VALUE ")" ".
 03 MALZ PIC BX(5).
 03 ISIM PIC B(5)X(20).
 03 FILLER PIC X(3) VALUE " *".
 03 MIKT PIC B(5)Z(5)9B(3).
 03 FILLER PIC X(6) VALUE " GR *".
 01 ICBASLIK.
 03 FILLER PIC X(30) VALUE "*" NO MALZEME KODU & ADI ".
 03 FILLER PIC X(13) VALUE " *".
 03 FILLER PIC X(20) VALUE " KULLANILAN MIKTAR *".
 01 ICYILDIZ PIC X(63) VALUE ALL " *".
 01 ICCIZGI.
 03 FILLER PIC XX VALUE "*-".
 03 FILLER PIC X(40) VALUE ALL "-".
 03 FILLER PIC X VALUE " *".
 03 FILLER PIC X(19) VALUE ALL "-".
 03 FILLER PIC X VALUE " *".
 01 HAFBAS.
 03 FILLER PIC X(33) VALUE ' 1.GUN 2.GUN 3.GUN '.
 03 FILLER PIC X(33) VALUE ' 4.GUN 5.GUN 6.GUN '.
 03 FILLER PIC X(12) VALUE ' 7.GUN '.
 01 HAFLIN.
 03 K1 PIC BX(5).
 03 G1 PIC BZ(3).
 03 K2 PIC BBX(5).
 03 G2 PIC BZ(3).
 03 K3 PIC BBX(5).
 03 G3 PIC BZ(3).
 03 K4 PIC BBX(5).
 03 G4 PIC BZ(3).
 03 K5 PIC BBX(5).
 03 G5 PIC BZ(3).
 03 K6 PIC BBX(5).
 03 G6 PIC BZ(3).
 03 K7 PIC BBX(5).
 03 G7 PIC BZ(3).

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01 DNAME PIC X(10),
01 PDS.
02 FILLER PIC X VALUE ESCAPER.
02 FILLER PIC X VALUE PARM1.
02 LI PIC 99 VALUE 00.
02 FILLER PIC X VALUE PARM2.
02 CL PIC 99 VALUE 00.
02 FILLER PIC X VALUE PARM3.
01 DEGSAT.
02 VAKIT PIC X(6).
02 SSAY1 PIC 99.
02 XSAY1 PIC 9 VALUE 0.
02 FILLER PIC X VALUE ")".
02 YKODD PIC X(5).
02 FILLER PIC X(7) VALUE SPACES.
02 YADD PIC X(20).
02 FILLER PIC X VALUE SPACES.
02 SSAY2 PIC 99.
02 XSAY2 PIC 9 VALUE 1.
02 FILLER PIC X VALUE ")".
02 GRD PIC 999.
01 DEGRAS.
02 FILLER PIC X(30) VALUE "*****KOD*****AD****".
02 FILLER PIC X(30) VALUE "*****GRAMAJ*****".
01 DEGSAY.
02 SAT PIC 99.
02 YER PIC 9.
01 KFARK PIC 99999V999.
01 PFARK PIC 999V999.
01 KQ PIC 99 VALUE 0.
01 BEKL PIC X.
01 CIZGI.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(43) VALUE ALL "-".
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(67) VALUE ALL "-".
03 FILLER PIC XX VALUE "-*".
01 CIZGI2.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(43) VALUE ALL "-".
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(28) VALUE ALL "-".
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(24) VALUE ALL "-".
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(13) VALUE ALL "-".
03 FILLER PIC XX VALUE "-*".
01 LIN1Z.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(43) VALUE SPACES.
03 FILLER PIC X VALUE "*".
03 FILLER PIC X(67) VALUE SPACES.
03 FILLER PIC XX VALUE " *".
01 YILDIZ.
03 FILLER PIC X(114) VALUE ALL "*".
01 LINB1.
03 FILLER PIC X VALUE "*".
03 GB PIC BZ9.
03 FILLER PIC X(20) VALUE ". GUNUN YEMEK MENUSU".
03 FILLER PIC X(2) VALUE SPACES.
03 FILLER PIC X(20) VALUE " GRAMAJLAR *".

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03      FILLER PIC X(8) VALUE " ENERJİ!".
03      FILLER PIC X(6) VALUE " PRO.!",
03      FILLER PIC X(7) VALUE " KALS.!",
03      FILLER PIC X(6) VALUE " DEM.!",
03      FILLER PIC X(8) VALUE " A Vit.!",
03      FILLER PIC X(6) VALUE " THİ.!",
03      FILLER PIC X(6) VALUE " RİB.!",
03      FILLER PIC X(6) VALUE " NİA.!",
03      FILLER PIC X(8) VALUE " C Vit !",
03      FILLER PIC X(7) VALUE "FİYAT *".

01 LINE2.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(20) VALUE " =====",
03      FILLER PIC X(25) VALUE "====              * ",
03      FILLER PIC X(8) VALUE " (cal) !",
03      FILLER PIC X(6) VALUE " (gr)!",
03      FILLER PIC X(7) VALUE " (mg) !",
03      FILLER PIC X(6) VALUE " (mg)!",
03      FILLER PIC X(8) VALUE " (I.U) !",
03      FILLER PIC X(6) VALUE " (mg)!",
03      FILLER PIC X(6) VALUE " (mg)!",
03      FILLER PIC X(6) VALUE " (mg)!",
03      FILLER PIC X(8) VALUE " (mg) !",
03      FILLER PIC X(7) VALUE "(T.L) *".

01 L      PIC 99 VALUE 1.
01 LINA1.
03      FILLER PIC X(2) VALUE "* ".
03      YKODY1 PIC X(5)B.
03      YEMEKADIY1 PIC X(20)B(7).
03      GRAMAJY1 PIC ZZZ.
03      FILLER PIC XXXX VALUE " GR.".
03      FILLER PIC X(2) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      KALORIY1 PIC BBZZZZ9.
03      FILLER PIC XX VALUE " !".
03      TPROTEINY1 PIC ZZ9.9.
03      FILLER PIC X VALUE "!",
03      KALSIYUMY1 PIC ZZZZ9.
03      FILLER PIC XX VALUE " !".
03      DEMIRY1 PIC ZZ9.9.
03      FILLER PIC X VALUE "!",
03      AVITY1 PIC ZZZZZ9.
03      FILLER PIC XX VALUE " !".
03      TIAMINY1 PIC 9.99.
03      FILLER PIC XX VALUE " !".
03      RİBOFY1 PIC 9.99.
03      FILLER PIC XX VALUE " !".
03      NİASY1 PIC Z9.9.
03      FILLER PIC XXX VALUE " ! ".
03      CVITY1 PIC ZZ9.9.
03      FILLER PIC XXX VALUE " ! ".
03      FİYATY1 PIC ZZ99.
03      FILLER PIC XX VALUE " *".

01 LINA2.
03      FILLER PIC X(2) VALUE "* ".
03      GA      PIC BZ9.
03      FILLER PIC X(16) VALUE ". GUN TOPLAMI : ".
03      FILLER PIC X(23) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      KALORIY2 PIC BBZZZZ9.
03      FILLER PIC XX VALUE " !".

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03      TPROTEINY2 PIC ZZ9.9.
03      FILLER PIC X VALUE "!".
03      KALSIYUMY2 PIC ZZZZ9.
03      FILLER PIC XX VALUE " !".
03      DEMIRY2 PIC ZZ9.9.
03      FILLER PIC X VALUE "!".
03      AVITY2 PIC ZZZZZ9.
03      FILLER PIC XX VALUE " !".
03      TIAMINY2 PIC 9.99.
03      FILLER PIC XX VALUE " !".
03      RIBOFY2 PIC 9.99.
03      FILLER PIC XX VALUE " !".
03      NIASY2 PIC Z9.9.
03      FILLER PIC XXX VALUE " ! ".
03      CVITY2 PIC ZZ9.9.
03      FILLER PIC XXX VALUE " ! ".
03      FIYATY2 PIC ZZ99.
03      FILLER PIC XX VALUE " *".
01      LIN99.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(13) VALUE "      HAFTALIK ".
03      FILLER PIC X(23) VALUE "BESİN BİLESİM ÇİZELGESİ".
03      FILLER PIC X(7) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(29) VALUE " 4 KİSİLİK AİLE İÇİN      *".
03      FILLER PIC X(25) VALUE "                                *".
03      FILLER PIC X(14) VALUE " AÇIKLAMA      ".
03      FILLER PIC X VALUE "*".
01      LIN99B.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(43) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(29) VALUE " ÖNERİLEN : FARK İDEGER *".
03      FILLER PIC X(25) VALUE "                                *".
03      FILLER PIC X(14) VALUE SPACES.
03      FILLER PIC X VALUE "*".
01      LIN3.
03      FILLER PIC X(29) VALUE "* İÇERDİĞİ KALORİ MİKTARI :".
03      KALORIY PIC ZZZZZ9.
03      FILLER PIC X(9) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      EKAL1 PIC ZZZZZZ9BBBB.
03      FILLER PIC X VALUE "!".
03      EKALF PIC -ZZZZ9BBB.
03      FILLER PIC X VALUE "!".
03      EKALD PIC BBXBBB.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(24) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(14) VALUE SPACES.
03      FILLER PIC X VALUE "*".
01      LIN4.
03      FILLER PIC X(29) VALUE "* HAYVANSAL PROTEİN MİKTARI :".
03      HPROTEINY PIC BZZZZ9.9.
03      FILLER PIC XXXXX VALUE " GR.".
03      FILLER PIC X(2) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(11) VALUE SPACES.
03      FILLER PIC X VALUE "!".
03      FILLER PIC X(9) VALUE SPACES.
03      FILLER PIC X VALUE "!".

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03      FILLER PIC X(7) VALUE "      *".
03      FILLER PIC X(18) VALUE SPACES.
03      FILLER PIC X(7) VALUE "      *".
03      FILLER PIC X(14) VALUE SPACES.
03      FILLER PIC X VALUE "*".
01  LIN5.
03      FILLER PIC X(29) VALUE "* Bitkisel Protein MikTARI :".
03      BPROTEINY PIC BZZZZ9.9.
03      FILLER PIC XXXXX VALUE "  GR.".
03      FILLER PIC X(2) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(11) VALUE SPACES.
03      FILLER PIC X VALUE "!".
03      FILLER PIC X(9) VALUE SPACES.
03      FILLER PIC X VALUE "!".
03      FILLER PIC X(7) VALUE "      *".
03      FILLER PIC X(18) VALUE SPACES.
03      FILLER PIC X(7) VALUE "      *".
03      FILLER PIC X(14) VALUE SPACES.
03      FILLER PIC X VALUE "*".
01  LIN51.
03      FILLER PIC X(29) VALUE "* TOPLAM Protein MikTARI :".
03      TPROTEINY PIC BZZZZ9.9.
03      FILLER PIC XXXXX VALUE "  GR.".
03      FILLER PIC X(2) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      EPROT1 PIC BBZZZZ9.9BB.
03      FILLER PIC X VALUE "!".
03      EPROTF PIC -(5)9.9B.
03      FILLER PIC X VALUE "!".
03      EPROTD PIC BBXBBB.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(24) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(14) VALUE "  0: yetersiz ".
03      FILLER PIC X VALUE "*".
01  LIN6.
03      FILLER PIC X(29) VALUE "* YAG MikTARI :".
03      YAGY PIC BZZZZ9.9.
03      FILLER PIC XXXXX VALUE "  GR.".
03      FILLER PIC X(2) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(11) VALUE SPACES.
03      FILLER PIC X VALUE "!".
03      FILLER PIC X(9) VALUE SPACES.
03      FILLER PIC X VALUE "!".
03      FILLER PIC X(7) VALUE "      *".
03      FILLER PIC X(18) VALUE SPACES.
03      FILLER PIC X(7) VALUE "      *".
03      FILLER PIC X(14) VALUE SPACES.
03      FILLER PIC X VALUE "*".
01  LIN61.
03      FILLER PIC X(29) VALUE "* Kalsiyum MikTARI :".
03      KALSIYUMY PIC ZZ,ZZ9.
03      FILLER PIC XXXXXXXX VALUE "      mg.".
03      FILLER PIC X(2) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      ECAL1 PIC BZZZZZ9BBBB.
03      FILLER PIC X VALUE "!".
03      ECALF PIC -(5)9BBB.
03      FILLER PIC X VALUE "!".

