

Name:

EID:

Quiz #2

Please write your answers in the blank for each question.

Problem 1: Gale-Shapley Algorithm

Construct an example in which there is more than one stable matching. And give a stable matching optimal for the men and one optimal for the women.

Solution

Suppose the preferences are:

Alan: Megan > Melissa.

Ron: Melissa > Megan.

Melissa: Alan > Ron.

Megan: Ron > Alan.

So the match Alan-Megan, Ron-Melissa is stable. (This is the favorite of the men.)

The match Alan-Melissa, Ron-Megan is also stable. (This is the favorite of the women.)

Problem 2: Gale-Shapley Algorithm

We have previously discussed how the G-S (Gale-Shapley) algorithm produces a man-optimal result for the stable matching problem. Answer the following questions using the preference lists provided below:

Student	1st	2nd	3rd	Supervisor	1st	2nd	3rd
A	X	Z	Y	X	C	A	B
B	X	Y	Z	Y	A	C	B
C	Z	X	Y	Z	B	A	C

Use G-S to provide stable matching :

1. Student Optimal

Solution

A: X, B: Y, C: Z

2. Supervisor Optimal

Solution

X: C, Y: A, Z: B