

IE102 Fall 2018 Homework II - Due: October 22, Monday 17:00

IMPORTANT: READ BEFORE YOU START WORKING ON THE HOMEWORK

Information on Homework II

- Homework II is 2%. Make sure that you review course material before you start. Cite sources used if any.
- Homework assignment will be conducted in groups of 2. We randomly form the groups. You can find your group member and his/her contact information at the course website. **If you cannot reach your group member by all means, indicate this on the cover page of your submission.**
- Grading Policy: The homework grades will not be only based on the correctness of the answers provided, but on the perceived degree of effort on the returned assignment. There exists no motive for the students to copy the answers from someone else, since even without obtaining the correct answers one can obtain full credit. The grading scale for each question is 2 points (full effort), 1 point (some effort), and 0 (no effort or no submission).
- Academic Dishonesty (taken from IE102 Course Information): **Academic misconduct is not tolerated, and violations will be treated in accordance with the university policy.** For assignments: Discussion of the course material and working in groups are effective ways of learning. However, this does not mean that you can copy the assignment from one of your friends. You can discuss with your friends, but you should be alone, without any written solution in front of you, when you actually prepare your assignment. It is extremely important to understand the value of this exercise in the process of learning. Any violation of the above understanding will result measures outlined in the student rules and regulations.
- Submission Information: An assignment submission box will be placed in front of office EA307 on the morning of the submission date and will be removed at the time of the deadline. You need to put your assignment in the designated box before the submission deadline. **Submission via e-mail is NOT accepted.**

Contact TA Okan Dükkancı if you have questions related to this HW:

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Question 1:

The elections are approaching and Party*A officials are trying to decide on the type of campaign to carry in the next few months. There are known four possible alternative campaigns. The following table (Table I), containing relevant criteria, related performance measures and other details, was obtained in several meetings.

TABLE I					
Criterion	Measures	Least Preferred	Most Preferred	Points (0-100)	Weight
Monetary issues	Campaign expenses	20,000 TL	2,000 TL	90	
	Donor contribution	2,000 TL	10,000 TL	80	
Image upgrade	Image upgrade	1 (no)	10 (perfect)	60	
Policy generation	Social policies	1-not effective	4-very effective	30	
	Environmental policies	1-not effective	3-very effective	40	
	Economic policies	1-not effective	5-very effective	50	
New members	Number of new, young members	5,000	50,000	90	
	Number of new members from academics	20	200	10	
	Number of new members from other parties	100	5,000	50	
				500	1.000

The following data presented in Table II were collected for each alternative campaign, denoted by A1, A2, A3 and A4.

TABLE III	Alternatives				
Measures		A1	A2	A3	A4
Campaign expenses (TL)		4,000	9,000	12,000	18,000
Donor contribution (TL)		2,000	6,000	7,000	9,000
Image upgrade		3	7	9	2
Social policies		1	2	3	2
Environmental policies		3	2	1	2
Economic policies		2	3	3	4
Number of new, young members		20,000	10,000	15,000	30,000
Number of new members from academics		20	50	90	150
Number of new members from other parties		5,000	3,000	1,000	2,000

Given the above 2 tables answer the following questions:

- Complete the last column of Table I (sum of weights should be 1)
- Rescale each measure to “Common Units” from 0 to 1, with 0 the worst and 1 the best. Create Table III, the version of Table II with common units. Please show your calculations. Round fractional results to the **nearest 3** decimal places.

TABLE III	Alternatives	A1	A2	A3	A4
Measures	(in common units)				
Campaign expenses					
Donor contribution					
Image upgrade					
Social policies					
Environmental policies					
Economic policies					
Number of new, young members					
Number of new members from academics					
Number of new members from other parties					

- c) Calculate the total weighted score for **each** of the alternatives by filling Table IV. Select the best alternative. Please show all your calculations.

TABLE IV	Alternatives	A1	A2	A3	A4
Measures	Scores				
Campaign expenses					
Donor contribution					
Image upgrade					
Social policies					
Environmental policies					
Economic policies					
Number of new, young members					
Number of new members from academics					
Number of new members from other parties					
TOTAL SCORE					

Question 2:

Consider the activities, their predecessors, completion durations and costs given below.

Activities	Immediate Predecessors	Normal Time	Crash Time	\$ Cost / day to Crash
A	-	18	16	1,000
B	-	12	10	1,200
C	B	8	7	400
D	A, C	10	8	800
E	D	7	6	1,600
F	E	6	6	1,500

- a) Decide the critical path and state the completion time of the entire project.
- b) If the gain for one day crash is \$2,000, develop the best crashing plan.