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03      ECALD PIC BXXBBB.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(24) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(14) VALUE "  +: yeterli  ".
03      FILLER PIC X VALUE "*".
01 LIN7.
03      FILLER PIC X(29) VALUE "* DEMIR MIKTARI      :".
03      DEMIRY PIC BZZZZ9.9.
03      FILLER PIC XXXXX VALUE "  mg.".
03      FILLER PIC X(2) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      EDEMI PIC BZZZZZ9.9BB.
03      FILLER PIC X VALUE "!".
03      EDEMF PIC -(5)9.9B.
03      FILLER PIC X VALUE "!".
03      EDEMD PIC BXXBBB.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(24) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(14) VALUE SPACES.
03      FILLER PIC X VALUE "*".
01 LIN8.
03      FILLER PIC X(29) VALUE "* A ViTAMiNi MIKTARI      :".
03      AVITY PIC ZZZZZ9.
03      FILLER PIC XXXXXXX VALUE "  I.U.".
03      FILLER PIC X(2) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      EAVIT1 PIC ZZZZZZ9BBBB.
03      FILLER PIC X VALUE "!".
03      EAVITF PIC -(5)9BBB.
03      FILLER PIC X VALUE "!".
03      EAVITD PIC BXXBBB.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(24) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(14) VALUE SPACES.
03      FILLER PIC X VALUE "*".
01 LIN9.
03      FILLER PIC X(29) VALUE "* THiAMiN MIKTARI      :".
03      TIAMINY PIC BZZZZ9.99.
03      FILLER PIC XXXX VALUE "  mg.".
03      FILLER PIC X(2) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      ETH1 PIC BZZZZZ9.99B.
03      FILLER PIC X VALUE "!".
03      ETHF PIC -(5)9.99.
03      FILLER PIC X VALUE "!".
03      ETHD PIC BXXBBB.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(24) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      FILLER PIC X(14) VALUE SPACES.
03      FILLER PIC X VALUE "*".
01 LIN10.
03      FILLER PIC X(29) VALUE "* RiBOFLAViN MIKTARI      :".
03      RiBOFY PIC BZZZZ9.99.
03      FILLER PIC XXXX VALUE "  mg.".
03      FILLER PIC X(2) VALUE SPACES.
03      FILLER PIC X VALUE "*".
03      ERIR1 PIC BZZZZZ9.99B.

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03      FILLER PIC X VALUE "!",
03      ERIBF PIC -(5)9.99,
03      FILLER PIC X VALUE "!",
03      ERIBD PIC BBXBBB,
03      FILLER PIC X VALUE "*",
03      FILLER PIC X(24) VALUE SPACES,
03      FILLER PIC X VALUE "*",
03      FILLER PIC X(14) VALUE SPACES,
03      FILLER PIC X VALUE "*",
01  LIN11,
03      FILLER PIC X(29) VALUE "* NIACIN MIKTARI      :",
03      NIASY PIC ZZZZ9.9,
03      FILLER PIC XXXXX VALUE " mg.",
03      FILLER PIC X(2) VALUE SPACES,
03      FILLER PIC X VALUE "*",
03      ENIA1 PIC BZZZZ9.9BB,
03      FILLER PIC X VALUE "!",
03      ENIAF PIC -(5)9.9B,
03      FILLER PIC X VALUE "!",
03      ENIAD PIC BBXBBB,
03      FILLER PIC X VALUE "*",
03      FILLER PIC X(24) VALUE SPACES,
03      FILLER PIC X VALUE "*",
03      FILLER PIC X(14) VALUE SPACES,
03      FILLER PIC X VALUE "*",
01  LIN12,
03      FILLER PIC X(29) VALUE "* C VITAMINI MIKTARI      :",
03      CVITY PIC ZZZZ9.9,
03      FILLER PIC XXXXX VALUE " mg.",
03      FILLER PIC X(2) VALUE SPACES,
03      FILLER PIC X VALUE "*",
03      ECVIT1 PIC BZZZZ9.9BB,
03      FILLER PIC X VALUE "!",
03      ECVITF PIC -(5)9.9B,
03      FILLER PIC X VALUE "!",
03      ECVITD PIC BBXBBB,
03      FILLER PIC X VALUE "*",
03      FILLER PIC X(24) VALUE SPACES,
03      FILLER PIC X VALUE "*",
03      FILLER PIC X(14) VALUE SPACES,
03      FILLER PIC X VALUE "*",
01  LIN13,
03      FILLER PIC X(29) VALUE "* TOPLAM MENU FIYATI      :",
03      FIYATY PIC ZZZZ9.99,
03      FILLER PIC XXXXX VALUE " T.L.",
03      FILLER PIC X VALUE SPACES,
03      FILLER PIC XX VALUE "* ",
03      FILLER PIC X(5) VALUE " 4 KI",
03      FILLER PIC X(14) VALUE "SILIK AILE ICI",
03      FILLER PIC X(6) VALUE "N DEGE",
03      FILLER PIC X(22) VALUE "RLENDIRME:",
03      FILLER PIC X(21) VALUE "      *",
01  I PIC 99 VALUE 1,
01  G PIC 9 VALUE 1,
01  GR,
03      GR2 OCCURS 7 TIMES,
05      GRAMAJ OCCURS 15 TIMES PIC 999,
01  YM,
03      YM2 OCCURS 7 TIMES,
05      YEMEKADI OCCURS 15 TIMES PIC X(20),
01  KD,

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03      KD2      OCCURS 7 TIMES.
05      YKOD OCCURS 15 TIMES PIC X(5).
01      DUMMY      PIC X.
01      YAG1X      PIC 999V99.
01      HPROTEIN1X PIC 999V99.
01      BPROTEIN1X PIC 999V99.
01      TF.
03 TOTFIYAT OCCURS 7 TIMES      PIC 999999V99.
01      TCV.
03 TOTCVIT OCCURS 7 TIMES      PIC 9999V9.
01      TNI.
03 TOTNIAS OCCURS 7 TIMES      PIC 999V9.
01      TRI.
03 TOTRIBOF OCCURS 7 TIMES      PIC 99V999.
01      TTI.
03 TOTTIAMIN OCCURS 7 TIMES      PIC 99V999.
01      TAV.
03 TOTAVIT OCCURS 7 TIMES      PIC 9(6)V9.
01      TDE.
03 TOTDEMIR OCCURS 7 TIMES      PIC 999V999.
01      TKA.
03 TOTKALSIYUM OCCURS 7 TIMES      PIC 9(5)V99.
01      TYA.
03 TOTYAG OCCURS 7 TIMES      PIC 999V99.
01      TBP.
03 TOTBPROTEIN OCCURS 7 TIMES      PIC 999V99.
01      THP.
03 TOTHPROTEIN OCCURS 7 TIMES      PIC 999V99.
01      TTP.
03 TOTTPROTEIN OCCURS 7 TIMES      PIC 999V99.
01      TKR.
03 TOTKALORI OCCURS 7 TIMES      PIC 99999V99.
01      HTOTFIYAT      PIC 9(6)V99.
01      HTOTCVIT      PIC 9(4)V99.
01      HTOTKALORI      PIC 9(6)V99.
01      HTOTNIAS      PIC 9(4)V99.
01      HTOTRIBOF      PIC 9(4)V999.
01      HTOTTIAMIN      PIC 9(4)V999.
01      HTOTHPROTEIN      PIC 9(4)V99.
01      HTOTBPROTEIN      PIC 9(4)V99.
01      HTOTTPROTEIN      PIC 9(4)V99.
01      HTOTAVIT      PIC 9(6)V9.
01      HTOTDEMIR      PIC 9(4)V99.
01      HTOTKALSIYUM      PIC 9(6)V9.
01      HTOTYAG      PIC 9(4)V99.
01      TOTFI.
03 TOTFI2      OCCURS 7 TIMES.
05 FIYATQ OCCURS 15 TIMES      PIC 9999V99.
01      TOTCV.
03 TOTCV2      OCCURS 7 TIMES.
05 CVITQ OCCURS 15 TIMES      PIC 9999V9.
01      TOTNI.
03 TOTNI2      OCCURS 7 TIMES.
05 NIASQ OCCURS 15 TIMES      PIC 999V9.
01      TOTRI.
03 TOTRI2      OCCURS 7 TIMES.
05 RIBOFQ OCCURS 15 TIMES      PIC 99V999.
01      TOTTI.
03 TOTTI2      OCCURS 7 TIMES.
05 TIAMINQ OCCURS 15 TIMES      PIC 99V999.
01      TOTAV.

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03 TOTAV2 OCCURS 7 TIMES.
 05 AVITQ OCCURS 15 TIMES PIC 9(6)V9.
 01 TOTDE.
 03 TOTDE2 OCCURS 7 TIMES.
 05 DEMIRQ OCCURS 15 TIMES PIC 999V999.
 01 TOTKA.
 03 TOTKA2 OCCURS 7 TIMES.
 05 KALSIYUMQ OCCURS 15 TIMES PIC 9(5)V99.
 01 TOTTPR.
 03 TOTTPR2 OCCURS 7 TIMES.
 05 TPROTEINQ OCCURS 15 TIMES PIC 999V99.
 01 TOTKAL.
 03 TOTKAL2 OCCURS 7 TIMES.
 05 KALORIQ OCCURS 15 TIMES PIC 99999V99.
 01 ETOTFI.
 03 ETOTFI2 OCCURS 7 TIMES.
 05 EFIYATQ OCCURS 3 TIMES PIC 9999V99.
 01 ETOTCV.
 03 ETOTCV2 OCCURS 7 TIMES.
 05 ECVITQ OCCURS 3 TIMES PIC 9999V9.
 01 ETOTNI.
 03 ETOTNI2 OCCURS 7 TIMES.
 05 ENIASQ OCCURS 3 TIMES PIC 999V9.
 01 ETOTRI.
 03 ETOTRI2 OCCURS 7 TIMES.
 05 ERIROFQ OCCURS 3 TIMES PIC 99V999.
 01 ETOTTI.
 03 ETOTTI2 OCCURS 7 TIMES.
 05 ETIAMINQ OCCURS 3 TIMES PIC 99V999.
 01 ETOTAV.
 03 ETOTAV2 OCCURS 7 TIMES.
 05 EAVITQ OCCURS 3 TIMES PIC 9(6)V9.
 01 ETOTDE.
 03 ETOTDE2 OCCURS 7 TIMES.
 05 EDEMIRQ OCCURS 3 TIMES PIC 999V999.
 01 ETOTKA.
 03 ETOTKA2 OCCURS 7 TIMES.
 05 EKALSIYUMQ OCCURS 3 TIMES PIC 9(5)V99.
 01 ETOTTPR.
 03 ETOTTPR2 OCCURS 7 TIMES.
 05 ETPROTEINQ OCCURS 3 TIMES PIC 999V99.
 01 ETOTKAL.
 03 ETOTKAL2 OCCURS 7 TIMES.
 05 EKALORIQ OCCURS 3 TIMES PIC 99999V99.
 01 KAH.
 03 FILLER PIC XX VALUE "*".
 03 FILLER PIC X(9) VALUE SPACES.
 03 OGUN PIC X(20).
 03 FILLER PIC X(13) VALUE SPACES.
 03 FILLER PIC X VALUE "*".
 03 TKALORIY1 PIC BBBZZZ9.
 03 FILLER PIC XX VALUE " !".
 03 TTPROTEINY1 PIC ZZ9.9.
 03 FILLER PIC XX VALUE " !".
 03 TKALSIYUMY1 PIC ZZZ9.
 03 FILLER PIC XX VALUE " !".
 03 TDEMIRY1 PIC ZZ9.9.
 03 FILLER PIC XX VALUE " !".
 03 TAVITY1 PIC ZZZZ9.
 03 FILLER PIC XX VALUE " !".
 03 TTIAMINY1 PIC 9.99.

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03      FILLER PIC XX VALUE " !",
03      TRIBOFY1 PIC 9.99.
03      FILLER PIC XX VALUE " !",
03      TMIASY1 PIC Z9.9.
03      FILLER PIC XXX VALUE " ! ",
03      TCVITY1 PIC ZZ9.9.
03      FILLER PIC XXX VALUE " ! ",
03      TFIYATY1 PIC ZZ99.
03      FILLER PIC XX VALUE " *",

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01      J PIC 99 VALUE 1.
01      ICIK    PIC 9 VALUE 0.
01      IST     PIC X.
01      KFK     PIC S9999.
01      KFE     PIC S9999.
01      NOTSATIRI.
02      FILLER PIC X(11) VALUE ' NOTLAR : '.
02      NOTX    PIC X(65).
01      LINBO.
03      FILLER PIC X(10) VALUE SPACES.
03      FILLER PIC X    VALUE C1.
03      FILLER PIC X    VALUE SDW.
03      FILLER PIC X(33) VALUE
      "HAFTALIK BESİN BİLESİM CİZELGESİ:".
03      FILLER PIC X VALUE EDW.
01      LINB00.
03      FILLER PIC X(10) VALUE SPACES.
03      FILLER PIC X    VALUE C1.
03      FILLER PIC X    VALUE SDW.
03      FILLER PIC X(33) VALUE
      "GÜNLÜK BESİN BİLESİM CİZELGELERİ:".
03      FILLER PIC X VALUE EDW.
01      TARIH.
02      FILLER PIC X(80) VALUE SPACES.
02      FILLER PIC X VALUE C1.
02      FILLER PIC X VALUE SDW.
02      GUN     PIC XX/.
02      AY      PIC XX/.
02      FILLER PIC XX VALUE '19'.
02      YIL     PIC XX.
02      FILLER PIC X VALUE EDW.

