



Research Topic (2)

Title: DIET and MIXING Model

Write research on:

Operations Research has many applications in all fields. One of the most important Problem is the diet Model; this is a case study help you to understand this model. A person wants to decide the constituents of a diet which will fulfill his daily requirements of essential nutrition at the minimum cost. The choice is to be made from four different types of foods. The yields per unit of these foods are given in the following table:

Food Type	Yields/unit			Cost/unit(\$)
	Proteins	Fats	Carbohydrates	
1	3	2	6	45
2	4	2	4	40
3	8	7	7	85
4	6	5	4	65
Minimum Requirement	800	200	700	

The research should include:

- 1- What is the meaning of Operations Research? What are the different phases for operations research?
- 2- Formulate the Mathematical Linear Programming for this problem
- 3- Define the meaning of basic feasible solution of a general Linear Programming Problem.
- 4- Solve the problem using Regular Simplex method.
- 5- Find the Dual Problem, and determine which is computationally advantageous to solve either the Primal or the Dual, then solve both problems
- 6- Solve the Problem Using Dual Simplex Method, if possible.
- 7- By using any computer software (e.g. TORA, MATLAB, ...) solve this optimization problem, or write down a program that solve the Problem using any programming language you know (program one method ONLY; Regular method, Dual Simplex method, or Dual Problem)

NB:

The form of the research should follow the following rules:

- a. Writing using Microsoft Word.
- b. using Time New Roman font.
- c. 14 Font size for text and 16 Bold for the title.
- d. single space between the lines.
- e. Page margins are 2.5 cm from top, bottom, right and left.
- f. The number of pages is not less than 3 pages
- h. English language formulation should be correct and sound.
- i. Clarity of texts, pictures or drawings.

With My Best Regards,

Safaa Amin