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01      TARIHX.
02      YILX PIC XX.
02      AYX  PIC XX.
02      GUNX PIC XX.
01      GRDOSYA PIC X.
01      GUN-NO  PIC X.

```

PROCEDURE DIVISION.

KUTUKAC.

```

OPEN I-O TOPLAM-FILE.
OPEN OUTPUT CIXTI-KUTUGU.
OPEN INPUT  BESDEG-KUTUGU.
CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.
DISPLAY "(0" NO.DISPLAY "[7;1H" NO.DISPLAY
"      lqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqk".
DISPLAY "[10;1H" NO.DISPLAY
"      mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj".
DISPLAY "(B".
ACCEPT TARIHX FROM DATE.
DISPLAY "[75h[8;6H" NO.
DISPLAY "[8;2H" NO.
DISPLAY "#3 HAFTALIK BESİN BİLESİMİ İZLEME".

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DISPLAY "C9;2H" NO.
DISPLAY "#4 HAFTALIK BESIN BILESİMİ İZLEME".
DISPLAY "C10;1H" NO.
DISPLAY "C20;3H#6          TUBITAK"
DISPLAY "C21;3H#6          YONEYLEM ARASTIRMASI BOLUMU &".
DISPLAY "C22;3H#6 BESLENME ve GIDA TEKNOLOJISI BOLUMU".
DISPLAY "C23;60HHAKAN GURDAL".
ACCEPT GRDOSYA.
DISPLAY "#5C751".
MOVE YILX TO YIL.MOVE AYX TO AY.MOVE GUNX TO GUN.

```

ACILIS.

```

CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.
DISPLAY "C7mC1;1HGGRAMAJLAR DOSYADAN MI ALINACAK(E/H):Cm-".
DISPLAY "C1;37H" NO.
ACCEPT GRDOSYA.

```

ACIL2.

```

DISPLAY "C7mC5;1HYEMEK DOSYASININ ADI : -----Cm".
DISPLAY "C7;1mC7;10H MEVCUT SECENEKLER:Cm".
DISPLAY "C8;10H STANDARD YEMEKLER ICIN = YEM.DAT".
DISPLAY "C9;10H TUREMIS YEMEKLER ICIN = YEM2.DAT".
DISPLAY "C5;24H" NO.
ACCEPT DNAME.
OPEN INPUT YEMEK-KUTUGU.

```

BASLA.

```

CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.
MOVE "      KAHVALTI : " TO OGUN.

```

YEMEK-GIRISI.

```

IF G > 7 MOVE 1 TO G GO HAFTA-TOPLAMI.
DISPLAY "C1;1HC7m#3" G ".GUN icin " OGUN "Cm".
DISPLAY "C2;1HC7m#4" G ".GUN icin " OGUN "Cm".
MOVE 0 TO TOTKALORI(G) TOTFIYAT(G) TOTCVIT(G) TOTNIAS(G) TOTRIBOF(G)
      TOTHPROTEIN(G) TOTTIAMIN(G) TOTAVIT(G) TOTDEMIR(G) TOTKALSIYUM(G)
      TOTYAG(G) TOTBPROTEIN(G) TOTTPROTEIN(G).
MOVE 0 TO HTOTKALORI HTOTFIYAT HTOTCVIT HTOTNIAS HTOTRIBOF HTOTHPROTEIN
      HTOTTIAMIN HTOTAVIT HTOTDEMIR HTOTKALSIYUM HTOTYAG HTOTBPROTEIN
      HTOTTPROTEIN.
MOVE 0 TO KQ.

```

SIFIRLA.

```

ADD 1 TO KQ.
IF KQ > 3 GO SIFIRLA2.
MOVE 0 TO EPIYATQ(G,KQ) ECVITQ(G,KQ) ENIASQ(G,KQ) ERIBOFQ(G,KQ)
      ETIAMINQ(G,KQ) EAVITQ(G,KQ) ETPROTEINQ(G,KQ) EDEMIRQ(G,KQ)
      EKALSIYUMQ(G,KQ) EKALORIQ(G,KQ).

```

SIFIRLA2.

```

MOVE 0 TO FIYATQ(G,KQ) CVITQ(G,KQ) MIASQ(G,KQ) RIBOFQ(G,KQ)
      TIAMINQ(G,KQ) AVITQ(G,KQ) TPROTEINQ(G,KQ) DEMIRQ(G,KQ)
      KALSIYUMQ(G,KQ) KALORIQ(G,KQ).
IF KQ < 15 GO SIFIRLA.

```

WRWR.

```

DISPLAY "C3;1H" J.
DISPLAY "C3;3H.YEMEGİN KODU      : -----".
DISPLAY "C4;1H".
DISPLAY "C3;23H" NO.
ACCEPT YKOD(G,I).
DISPLAY "C23;1HC2K".
IF YKOD(1,1) = SPACES GO KAPAN.
IF YKOD(G,I) = SPACES GO ATLA.
MOVE YKOD(G,I) TO KOD.
READ YEMEK-KUTUGU INVALID
DISPLAY "C23;1H" YKOD(G,I) "C23;13HMEVCUT DEGILDIR!"
GO YEMEK-GIRISI.

```

GRAMSOR.

```

    if GRDOSYA='E' go tamam1.
    DISPLAY "L4;1HPORSİYON GRAMAJI : --- gr".
    DISPLAY "L4;20H" NO.
    ACCEPT GRAMAJ(G,I).
    IF GRAMAJ(G,I) NOT NUMERIC GO GRAMSOR.
    GO GUNBITIMI.

```

tamam1.

```

    COMPUTE GRAMAJ(G,I) = 3 * porsiyonx.

```

GUNBITIMI.

```

    ADD 1 TO I J.
    IF I = 6 MOVE "ÖĞLE YEMEĞİ :" TO OGUN MOVE 1 TO J GO YEMEK-GİRİŞİ.
    IF I = 11 MOVE "AKŞAM YEMEĞİ :" TO OGUN MOVE 1 TO J GO YEMEK-GİRİŞİ.
    IF I < 16 GO YEMEK-GİRİŞİ ELSE MOVE 1 TO I J ADD 1 TO G GO BASLA.

```

ATLA.

```

    MOVE SPACES TO YKOD(G,I).
    MOVE SPACES TO YEMEKADI(G,I).
    MOVE 0 TO GRAMAJ(G,I).
    ADD 1 TO I.
    IF I = 6 MOVE "ÖĞLE YEMEĞİ :" TO OGUN MOVE 1 TO J GO YEMEK-GİRİŞİ.
    IF I = 11 MOVE "AKŞAM YEMEĞİ :" TO OGUN MOVE 1 TO J GO YEMEK-GİRİŞİ.
    IF I < 16 GO ATLA.
    MOVE 1 TO I J.
    add 1 to g.
    go to BASLA.

```

HAFTA-TOPLAMI.

```

    IF G > 7 GO TO HTOPLAM-TAŞI.
    IF I = 6 MOVE TOTFIYAT(G) TO EFIYATQ(G,1)
        MOVE TOTCVIT(G) TO ECVITQ(G,1)
        MOVE TOTNIAS(G) TO ENIASQ(G,1)
        MOVE TOTRİBOF(G) TO ERİBOFQ(G,1)
        MOVE TOTTIAMİN(G) TO ETİAMİNQ(G,1)
        MOVE TOTAVIT(G) TO EAVITQ(G,1)
        MOVE TOTDEMİR(G) TO EDEMİRQ(G,1)
        MOVE TOTKALSİYUM(G) TO EKALSİYUMQ(G,1)
        MOVE TOTTPROTEİN(G) TO ETPROTEİNQ(G,1)
        MOVE TOTKALORİ(G) TO EKALORİQ(G,1).

```

IF I = 11

```

    SUBTRACT EFIYATQ(G,1) FROM TOTFIYAT(G) GIVING EFIYATQ(G,2)
    SUBTRACT ECVITQ(G,1) FROM TOTCVIT(G) GIVING ECVITQ(G,2)
    SUBTRACT ENIASQ(G,1) FROM TOTNIAS(G) GIVING ENIASQ(G,2)
    SUBTRACT ERİBOFQ(G,1) FROM TOTRİBOF(G) GIVING ERİBOFQ(G,2)
    SUBTRACT ETİAMİNQ(G,1) FROM TOTTIAMİN(G) GIVING ETİAMİNQ(G,2)
    SUBTRACT EAVITQ(G,1) FROM TOTAVIT(G) GIVING EAVITQ(G,2)
    SUBTRACT EDEMİRQ(G,1) FROM TOTDEMİR(G) GIVING EDEMİRQ(G,2)
    SUBTRACT EKALSİYUMQ(G,1) FROM TOTKALSİYUM(G) GIVING EKALSİYUMQ(G,2)
    SUBTRACT ETPROTEİNQ(G,1) FROM TOTTPROTEİN(G) GIVING ETPROTEİNQ(G,2)
    SUBTRACT EKALORİQ(G,1) FROM TOTKALORİ(G) GIVING EKALORİQ(G,2).

```

IF I = 16

```

    COMPUTE EFIYATQ(G,3) = TOTFIYAT(G) - ( EFIYATQ(G,1) + EFIYATQ(G,2) )
    COMPUTE ECVITQ(G,3) = TOTCVIT(G) - ( ECVITQ(G,1) + ECVITQ(G,2) )
    COMPUTE ENIASQ(G,3) = TOTNIAS(G) - ( ENIASQ(G,1) + ENIASQ(G,2) )
    COMPUTE ERİBOFQ(G,3) = TOTRİBOF(G) - ( ERİBOFQ(G,1) + ERİBOFQ(G,2) )
    COMPUTE ETİAMİNQ(G,3) = TOTTIAMİN(G) - ( ETİAMİNQ(G,1) + ETİAMİNQ(G,2) )
    COMPUTE EAVITQ(G,3) = TOTAVIT(G) - ( EAVITQ(G,1) + EAVITQ(G,2) )
    COMPUTE EDEMİRQ(G,3) = TOTDEMİR(G) - ( EDEMİRQ(G,1) + EDEMİRQ(G,2) )
    COMPUTE KFARK = EKALSİYUMQ(G,1) + EKALSİYUMQ(G,2)
    COMPUTE EKALSİYUMQ(G,3) = TOTKALSİYUM(G) - KFARK
    COMPUTE PFARK = ETPROTEİNQ(G,1) + ETPROTEİNQ(G,2)
    COMPUTE ETPROTEİNQ(G,3) = TOTTPROTEİN(G) - PFARK
    COMPUTE EKALORİQ(G,3) = TOTKALORİ(G) - ( EKALORİQ(G,1) + EKALORİQ(G,2) )

```

```
ADD 1 TO G MOVE 1 TO I GO HAFTA-TOPLAMI.
IF YKOD(G,I) = SPACES ADD 1 TO I GO HAFTA-TOPLAMI.
MOVE YKOD(G,I) TO KOD.
READ YEMEK-KUTUGU INVALID DISPLAY '*****'.
MOVE YEMEKADIX TO YEMEKADI(G,I).
COMPUTE FIYATQ(G,I) = FIYAT * GRAMAJ(G,I).
COMPUTE CVITQ(G,I) = CVIT * GRAMAJ(G,I).
COMPUTE NIASQ(G,I) = NIAS * GRAMAJ(G,I).
COMPUTE RIBOFQ(G,I) = RIBOF * GRAMAJ(G,I).
COMPUTE TIAMINQ(G,I) = TIAMIN * GRAMAJ(G,I).
COMPUTE AVITQ(G,I) = AVIT * GRAMAJ(G,I).
COMPUTE DEMIRQ(G,I) = DEMIR * GRAMAJ(G,I).
COMPUTE KALSIYUMQ(G,I) = KALSIYUM * GRAMAJ(G,I).
COMPUTE YAGIX = YAG * GRAMAJ(G,I).
COMPUTE BPROTEINIX = BPROTEIN * GRAMAJ(G,I).
COMPUTE HPROTEINIX = HPROTEIN * GRAMAJ(G,I).
COMPUTE TPROTEINQ(G,I) = BPROTEINIX + HPROTEINIX.
COMPUTE KALORIQ(G,I) = KALORI * GRAMAJ(G,I).
ADD FIYATQ(G,I) TO TOTFIYAT(G).
ADD CVITQ(G,I) TO TOTCVIT(G).
ADD NIASQ(G,I) TO TOTNIAS(G).
ADD RIBOFQ(G,I) TO TOTRIBOF(G).
ADD TIAMINQ(G,I) TO TOTTIAMIN(G).
ADD AVITQ(G,I) TO TOTAVIT(G).
ADD DEMIRQ(G,I) TO TOTDEMIR(G).
ADD KALSIYUMQ(G,I) TO TOTKALSIYUM(G).
ADD YAGIX TO TOTYAG(G).
ADD BPROTEINIX TO TOTBPROTEIN(G).
ADD HPROTEINIX TO TOTHPROTEIN(G).
ADD TPROTEINQ(G,I) TO TOTTPROTEIN(G).
ADD KALORIQ(G,I) TO TOTKALORI(G).
ADD FIYATQ(G,I) TO HTOTFIYAT.
ADD CVITQ(G,I) TO HTOTCVIT.
ADD NIASQ(G,I) TO HTOTNIAS.
ADD RIBOFQ(G,I) TO HTOTRIBOF.
ADD TIAMINQ(G,I) TO HTOTTIAMIN.
ADD AVITQ(G,I) TO HTOTAVIT.
ADD DEMIRQ(G,I) TO HTOTDEMIR.
ADD KALSIYUMQ(G,I) TO HTOTKALSIYUM.
ADD YAGIX TO HTOTYAG.
ADD BPROTEINIX TO HTOTBPROTEIN.
ADD HPROTEINIX TO HTOTHPROTEIN.
ADD TPROTEINQ(G,I) TO HTOTTPROTEIN.
ADD KALORIQ(G,I) TO HTOTKALORI.
ADD 1 TO I.
GO HAFTA-TOPLAMI.
HTOPLAM-TASI.
MOVE HTOTFIYAT TO FIYATY.
MOVE HTOTCVIT TO CVITY.
MOVE HTOTNIAS TO NIASY.
MOVE HTOTRIBOF TO RIBOFY.
MOVE HTOTTIAMIN TO TIAMINY.
MOVE HTOTAVIT TO AVITY.
MOVE HTOTDEMIR TO DEMIRY.
MOVE HTOTKALSIYUM TO KALSIYUMY.
MOVE HTOTYAG TO YAGY.
MOVE HTOTBPROTEIN TO BPROTEINY.
MOVE HTOTHPROTEIN TO HPROTEINY.
MOVE HTOTTPROTEIN TO TPROTEINY.
MOVE HTOTKALORI TO KALORIY.
GO TABLO.
```

H-EKRAN.

```
DISPLAY "L?5)".
DISPLAY "L1;2H#3 HAFTALIK MENU PLANI :".
DISPLAY "L2;2H#4 HAFTALIK MENU PLANI :".
DISPLAY "#5L4;1HCLm" HAFBAS "Lm"
MOVE 1 TO I.
DISPLAY "L7m#6 KAHVALTILm#5".
```

GOSTER1.

```
MOVE YKOD(1,I) TO K1.
MOVE YKOD(2,I) TO K2.
MOVE YKOD(3,I) TO K3.
MOVE YKOD(4,I) TO K4.
MOVE YKOD(5,I) TO K5.
MOVE YKOD(6,I) TO K6.
MOVE YKOD(7,I) TO K7.
MOVE GRAMAJ(1,I) TO G1.
MOVE GRAMAJ(2,I) TO G2.
MOVE GRAMAJ(3,I) TO G3.
MOVE GRAMAJ(4,I) TO G4.
MOVE GRAMAJ(5,I) TO G5.
MOVE GRAMAJ(6,I) TO G6.
MOVE GRAMAJ(7,I) TO G7.
DISPLAY HAFLIN.
ADD 1 TO I.
IF I = 6 DISPLAY "L7m#6 OGLE YEMEGILm#5".
IF I = 11 DISPLAY "L7m#6 AKSAM YEMEGI#5Lm".
IF I = 16 GO H-EKRAN-SON.
GO GOSTER1.
```

H-EKRAN-SON.

```
DISPLAY "L23;1HCL7mDUZELTME ICIN <d>,DEVAM ETMEK ICIN <y> BASINLm".
ACCEPT DUMMY.
IF DUMMY = "D" OR "d"
DISPLAY "L2J" GO DEGIS.
IF DUMMY = "Y" OR "y" GO H1.
GO H-EKRAN-SON.
```

H1.

DISPLAY "L?3h".

H-BESCIZ.

```
CALL "SCR*ERASE_PAGE" USING BY VALUE 1,1.
DISPLAY "L1;2H#6HAFTALIK BESIN BILESIM CIZELGESI:".
DISPLAY YILDIZ.
DISPLAY LIN99.
DISPLAY LIN99B.
DISPLAY CIZGI2.
DISPLAY LIN3.
DISPLAY LIN4.
DISPLAY LIN5.
DISPLAY LIN51.
DISPLAY LIN6.
DISPLAY LIN61.
DISPLAY LIN7.
DISPLAY LIN8.
DISPLAY LIN9.
DISPLAY LIN10.
DISPLAY LIN11.
DISPLAY LIN12.
DISPLAY CIZGI.
DISPLAY LIN13.
DISPLAY YILDIZ.
DISPLAY "YALNIZ BU TABLONUN CIKTISINI ALMAK iCIN <e> DUZELTME iCIN <d> ".
DISPLAY "HAFTALIK MENU ICIN <a> HEM CIKTI ALMA HEM DE DUZELTME ICIN <b> ".
```

```
DISPLAY "DEVAM ETMEK iCiN <y> TUSUNA BASINIZ!".
MOVE 1 TO I J.
ACCEPT DUMMY.
MOVE 1 TO G.
CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.
DISPLAY "[?3i".
IF DUMMY = "E" OR DUMMY = "e" PERFORM YAZIL THRU ICERIK-SON
    GO KAPAN.
IF DUMMY = "A" OR DUMMY = "a" GO H-EKRAN.
IF DUMMY = "D" OR DUMMY = "d" GO DEGİS.
IF DUMMY = "B" OR DUMMY = "b" PERFORM YAZIL THRU ICERIK-SON GO H-EKRAN.
IF DUMMY = "Y" OR DUMMY = "y"
    MOVE "KAHVALTI :" TO OGUN GO YEMEK-GIRISI.
DISPLAY "[?3h".
GO H-BESCİZ.

KAPAN.
CLOSE YEMEK-KUTUGU CIKTI-KUTUGU BESDEĞ-KUTUGU TOPLAM-FILE.
STOP RUN.

YAZIL.
IF ICİK = 1 WRITE SATIR FROM TARİH AFTER PAGE
    ELSE WRITE SATIR FROM TARİH.
MOVE 1 TO ICİK.
WRITE SATIR FROM LINBOO.

YAZIL2.
IF G = 3 OR G = 5 OR G = 7 WRITE SATIR FROM YILDIZ AFTER PAGE ELSE
    WRITE SATIR FROM YILDIZ AFTER 2.

MOVE G TO GB.
WRITE SATIR FROM LINB1.
WRITE SATIR FROM LINB2.
WRITE SATIR FROM YILDIZ.
MOVE 1 TO I.
MOVE "KAHVALTI :" TO OGUN.
MOVE EFIYATQ(G,1) TO TFIYATY1.
MOVE ECVITQ(G,1) TO TCVITY1.
MOVE ENIASQ(G,1) TO TNIASY1.
MOVE ERIBOFQ(G,1) TO TRIBOFY1.
MOVE ETIAMINQ(G,1) TO TTIAMINY1.
MOVE EAVITQ(G,1) TO TAVITY1.
MOVE EDEMIRQ(G,1) TO TDEMIRY1.
MOVE EKALSIYUMQ(G,1) TO TKALSIYUMY1.
MOVE ETPROTEINQ(G,1) TO TTPROTEINY1.
MOVE EKALORIQ(G,1) TO TKALORIY1.
WRITE SATIR FROM KAH.
WRITE SATIR FROM CİZGİ.

FFG.
MOVE YKOD(G,I) TO YKODY1.
MOVE YEMEKADI(G,I) TO YEMEKADIY1.
MOVE GRAMAJ(G,I) TO GRAMAJY1.
MOVE FIYATQ(G,I) TO FIYATY1.
MOVE CVITQ(G,I) TO CVITY1.
MOVE NIASQ(G,I) TO NIASY1.
MOVE RIBOFQ(G,I) TO RIBOFY1.
MOVE TIAMINQ(G,I) TO TIAMINY1.
MOVE AVITQ(G,I) TO AVITY1.
MOVE DEMIRQ(G,I) TO DEMIRY1.
MOVE KALSIYUMQ(G,I) TO KALSIYUMY1.
MOVE TPROTEINQ(G,I) TO TPROTEINY1.
MOVE KALORIQ(G,I) TO KALORIY1.
IF YKOD(G,I) NOT = SPACES WRITE SATIR FROM LINA1.
ADD 1 TO I.
IF I = 6 MOVE "OGLE YEMEĞİ :" TO OGUN
```

```
MOVE EPIYATQ(G,2) TO TPIYATY1
MOVE ECVITQ(G,2) TO TCVITY1
MOVE ENIASQ(G,2) TO TNIASY1
MOVE ERIBOFQ(G,2) TO TRIBOFY1
MOVE ETIAMINQ(G,2) TO TTIAMINY1
MOVE EAVITQ(G,2) TO TAVITY1
MOVE EDEMIRQ(G,2) TO TDEMIRY1
MOVE EKALSIYUMQ(G,2) TO TKALSIYUMY1
MOVE ETPROTEINQ(G,2) TO TTPROTEINY1
MOVE EKALORIQ(G,2) TO TKALORIY1
WRITE SATIR FROM CIZGI
WRITE SATIR FROM KAH
WRITE SATIR FROM CIZGI.
IF I = 11 MOVE "AKSAM YEMEGI :" TO OGUN
MOVE EPIYATQ(G,3) TO TPIYATY1
MOVE ECVITQ(G,3) TO TCVITY1
MOVE ENIASQ(G,3) TO TNIASY1
MOVE ERIBOFQ(G,3) TO TRIBOFY1
MOVE ETIAMINQ(G,3) TO TTIAMINY1
MOVE EAVITQ(G,3) TO TAVITY1
MOVE EDEMIRQ(G,3) TO TDEMIRY1
MOVE EKALSIYUMQ(G,3) TO TKALSIYUMY1
MOVE ETPROTEINQ(G,3) TO TTPROTEINY1
MOVE EKALORIQ(G,3) TO TKALORIY1
WRITE SATIR FROM CIZGI
WRITE SATIR FROM KAH
WRITE SATIR FROM CIZGI.
IF I < 16 GO FFG.
MOVE G TO GA.
MOVE TOTTPROTEIN(G) TO TPROTEINY2.
MOVE TOTKALORI(G) TO KALORIY2.
MOVE TOTFIYAT(G) TO FIYATY2.
MOVE TOTCVIT(G) TO CVITY2.
MOVE TOTNIAS(G) TO NIASY2.
MOVE TOTRIBOF(G) TO RIBOFY2.
MOVE TOTTIAMIN(G) TO TIAMINY2.
MOVE TOTAVIT(G) TO AVITY2.
MOVE TOTDEMIR(G) TO DEMIRY2.
MOVE TOTKALSIYUM(G) TO KALSIYUMY2.
WRITE SATIR FROM YILDIZ.
WRITE SATIR FROM LINA2.
WRITE SATIR FROM YILDIZ.
MOVE 1 TO I J.
ADD 1 TO G.
IF G < 8 GO TO YAZIL2.
WRITE SATIR FROM TARİH AFTER PAGE.
WRITE SATIR FROM LIN80.
WRITE SATIR FROM YILDIZ.
WRITE SATIR FROM LIN99.
WRITE SATIR FROM LIN99B.
WRITE SATIR FROM CIZGI2.
WRITE SATIR FROM LIN3.
WRITE SATIR FROM LIN4.
WRITE SATIR FROM LIN5.
WRITE SATIR FROM LIN51.
WRITE SATIR FROM LIN6.
WRITE SATIR FROM LIN61.
WRITE SATIR FROM LIN7.
WRITE SATIR FROM LIN8.
WRITE SATIR FROM LIN9.
WRITE SATIR FROM LIN10.
```

```
WRITE SATIR FROM LIN11.
WRITE SATIR FROM LIN12.
WRITE SATIR FROM CIZGI2.
WRITE SATIR FROM LIN13.
WRITE SATIR FROM YILDIZ.
DISPLAY
' [15;1HNOT;-----
DISPLAY ' [15;5H' NO.
ACCEPT NOTX.
CALL "SCR$ERASE_PAGE" USING BY VALUE 1,1.
IF NOTX NOT EQUAL SPACES WRITE SATIR FROM NOTSATIRI AFTER 2.
ICERIK-HESABI.
MOVE 1 TO G I.
WRITE SATIR FROM ICYILDIZ AFTER PAGE.
WRITE SATIR FROM ICBASLIK.
WRITE SATIR FROM ICYILDIZ.
YENYEM.
IF I > 15 ADD 1 TO G MOVE 1 TO I.
IF G > 7 MOVE 1 TO G I GO ICTOPLA.
IF YKOD(G,I) = SPACES ADD 1 TO I GO YENYEM.
MOVE YKOD(G,I) TO KOD.
READ YEMEK-KUTUGU INVALID DISPLAY 'ERROR 1' STOP RUN.
MOVE 1 TO L.
ICOKU.
MOVE MLZKOD1(L) TO ANAH.
COMPUTE ICMIK1 = GRAMAJ(G,I) * MLZMIK(L).
MOVE ICMIK1 TO ICMIK.
WRITE KAC-REC INVALID PERFORM INVYAZ.
ADD 1 TO L.
IF L > MALZEME-SAYISI ADD 1 TO I GO YENYEM.
GO ICOKU.
INVYAZ.
READ TOPLAM-FILE INVALID DISPLAY "ERROR 2" STOP RUN.
ADD ICMIK1 TO ICMIK.
REWRITE KAC-REC INVALID DISPLAY "ERROR 3" STOP RUN.
ICTOPLA.
MOVE 0 TO ICSAY1.
MOVE SPACES TO ANAH.
START TOPLAM-FILE KEY NOT LESS THAN ANAH
INVALID KEY DISPLAY "ERROR 4" STOP RUN.
OKUSIL.
READ TOPLAM-FILE NEXT AT END GO ICERIK-SON.
ADD 1 TO ICSAY1.
MOVE ICSAY1 TO ICSAY.
MOVE ANAH TO MALZ MLZKOD.
MOVE ICMIK TO MIKT.
READ BESDEG-KUTUGU INVALID KEY MOVE "MLZK.DAT DA YOK" TO MLZAD.
MOVE MLZAD TO ISIM.
WRITE SATIR FROM ICSATIR.
WRITE SATIR FROM ICCIZGI.
DELETE TOPLAM-FILE INVALID DISPLAY "silemedi" STOP RUN.
GO OKUSIL.
ICERIK-SON.
WRITE SATIR FROM ICYILDIZ.
TABLO.
OPEN INPUT ST-KUTUGU.
TABLO2.
READ ST-KUTUGU AT END GO H-EKRAN.
MOVE EKAL TO EKAL1.
MOVE EPROT TO EPROT1.
MOVE ECAL TO ECAL1.
```

```

MOVE EDEM TO EDEM1.
MOVE EAVIT TO EAVIT1.
MOVE ETH TO ETH1.
MOVE ERIB TO ERIB1.
MOVE ENIA TO ENIA1.
MOVE ECVIT TO ECVIT1.
COMPUTE EKALF = HTOTKALORI - EKAL.
COMPUTE EPROTF = HTOTTPROTEIN - EPROT.
COMPUTE ECALF = HTOTKALSIYUM - ECAL.
COMPUTE EDEM1F = HTOTDEMIR - EDEM.
COMPUTE EAVITF = HTOTAVIT - EAVIT.
COMPUTE ETHF = HTOTTIAMIN - ETH.
COMPUTE ERIBF = HTOTRIBOF - ERIB.
COMPUTE ENIAF = HTOTNIAS - ENIA.
COMPUTE ECVITF = HTOTCVIT - ECVIT.
IF EKAL > HTOTKALORI MOVE "0" TO EKALD
ELSE MOVE "+" TO EKALD.
IF EPROT > HTOTTPROTEIN MOVE "0" TO EPROTD
ELSE MOVE "+" TO EPROTD.
IF ECAL > HTOTKALSIYUM MOVE "0" TO ECALD
ELSE MOVE "+" TO ECALD.
IF EDEM > HTOTDEMIR MOVE "0" TO EDEMD
ELSE MOVE "+" TO EDEMD.
IF EAVIT > HTOTAVIT MOVE "0" TO EAVITD
ELSE MOVE "+" TO EAVITD.
IF ETH > HTOTTIAMIN MOVE "0" TO ETHD
ELSE MOVE "+" TO ETHD.
IF ERIB > HTOTRIBOF MOVE "0" TO ERIBD
ELSE MOVE "+" TO ERIBD.
IF ENIA > HTOTNIAS MOVE "0" TO ENIAD
ELSE MOVE "+" TO ENIAD.
IF ECVIT > HTOTCVIT MOVE "0" TO ECVITD
ELSE MOVE "+" TO ECVITD.
CLOSE ST-KUTUGU.
GO H-EKRAN.

```

DEGIS.

MOVE 1 TO G.

DEGIS1.

PERFORM SIFIRLA THRU SIFIRLA2.

```

MOVE 0 TO TOTKALORI(G) TOTFIYAT(G) TOTCVIT(G) TOTNIAS(G) TOTRIBOF(G)
      TOTHPROTEIN(G) TOTTIAMIN(G) TOTAVIT(G) TOTDEMIR(G)
      TOTKALSIYUM(G) TOTYAG(G) TOTBPROTEIN(G) TOTTPROTEIN(G).

```

ADD 1 TO G.

IF G < 8 GO DEGIS1.

```

MOVE 0 TO HTOTKALORI HTOTFIYAT HTOTCVIT HTOTNIAS HTOTRIBOF HTOTHPROTEIN
      HTOTTIAMIN HTOTAVIT HTOTDEMIR HTOTKALSIYUM HTOTYAG HTOTBPROTEIN
      HTOTTPROTEIN.

```

DEGIS2.

DISPLAY "[23;1H]7mHANGI GUNU DUZELTICEKSINIZ: -".

DISPLAY "[23;29H" NO.

ACCEPT G.

IF G NOT NUMERIC GO DEGIS2.

IF G > 7 GO DEGIS2.

DISPLAY "[2J".

MOVE 1 TO I.

MOVE G TO GUN-NO.

DISPLAY "[1;1H]7m" GUN-NO ".GUN" "[m"

DISPLAY "[2;1H]7m" DEGBAS "[m"

MOVE "SABAH" TO VAXIT.

DEG1.

MOVE YKOD(G,I) TO YKODD.

```
MOVE YEMEKADI(G,I) TO YADD.  
MOVE GRAMAJ(G,I) TO GRD.  
MOVE I TO SSAY1 SSAY2.  
DISPLAY DEGSAT.  
ADD 1 TO I.  
MOVE SPACES TO VAKIT.  
IF I = 6 MOVE "OGLE" TO VAKIT.  
IF I = 11 MOVE "AKSAM" TO VAKIT.  
IF I = 16 GO DEGKAB.  
GO TO DEG1.
```

DEGKAB.

```
DISPLAY "[20;1HHANGI ALANI DEGIStIRECEKSINIZ?: ---".  
DISPLAY "[20;33H" NO.  
ACCEPT DEGSAY.  
IF DEGSAY IS NOT NUMERIC GO DEGKAB.  
IF DEGSAY = ZERO MOVE 1 TO I MOVE 1 TO G DISPLAY "[2J"  
GO HAFTA-TOPLAMI.  
IF YER NOT = 0 AND YER NOT = 1 GO DEGKAB.  
IF DEGSAY > 151 GO DEGKAB.  
COMPUTE LI = SAT + 2.
```

YEMEK-DEGIS.

```
IF YER = 0 MOVE 17 TO CL  
DISPLAY POS NO  
DISPLAY "-----"  
MOVE 17 TO CL  
DISPLAY POS NO  
ACCEPT YKODD  
MOVE YKODD TO YKOD(G,SAT) KOD  
MOVE GRAMAJ(G,SAT) TO GRD  
MOVE SAT TO SSAY1 SSAY2  
GO TO TEK.  
IF YER = 1 PERFORM GRAM-DEGIS.  
GO DEGKAB.
```

GRAM-DEGIS.

```
MOVE 48 TO CL.  
DISPLAY POS NO.  
DISPLAY "----",  
MOVE 48 TO CL.  
DISPLAY POS NO.  
ACCEPT GRD.  
IF GRD NOT NUMERIC GO GRAM-DEGIS.  
MOVE GRD TO GRAMAJ(G,SAT).  
MOVE YKOD(G,SAT) TO YKODD.  
MOVE YEMEKADI(G,SAT) TO YADD.  
MOVE 1 TO CL.  
DISPLAY POS NO.  
MOVE SAT TO SSAY1 SSAY2.  
DISPLAY DEGSAT GO DEGKAB.
```

TEK.

```
IF YKODD = SPACES MOVE SPACES TO YKOD(G,SAT) YEMEKADI(G,SAT) YADD  
MOVE ZERO TO GRD GRAMAJ(G,SAT) GO TEKgos.  
READ YEMEK-KUTUGU INVALID GO YEMEK-DEGIS.  
MOVE YEMEKADIX TO YADD YEMEKADI(G,SAT).
```

TEKGOS.

```
IF DEGSAY = 010 MOVE "SABAH" TO VAKIT.  
IF DEGSAY = 040 MOVE "OGLE" TO VAKIT.  
IF DEGSAY = 110 MOVE "AKSAM" TO VAKIT.  
MOVE 1 TO CL.  
DISPLAY POS NO.  
DISPLAY DEGSAT GO TO DEGKAB.
```

PROGRAM LIST OF TUMYEM.COB

IDENTIFICATION DIVISION.
 PROGRAM-ID. YEMEK-BESIN-DEGER-IZLENMESI.
 AUTHOR. HAKAN GURDAL.
 ENVIRONMENT DIVISION.
 INPUT-OUTPUT SECTION.
 FILE-CONTROL.

SELECT YEMEK-KUTUGU ASSIGN TO TTTT
 ORGANIZATION INDEXED
 ACCESS DYNAMIC
 RECORD KEY KOD.

SELECT CIKTI-KUTUGU ASSIGN TO 'TUMYEM.DAT'.

DATA DIVISION.

FILE SECTION.

FD CIKTI-KUTUGU LABEL RECORDS ARE OMITTED.

01 SATIR PIC X(132).

FD YEMEK-KUTUGU VALUE OF ID DNAME.

01 YEMEK-YAZILIM.

03 KOD PIC X(5).

03 YEMEKADIX PIC X(20).

03 HALZEME-SAYISI PIC 99.

03 PORSIYONX PIC 999.

03 TOTAL-BESIN.

05 KALORI PIC 99V9(4).

05 HPROTEIN PIC 9V9(4).

05 BPROTEIN PIC 9V9(4).

05 YAG PIC 9V9(4).

05 KALSIYUM PIC 999V9(4).

05 DEMIR PIC 9V9(5).

05 AVIT PIC 9(3)V999.

05 TIAMIN PIC V9(5).

05 RIBOF PIC V9(5).

05 NIAS PIC 9V9(4).

05 CVIT PIC 99V9(4).

03 FIYAT PIC 999V9(2).

03 MLZ OCCURS 1 TO 15 TIMES

DEPENDING ON HALZEME-SAYISI.

05 MLZKOD1 PIC X(5).

05 MLZMIK PIC 9V999.

WORKING-STORAGE SECTION.

01 DNAME PIC X(10).

01 CIZGI.

03 FILLER PIC X VALUE "*".

03 FILLER PIC X(43) VALUE ALL "-".

03 FILLER PIC X VALUE "*".

03 FILLER PIC X(67) VALUE ALL "-".

03 FILLER PIC XX VALUE "-*".

01 YILDIZ.

03 FILLER PIC X(114) VALUE ALL "*".

01 LINB1.

03 FILLER PIC X VALUE "*".

03 FILLER PIC X(20) VALUE " YEMEGIN KODU&ADI ".

03 FILLER PIC X(5) VALUE SPACES.

03 FILLER PIC X(20) VALUE " porsiyon GRAMAJI * ".

03 FILLER PIC X(8) VALUE " ENERJi!".

03 FILLER PIC X(6) VALUE " PRO.i!".

03 FILLER PIC X(7) VALUE " KALS.i!".

03 FILLER PIC X(6) VALUE " DEM.i!".

03 FILLER PIC X(8) VALUE " A ViT.i!".

03 FILLER PIC X(6) VALUE " THi.i!".

03 FILLER PIC X(6) VALUE " RiB.i!".

03 FILLER PIC X(6) VALUE " NiA.i!".

```

01 03 FILLER PIC X(8) VALUE " C ViT !".
    03 FILLER PIC X(7) VALUE "FiYAT *".
    LINB2.
    03 FILLER PIC X VALUE "*".
    03 FILLER PIC X(20) VALUE "
    03 FILLER PIC X(25) VALUE " * ".
    03 FILLER PIC X(8) VALUE " (ca) !".
    03 FILLER PIC X(6) VALUE " (gr) !".
    03 FILLER PIC X(7) VALUE " (mg) !".
    03 FILLER PIC X(6) VALUE " (mg) !".
    03 FILLER PIC X(8) VALUE " (I,U) !".
    03 FILLER PIC X(6) VALUE " (mg) !".
    03 FILLER PIC X(6) VALUE " (mg) !".
    03 FILLER PIC X(6) VALUE " (mg) !".
    03 FILLER PIC X(8) VALUE " (mg) !".
    03 FILLER PIC X(7) VALUE " (T,L) *".

```

```

01 03 FILLER PIC X(2) VALUE "* ".
    03 YKODY1 PIC X(5)B.
    03 YEMEKADIY1 PIC X(20)B(7).
    03 GRAMAJY1 PIC ZZZ.
    03 FILLER PIC XXXX VALUE " GR.".
    03 FILLER PIC X(2) VALUE SPACES.
    03 FILLER PIC X VALUE "*".
    03 KALORIY1 PIC BBBBZZ9.
    03 FILLER PIC XX VALUE " !".
    03 TPROTEINY1 PIC Z9.9.
    03 FILLER PIC XXX VALUE " ! ".
    03 KALSIYUMY1 PIC ZZZ9.
    03 FILLER PIC XX VALUE " !".
    03 DEMIRY1 PIC Z9.9.
    03 FILLER PIC XXX VALUE " ! ".
    03 AVITY1 PIC ZZZZ9.
    03 FILLER PIC XX VALUE " !".
    03 TIAMINY1 PIC 9.99.
    03 FILLER PIC XX VALUE " !".
    03 RIBOFY1 PIC 9.99.
    03 FILLER PIC XX VALUE " !".
    03 NIASY1 PIC Z9.9.
    03 FILLER PIC XXX VALUE " ! ".
    03 CVITY1 PIC ZZ9.9.
    03 FILLER PIC XXX VALUE " ! ".
    03 FIYATY1 PIC ZZ99.
    03 FILLER PIC XX VALUE " *".

```

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01 I PIC 99 VALUE 1.

```

```

01 GRAMAJ PIC 999.

```

```

01 H PIC 9 VALUE 0.

```

PROCEDURE DIVISION.

KUTUKAC.

OPEN OUTPUT CIKTI-KUTUGU.

DISPLAY "I2J".

DISPLAY "I2;1H17mYEMEK DOSYASININ ADI :I m -----".

DISPLAY "I4;10H17;1mSECENEKLER :I m".

display "I5;10HSTANDARD YEMEKLER ICIN:YEM.DAT".

DISPLAY "I6;10HTUREMIS YEMEKLER ICIN:YEM2.DAT".

DISPLAY "I2;24H" NO.

ACCEPT DNAME.

DISPLAY "I2J".

OPEN INPUT YEMEK-KUTUGU.

PERFORM BASLIK.

MOVE SPACES TO KOD.

```
START YEMEK-KUTUGU KEY NOT LESS THAN KOD INVALID STOP RUN.  
OKUMA.  
  READ YEMEK-KUTUGU NEXT AT END GO BITTI.  
  MOVE FORSIYONX TO GRAMAJ.  
  MOVE YEMEKADIX TO YEMEKADIY1.  
  MOVE KOD TO YKODY1.  
  COMPUTE FIYATY1 = FIYAT * GRAMAJ.  
  COMPUTE CVITY1 = CVIT * GRAMAJ.  
  COMPUTE NIASY1 = NIAS * GRAMAJ.  
  COMPUTE RIBOFY1 = RIBOF * GRAMAJ.  
  COMPUTE TIAMINY1 = TIAMIN * GRAMAJ.  
  COMPUTE AVITY1 = AVIT * GRAMAJ.  
  COMPUTE DEMIRY1 = DEMIR * GRAMAJ.  
  COMPUTE KALSIYUMY1 = KALSIYUM * GRAMAJ.  
  COMPUTE TPROTEINY1 = ( HPROTEIN + BPROTEIN ) * GRAMAJ.  
  COMPUTE KALORIY1 = KALORI * GRAMAJ.  
  MOVE GRAMAJ TO GRAMAJY1.  
  WRITE SATIR FROM LINA1.  
  WRITE SATIR FROM CIZGI.  
  ADD 2 TO I.  
  IF I = 60 PERFORM BASLIK.  
  GO OKUMA.  
BITTI.  
  CLOSE YEMEK-KUTUGU CIKTI-KUTUGU.  
  STOP RUN.  
BASLIK.  
  MOVE 4 TO I.  
  IF H = 1 WRITE SATIR FROM YILDIZ AFTER PAGE  
    ELSE WRITE SATIR FROM YILDIZ.  
  MOVE 1 TO H.  
  WRITE SATIR FROM LINB1.  
  WRITE SATIR FROM LINB2.  
  WRITE SATIR FROM YILDIZ.
```

PROGRAM LIST OF FIY.COB

IDENTIFICATION DIVISION.
PROGRAM-ID. FIYAT-DEGISTIRME.
AUTHOR. HAKAN GURDAL.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
INPUT-OUTPUT SECTION.
FILE-CONTROL.

SELECT CIKTI2-KUTUGU ASSIGN TO DDDAT USE "RT=Z,BT=C".

SELECT CIKTI3-KUTUGU ASSIGN TO YDDAT USE "RT=Z,BT=C".

DATA DIVISION.

FILE SECTION.

FD CIKTI2-KUTUGU

LABEL RECORDS ARE STANDARD

DATA RECORD IS CIKTI2-REC.

01 CIKTI2-REC.

03 KIS PIC 99.

03 FILLER PIC X.

03 VAR PIC 999.

03 FILLER PIC X.

03 MIK PIC 9(7).

03 FILLER PIC X.

03 TOPBEK PIC 99.

03 FILLER PIC X.

03 MUST PIC 99.

FD CIKTI3-KUTUGU

LABEL RECORDS ARE STANDARD

DATA RECORD IS CIKTI3-REC.

01 CIKTI3-REC.

03 KIS3 PIC 99.

03 FILLER PIC X.

03 VAR3 PIC 999.

03 FILLER PIC X.

03 MIK3 PIC 9(7).

03 FILLER PIC X.

03 TOPBEK3 PIC 99.

03 FILLER PIC X.

03 MUST3 PIC 99.

WORKING-STORAGE SECTION.

PROCEDURE DIVISION.

BASLA.

OPEN OUTPUT CIKTI3-KUTUGU.

OPEN INPUT CIKTI2-KUTUGU.

OKU.

READ CIKTI2-KUTUGU AT END GO BITTI.

IF KIS = 0 GO KABUL.

MOVE MIK TO MIK3.

DEVAM.

MOVE 0 TO TOPBEK3.

MOVE VAR TO VAR3.

MOVE KIS TO KIS3.

MOVE MUST TO MUST3.

WRITE CIKTI3-REC.

GO OKU.

KABUL.

DISPLAY VAR " NOLU DEGISKENIN ESKI FIYATI=" MIK.

DISPLAY "BU FIYAT (:10) LIRA OLARAK GORULMEKTEDIR."

DISPLAY VAR " NOLU DEGISKENIN YENI FIYATI (7 HANE) :"

WITH NO ADVANCING.

ACCEPT MIK3.

GO DEVAM.

BITTI.

CLOSE CIKT12-KUTUGU CIKT13-KUTUGU.
STOP RUN.

PROGRAM LIST OF OR.COB

PROGRAM IS CIKT1-DENUSUN.
AUTHOR. HAKAN GURDAL.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SPECIAL-NAMES.

* TERMINAL IS EKRAN.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT CIKT12-KUTUGU ASSIGN TO DDDAT USE "RT=Z,BT=C".

SELECT CIKT13-KUTUGU ASSIGN TO YDDAT USE "RT=Z,BT=C".

DATA DIVISION.

FILE SECTION.

FD CIKT12-KUTUGU

LABEL RECORDS ARE STANDARD

DATA RECORD IS CIKT12-REC.

01 CIKT12-REC.

03 K1S PIC 99.

03 FILLER PIC X.

03 VAR PIC 999.

03 FILLER PIC X.

03 MIK PIC 9(7).

03 FILLER PIC X.

03 TOPBEK PIC 99.

03 FILLER PIC X.

03 MUST PIC 99.

FD CIKT13-KUTUGU

LABEL RECORDS ARE STANDARD

DATA RECORD IS CIKT13-REC.

01 CIKT13-REC.

03 KIS3 PIC 99.

03 FILLER PIC X.

03 VAR3 PIC 999.

03 FILLER PIC X.

03 MIK3 PIC 9(7).

03 FILLER PIC X.

03 TOPBEK3 PIC 99.

03 FILLER PIC X.

03 MUST3 PIC 99.

WORKING-STORAGE SECTION.

01 I PIC 999 VALUE 0.

01 CHECK PIC 999.

01 K PIC 999.

PROCEDURE DIVISION.

BASLA.

DISPLAY "HAKAN GURDAL".

OPEN INPUT CIKT12-KUTUGU.

OPEN OUTPUT CIKT13-KUTUGU.

OKU.

READ CIKT12-KUTUGU AT END GO TO BITTI.

IF KIS EQUAL TO ZERO GO KABUL.

MOVE ZERO TO MUST3.

DEVAH.

MOVE ZERO TO TOPBEK3.

MOVE VAR TO VAR3.

MOVE KIS TO KIS3.

MOVE MIK TO MIK3.

WRITE CIKT13-REC.

GO TO OKU.

KABUL.

DISPLAY VAR " NOLU DEGISKENIN ESKI BEKLEME SURESI=" MUST.

DISPLAY VAR " NOLU DEGISKENIN YENI BEKLEME SURESI?:"

WITH NO ADVANCING.

ACCEPT MUST3.

GO DEVAH.

BITTI.

CLOSE CIKT12-KUTUGU CIKT13-KUTUGU.

STOP RUN.

17.02.11.UCLP, BU, P03 , 0.105KLNS.

PROGRAM LIST OF DEG.COB

IDENTIFICATION DIVISION.
 PROGRAM-ID. CHANGING-DISHES.
 AUTHOR. HAKAN GURDAL.
 ENVIRONMENT DIVISION.
 CONFIGURATION SECTION.
 INPUT-OUTPUT SECTION.
 FILE-CONTROL.

SELECT CIKT12-KUTUGU ASSIGN TO SDDDAT USE "RT=Z,BT=C".
 SELECT CIKT13-KUTUGU ASSIGN TO SYDDDAT USE "RT=Z,BT=C".

DATA DIVISION.
 FILE SECTION.

FD CIKT12-KUTUGU

LABEL RECORDS ARE STANDARD
 DATA RECORD IS CIKT12-REC.

01 CIKT12-REC.

03 KIS PIC 99.
 03 FILLER PIC X.
 03 VAR PIC 999.
 03 FILLER PIC X.
 03 MIK PIC 9(7).
 03 FILLER PIC X.
 03 TOPBEK PIC 99.
 03 FILLER PIC X.
 03 MUST PIC 99.

FD CIKT13-KUTUGU

LABEL RECORDS ARE STANDARD
 DATA RECORD IS CIKT13-REC.

01 CIKT13-REC.

03 KIS3 PIC 99.
 03 FILLER PIC X.
 03 VAR3 PIC 999.
 03 FILLER PIC X.
 03 MIK3 PIC 9(7).
 03 FILLER PIC X.
 03 TOPBEK3 PIC 99.
 03 FILLER PIC X.
 03 MUST3 PIC 99.

WORKING-STORAGE SECTION.

01 I PIC 999 VALUE 0.
 01 K PIC 999.
 01 REZ PIC 999 VALUE 900.
 01 CHECK PIC 999 VALUE 0.

PROCEDURE DIVISION.

BASLA.

OPEN OUTPUT CIKT13-KUTUGU.
 OPEN INPUT CIKT12-KUTUGU.

EKRAN.

DISPLAY " ".
 DISPLAY " ".
 DISPLAY " ".
 DISPLAY " ".
 DISPLAY " ".
 DISPLAY "*****".
 DISPLAY "* PROGRAM FOR CHANGING SOME DISHES *".
 DISPLAY "* ===== *".
 DISPLAY "* *".
 DISPLAY "* NOTE : YOU HAVE TO ENTER THE NUMBER OF *".
 DISPLAY "* THE DISH IN ORDER *".
 DISPLAY "*****".
 DISPLAY " ".
 DISPLAY " ".

DISPLAY "ENTER THE NUMBER:(3 DIGITS):",
ACCEPT K.
IF CHECK = 0 GO EKRAN2.
IF K = REZ + 1 GO GORUNTU ELSE PERFORM DEVAM.

EKRAN2.

MOVE K TO REZ.
MOVE 1 TO CHECK.

OKU.

READ CIKTI2-KUTUGU AT END GO BITTI.
IF VAR NOT = K PERFORM DEVAM GO OKU.

GORUNTU.

DISPLAY " ",
DISPLAY " ",
DISPLAY "**THE OLD VALUES OF DISH NO. " VAR " FOLLOWS:",
DISPLAY " ===== ",
DISPLAY " CONSTRAINT VALUE ",
DISPLAY " ===== ",
DISPLAY " " KIS " " MIK.

OKU1.

READ CIKTI2-KUTUGU AT END DISPLAY "HATA" GO BITTI.
IF KIS > 9 MOVE 0 TO I GO KABUL.
DISPLAY " " KIS " " MIK.
GO OKU1.

KABUL.

DISPLAY "ENTER THE NEW VALUE OF CONST." I " (7 DIGITS)="
WITH NO ADVANCING.

ACCEPT MIK3.
MOVE I TO KIS3.
MOVE K TO VAR3.
MOVE 0 TO TOPBEK3.
MOVE 0 TO MUST3.
IF I = 0 DISPLAY "ENTER THE NEW REOCCURANCE INTERVAL (2 DIG)="
WITH NO ADVANCING ACCEPT MUST3.

WRITE CIKTI3-REC.
ADD 1 TO I.
IF I = 10 GO DIGYAZ.
GO KABUL.

DEVAM.

MOVE 0 TO TOPBEK3.
MOVE VAR TO VAR3.
MOVE MIK TO MIK3.
MOVE KIS TO KIS3.
MOVE MUST TO MUST3.
WRITE CIKTI3-REC.

DIGYAZ.

PERFORM DEVAM.
READ CIKTI2-KUTUGU AT END GO TO BITTI.
IF VAR NOT = K GO EKRAN.
GO TO DIGYAZ.

BITTI.

CLOSE CIKTI2-KUTUGU CIKTI3-KUTUGU.
STOP RUN.

PROGRAM LIST OF SON.COB

PROGRAM-10. CIKTI-DCNUSUN.

 * THIS PROGRAM PREPARES INPUT FROM MPOS-OUTPUT *

AUTHOR. HAKAN GURDAL.
 ENVIRONMENT DIVISION.
 CONFIGURATION SECTION.
 INPUT-OUTPUT SECTION.
 FILE-CONTROL.

SELECT CIKTI-KUTUGU ASSIGN TO D15
 USE "RT=Z,BT=C".
 SELECT YENCIKTI ASSIGN TO GURDAL USE "RT=Z,BT=C".
 SELECT VERI-KUTUGU ASSIGN TO MPDAT USE "RT=Z,BT=C".
 SELECT GUN-KUTUGU ASSIGN TO GUNDAT USE "RT=Z,BT=C".
 SELECT YEMEK-KUTUGU ASSIGN TO YEMDAT
 USE "RT=Z,BT=C".
 SELECT YEMEK2-KUTUGU ASSIGN TO GYEMDAT
 USE "RT=Z,BT=C".

DATA DIVISION.

FILE SECTION.

FD YEMEK-KUTUGU

LABEL RECORDS ARE STANDARD
 DATA RECORD IS YEMEK-YAZILIM.

01 YEMEK-YAZILIM.

02 YEMAD FIC X(5).
 02 FILLER FIC X.
 02 YEMNUM FIC 9(3).
 02 FILLER FIC X.
 02 ADET FIC 99.

FD YEMEK2-KUTUGU

LABEL RECORDS ARE STANDARD
 DATA RECORD IS YEMEK2-YAZILIM.

01 YEMEK2-YAZILIM.

02 YEMAD2 FIC X(5).
 02 FILLER FIC X.
 02 YEMNUM2 FIC 9(3).
 02 FILLER FIC X.
 02 ADET2 FIC 99.

FD GUN-KUTUGU

LABEL RECORDS ARE OMITTED
 DATA RECORD IS GUN-YAZILIM.

01 GUN-YAZILIM.

02 FILLER FIC X.
 02 GUN1 FIC 99.
 02 FILLER FIC X.
 02 ENDUS FIC 9(8).
 02 FILLER FIC X.
 02 ENYUK FIC 9(8).
 02 FILLER FIC X.
 02 KUM FIC 9(10).

FD CIKTI-KUTUGU

LABEL RECORDS ARE OMITTED
 DATA RECORD IS CIKTI-YAZILIM.

01 CIKTI-YAZILIM.

02 SAYFAEAS FIC X.
 02 FILLER FIC X.
 02 DCKUZ FIC X.
 02 VARN FIC S999.
 02 HEADER.
 03 BOS1 FIC XX.
 03 KOD1 FIC X(5).
 03 BOS2 FIC XX.
 03 OBFUN FIC X(20).
 02 OBFUNVA FIC X(8).
 02 FILLER FIC X(89).

FD YENCIKTI

LABEL RECORDS ARE OMITTED
 DATA RECORD IS SATIR.

01 SATIR FIC X(132).

FD VERI-KUTUGU

LABEL RECORDS ARE STANDARD
 DATA RECORD IS VERI-YAZILIM.

01 VERI-YAZILIM.

03 CCD FIC X(5).
 03 FILLER FIC X.
 03 NUM FIC 9(3).
 03 FILLER FIC X.
 03 VALU FIC X(8).

WORKING-STORAGE SECTION.

01 XCCUAT FIC 99 VALUE ZERO.
 01 SATSAYI FIC 9999 VALUE C.
 01 I FIC 99.
 01 K FIC 999.
 01 KK FIC 9.
 01 L FIC 99.
 01 J FIC 99.
 01 GECDEG1 FIC 999.
 01 GECDEG2 FIC X(5).

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01 ENDUS1 PIC 9(8).
01 ENYUK1 PIC 9(3).
01 KLM1 PIC 9(10).
01 VA.
02 VARNO OCCURS 20 TIMES PIC 999.
01 VN.
02 VARNA OCCURS 20 TIMES PIC X(5).
01 SL.
02 SLVA OCCURS 20 TIMES PIC X(8).
01 LFS PIC 9(8).
01 LFSAT.
02 FILLER PIC X(15) VALUE " LP SOLUTION : ".
02 LFSC PIC Z(6)9.9.
01 IFS PIC 9(8).
01 IFSAT.
02 CCUNR PIC 929.
02 FILLER PIC X(15) VALUE " IF SOLUTION : ".
02 IFSC PIC Z(6)9.9.
01 YEMSAT.
02 FILLER PIC X VALUE SPACES.
02 YEMEK PIC X(5).
02 YEMNO PIC 9(2)9(3).
01 YEMBAS.
02 FILLER PIC X(11) VALUE " CCDE NO ".
01 YEMBAS1.
02 FILLER PIC X(11) VALUE " ---- -- ".
01 BASLIK.
02 FILLER PIC X VALUE SPACES.
02 FILLER PIC X(15) VALUE "*" SOLUTION OF ".
02 GUN PIC Z(2).
02 FILLER PIC X(7) VALUE " DAY *".
01 YILDIZ.
02 FILLER PIC X VALUE SPACES.
02 FILLER PIC X(24) VALUE ALL "*".
PROCEDURE DIVISION.
MAIN.
    DISPLAY "VERI HAZIRLAMA".
    OPEN INPUT CIKTI-KUTUGU.
    OPEN EXTEND YENCIKTI.
    OPEN OUTPUT VERI-KUTUGU.
    OPEN INPUT GUN-KUTUGU.
GUNT.
    READ GUN-KUTUGU.
    ADD 1 TO GUN1.
    MOVE GUN1 TO GUN.
    MOVE ENDUS TO ENDUS1.
    MOVE ENYUK TO ENYUK1.
    MOVE KUM TO KUM1.
    CLOSE GUN-KUTUGU.
    WRITE SATIR FROM YILDIZ AFTER PAGE.
    WRITE SATIR FROM BASLIK.
    WRITE SATIR FROM YILDIZ.
SATIRSA.
    READ CIKTI-KUTUGU AT END DISPLAY GUN1 " DAY OK!"
    GO TO BIR.
    IF HEADER = "CONTINUOUS SOLUTION ---"
        GO TO LPSONUC.
    IF HEADER = "NEW INTEGER-FEASIBLE SOLUTION "
        GO TO IPSONUC.
    GO TO SATIRSA.
LPSONUC.
    READ CIKTI-KUTUGU AT END DISPLAY "LPHATA" GO TO BITTI.
    ADD 1 TO SATSAYI.
    IF SATSAYI = 6 MOVE OEFUNVA TO LPS
    INSPECT LPS REPLACING ALL " " BY "0"
    COMPUTE LPSO = LPS / 10

```

WRITE SATIR FROM LPSAT
GO TO SATIRSAI.

GO TO LFSCHUC.
IFSCNUC.
ADD 1 TO XCCUNT.
MOVE XCCUNT TO CCUNR.
MOVE 0 TO 1.
IPSCNUC2.
ADD 1 TO 1.
IF I = 21 MOVE 0 TO SATSAYI GO TO IP2.
MOVE SPACES TO VARNA (1).
MOVE ZEROS TO VARNO (1).
MOVE SPACES TO SLVA (1).
GO TO IPSCNUC2.
IF2.
READ CIKTI-KUTUGL AT END DISPLAY "IPHATA" GO TO BITTI.
ADD 1 TO SATSAYI.
IF SATSAYI = 6 MOVE 0 OFUNVA TO IPS
INSPECT IPS REPLACING ALL " " BY "0"
COMPUTE IPSO = IPS / 10
WRITE SATIR FROM IPSAT
GO TO IP2.
IF SATSAYI = 9 MOVE 0 TO I GO TO IP3.
GO TO IF2.
IF3.
READ CIKTI-KUTUGU AT END DISPLAY "IPHATA2" GO TO BITTI.
IF KOD1 = "--SLA" GO TO IP4.
IF OBFUNVA = " " 1" ADD 1 TO I
MOVE KOD1 TO VARNA (1)
INSPECT VARN REPLACING ALL " " BY "0"
MOVE VARN TO VARNO (1)
GO TO IP3.
GO TO IP3.
IF4.
IF KOD1 = SPACES GO TO SATIRSAI.
MOVE ZEROS TO K.
COMPUTE K = VARN * (-1).
COMPUTE KK = K / 100.
IF KK = 1 GO TO IP5.
COMPUTE KK = VARN * (-1).
INSPECT OBFUNVA REPLACING ALL " " BY "0", ALL "-" BY "0".
MOVE OBFUNVA TO SLVA (KK).
IF5.
READ CIKTI-KUTUGL AT END DISPLAY "IPHATA3" GO TO BITTI.
GO TO IP4.
BIR.
MOVE 0 TO I K.
BIR1.
ADD 1 TO I.
MOVE "SLACK" TO COD.
MOVE 1 TO NUM.
MOVE SLVA (I) TO VALU.
IF I = 1 OR I = 2 MOVE "00000000" TO VALU.
WRITE VERI-YAZILIM.
IF I < 9 GO TO BIR1.
BIR2.
ADD 1 TO K.
IF VARNA (K) = SPACES COMPUTE K = K - 1 GO TO BIR3.
GO TO BIR2.
BIR3.
WRITE SATIR FROM YEMBAS AFTER 2.
WRITE SATIR FROM YEMBAS1.
MOVE ZERO TO J.
OPEN INPUT YEMEK-KUTUGU.
OPEN OUTPUT YEMEK2-KUTUGU.
ZZZ.

```

ADD 1 TO J.
COMPUTE L = J + 1.
IF J = K MOVE ZERO TO J GO TO YAZ.
YYY.
IF L = K + 1 GO TO ZZZ.
IF VARN (L) GREATER THAN VARN (J) GO TO XXX.
MOVE VARN (L) TO GECDEG1.
MOVE VARN (L) TO GECDEG2.
MOVE VARN (J) TO VARN (L).
MOVE VARN (J) TO VARN (L).
MOVE GECDEG1 TO VARN (J).
MOVE GECDEG2 TO VARN (J).
XXX.
ADD 1 TO L.
GO TO YYY.
YAZ.
ADD 1 TO J.
MOVE VARN (J) TO CCD YEMEK.
MOVE VARN (J) TO NUM YEMNO.
MOVE "0000001" TO VALU.
WRITE VERI-YAZILIM.
WRITE SATIR FROM YEMSAT.
IF J = K MOVE 1 TO J GO TO YAZ2.
GO TO YAZ.
YAZ2.
READ YEMEK-KUTUGU AT END GO TO BITTI.
IF VARN (J) = YEMNUM ADD 1 TO ADET
      ADD 1 TO J.
MOVE ADET TO ADET2.
MOVE YEMAD TO YEMAD2.
MOVE YEMNUM TO YEMNUM2.
WRITE YEMEK2-YAZILIM.
GO TO YAZ2.
BITTI.
OPEN OUTPUT GUN-KUTUGU.
ADD IPS TO KUM1.
MOVE KUM1 TO KUM.
IF IPS > ENYUK1 MOVE IPS TO ENYUK.
IF IPS < ENDUS1 MOVE IPS TO ENDUS.
WRITE GUN-YAZILIM.
CLOSE CIKTI-KUTUGU YEMCIKTI VERI-KUTUGU GUN-KUTUGU.
CLOSE YEMEK-KUTUGU YEMEK2-KUTUGU.
STOP RUN.
17.29.37. UCLP, BU, PG4      ,      0.301KLNS.

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PROGRAM LIST OF IS.COB

 * THIS PROGRAM PREPARES LAST STATISTICS OF THE PERIOD *

AUTHOR: HAKAN GURDAL.
 ENVIRONMENT DIVISION.
 CONFIGURATION SECTION.
 INPUT-OUTPUT SECTION.
 FILE-CONTROL.

SELECT YENCIKTI ASSIGN TO GURDAL USE "RT=Z,ET=C".
 SELECT GUN-KUTUGU ASSIGN TO GUNDAT USE "RT=Z,ET=C".
 SELECT YEPEK2-KUTUGU ASSIGN TO GYENDAT
 USE "RT=Z,ET=C".

DATA DIVISION.
 FILE SECTION.

FD YEPEK2-KUTUGU

LABEL RECORDS ARE STANDARD
 DATA RECCRC IS YEPEK2-YAZILIM.

01 YEPEK2-YAZILIM.

02 YEMAD2 PIC X(5).
 02 FILLER PIC X.
 02 YEMNUM2 PIC 9(3).
 02 FILLER PIC X.
 02 ADET2 PIC 99.

FD GUN-KUTUGU

LABEL RECORDS ARE OMITTED
 DATA RECCRC IS GUN-YAZILIM.

01 GUN-YAZILIM.

02 FILLER PIC X.
 02 GUN1 PIC 99.
 02 FILLER PIC X.
 02 ENDUS PIC 9(2).
 02 FILLER PIC X.
 02 ENYUK PIC 9(8).
 02 FILLER PIC X.
 02 KUM PIC 9(10).

FD YENCIKTI

LABEL RECORDS ARE OMITTED
 DATA RECCRC IS SATIR.

01 SATIR PIC X(132).

WORKING-STORAGE SECTION.

01 BASLIK1.

02 FILLER PIC X(20) VALUE " STATISTICS AFTER A ".
 02 GUN PIC 29.
 02 FILLER PIC X(15) VALUE " DAYS PERIOD :".

01 BASLIK2.

02 FILLER PIC X(16) VALUE " RECCURANCE NUM".
 02 FILLER PIC X(20) VALUE "MBERS OF MENU ITEMS:".

01 LINS.

02 FILLER PIC XX VALUE SPACES.
 02 YEM PIC X(5)B(2).
 02 NUM PIC 9(3).
 02 AC PIC B(2)2(2).

01 BASLIK3.

02 FILLER PIC X(7) VALUE " CODE ".
 02 FILLER PIC X(7) VALUE " NC ".

01 BASLIK4.

02 FILLER PIC X(7) VALUE " --- ".
 02 FILLER PIC X(7) VALUE " -- ".

01 LIN1.

02 FILLER PIC X(15) VALUE " TCTAL CCST :".
 02 TCPMAL PIC 2(7)9.99.
 02 FILLER PIC XXX VALUE " TL".

01 LIN2.

02 FILLER PIC X(15) VALUE " MINIMAL COST:".
 02 ENUCU2 PIC 2(7)9.99.
 02 FILLER PIC XXX VALUE " TL".

01 LIN3.

02 FILLER PIC X(15) VALUE " MAXIMAL COST:".
 02 ENPAHA PIC 2(7)9.99.
 02 FILLER PIC XXX VALUE " TL".

01 LIN4.

02 FILLER PIC X(15) VALUE " AVARAGE COST:".
 02 ORTA PIC 2(7)9.99.
 02 FILLER PIC XXX VALUE " TL".

01 YILDIZ.

02 FILLER PIC X VALUE SPACES.
 02 FILLER PIC X(50) VALUE ALL "*****".

01 CIZGI.

02 FILLER PIC X VALUE SPACES.
 02 FILLER PIC X(30) VALUE ALL "-----".

PROCEDURE DIVISION.

MAIN.

DISPLAY "STATISTICS".
 OPEN INPUT YEPEK2-KUTUGU.
 OPEN EXTEND YENCIKTI.
 OPEN INPUT GUN-KUTUGU.

GUNT.

```

READ GUN--KUTUGU.
MOVE GUN1 TO GUN.
COMPUTE ENUCU2 = ENDUS / 10.
COMPUTE ENPAHA = ENYUK / 10.
COMPUTE TCPMAL = KUP / 10.
COMPUTE ORTA = KUM / ( 10 * GUN1 ).
WRITE SATIR FROM YILDIZ AFTER PAGE.
WRITE SATIR FROM BASLIK1.
WRITE SATIR FROM YILDIZ.
WRITE SATIR FROM LIN1 AFTER 2.
WRITE SATIR FROM LIN2.
WRITE SATIR FROM LIN3.
WRITE SATIR FROM LIN4.
WRITE SATIR FROM CIZGI.
WRITE SATIR FROM YILDIZ AFTER 4.
WRITE SATIR FROM BASLIK2.
WRITE SATIR FROM YILDIZ.
WRITE SATIR FROM BASLIK3 AFTER 2.
WRITE SATIR FROM BASLIK4.

```

YEMEKCKU.

```

FEAD YEMEK2-KUTUGU AT END GO TO BITTI.
IF ADFT2 = ZERO GO TO YEMEKCKU.
MOVE YEMAC2 TO YEM.
MOVE ADET2 TO AD.
MOVE YEMNLM2 TO NUM.
WRITE SATIR FROM LIN5.
GO TO YEMEKCKU.

```

BITTI.

```

CLOSE YENCIXTI GUN-KUTUGU.
CLOSE YEMEK2-KUTUGU.
STOP RUN.

```

17.29.15.UCLP, BU, F04

C.157KLNS.

PROGRAM LIST OF DAT.COB

IDENTIFICATION DIVISION.
PROGRAM-ID. CIKTI-DCRUSUM.
AUTHOR. HAKAN GURDAL.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SPECIAL-NAMES.

TERMINAL IS EKRAH.
INPUT-OUTPUT SECTION.
FILE-CONTROL.

SELECT YEMEK-KUTUGU ASSIGN TO YEMEK
USE "RT=Z,BT=C".
SELECT ANA-KUTUK ASSIGN TO MPDAT USE "RT=Z,BT=C".
SELECT CIKTI2-KUTUGU ASSIGN TO CCDAT USE "RT=Z,BT=C".
SELECT CIKTI3-KUTUGU ASSIGN TO DATFIL USE "RT=Z,BT=C".

DATA DIVISION.

FILE SECTION.

FD ANA-KUTUK

LABEL RECORDS ARE STANDARD
DATA RECCRD IS ANA-YAZILIM.

01 ANA-YAZILIM.

02 CCD PIC X(5).
02 FILLER PIC X.
02 NUM PIC 9(3).
02 FILLER PIC X.
02 VALU PIC 9(8).

FD YEMEK-KUTUGU

LABEL RECORDS ARE STANDARD
DATA RECCRD IS YEMEK-YAZILIM.

01 YEMEK-YAZILIM.

02 KCD PIC X(5).
02 FILLER PIC X.
02 NUMX PIC 9(3).

FD CIKTI2-KUTUGU

LABEL RECORDS ARE STANDARD
DATA RECCRD IS CIKTI2-REC.

01 CIKTI2-REC.

02 KIS PIC 99.
02 FILLER PIC X.
02 VAR PIC 999.
02 FILLER PIC X.
02 MIK PIC 9(7).
02 FILLER PIC X.
02 TOPBEK PIC 99.
02 FILLER PIC X.
02 MUST PIC 99.

FD CIKTI3-KUTUGU

LABEL RECORDS ARE STANDARD
DATA RECCRD IS CIKTI3-REC.

01 CIKTI3-REC.

02 KIS3 PIC 99.
02 FILLER PIC X.
02 VAR3 PIC 999.
02 FILLER PIC X.
02 MIK3 PIC 9(7).
02 FILLER PIC X.
02 TOPBEK3 PIC 99.
02 FILLER PIC X.
02 MUST3 PIC 99.

WORKING-STORAGE SECTION.

01 I PIC 999 VALUE 0.

01 YEMK.

02 YEMNO OCCURS 20 TIMES PIC 999.

01 YEMKO.

02 YEMKCD OCCURS 20 TIMES PIC X(5).

01 SLAC.

02 SLACK OCCURS 9 TIMES PIC 9(8).

01 ADE.

02 ADEGER OCCURS 9 TIMES PIC 9(8).

01 XX PIC 99(8).

01 CHECK PIC 999.

01 K PIC 999.

PROCEDURE DIVISION.

01 SLA.

DISPLAY "RUNNING!"
OPEN INPUT ANA-KUTUK.
MOVE 17620 TO ADEGER (1).
MOVE 2900 TO ADEGER (2).
MOVE 3920 TO ADEGER (3).
MOVE 100 TO ADEGER (4).
MOVE 1020 TO ADEGER (5).
MOVE 1370 TO ADEGER (6).
MOVE 1410 TO ADEGER (7).
MOVE 5000 TO ADEGER (8).
MOVE 50000 TO ADEGER (9).
MOVE 21 TO CHECK.
MOVE 1 TO I.

SLSCF.

READ ANA-KUTUK AT END GO TO ARA-BIT.
IF COD NOT EQUAL "SLACK" GO TO DVM.

```

PCVE VALU TO SLACK (I).
ADD 1 TO I.
GO TO SLSCR.
DVM.
PCVE 1 TO I.
DVM2.
PCVE NUM TO YEMNC (I).
PCVE COD TO YEMKCD (I).
READ ANA-KUTUK AT END GO TO TEMIZLE.
ADD 1 TO I.
GO TO DVM2.
TEMIZLE.
ADD 1 TO I.
PCVE SPACES TO YEMKCD (I).
PCVE 999 TO YEMNC (I).
IF I = 20 GO TO ARA-BIT.
GO TO TEMIZLE.
ARA-BIT.
PCVE 1 TO I.
PCVE 1 TO K.
OPEN INPUT CIKT12-KUTUGU.
OPEN OUTPUT CIKT13-KUTUGU.
ISLE.
READ CIKT12-KUTUGU AT END GO TO BITTI.
IF KIS NOT EQUAL TO ZERO GO TO SART2.
PCVE TOPBEK TO TCPBEK3.
PCVE MIK TO MIK3.
IF TOPBEK NOT EQUAL TO ZERO COMPUTE TOPBEK3 = TOPBEK + 1.
IF VAR = YEMNC (K) COMPUTE MIK3 = MIK3 * 100
      COMPUTE TOPBEK3 = TOPBEK + 1
      ADD 1 TO K.
IF TOPBEK3 = MUST COMPUTE MIK3 = MIK3 / 100
      PCVE ZERO TO TOPBEK3.
PCVE MUST TO MUST3.
PCVE VAR TO VAR3.
PCVE KIS TO KIS3.
GO TO YAZ.
SART2.
IF VAR NOT EQUAL TO ZERO GO TO DEVAP.
IF I = 10 GO TO DEVAP.
COMPUTE XX = ADEGER (I) - SLACK (I).
IF XX LESS THAN ZERO PCVE ZERO TO XX.
DISPLAY "xx=" ADEGER (I) "-" SLACK (I) "=" XX.
PCVE XX TO MIK3.
ADD 1 TO I.
GO TO DEVAP2.
DEVAP.
PCVE MIK TO MIK3.
DEVAP2.
PCVE MUST TO MUST3.
PCVE TOPBEK TO TCPBEK3.
PCVE VAR TO VAR3.
PCVE KIS TO KIS3.
GO TO YAZ.
YAZ.
WRITE CIKT13-REC.
GO TO ISLE.
BITTI.
CLOSE CIKT12-KUTUGU CIKT13-KUTUGU ANA-KUTUK.
STOP RUN.

```

17.29.01.UCLP/BU/PG4

0.186KLNS.