Algorithm Design and Algorithms

UID: U00790636

2Q Ans:>

a) **Yes, it's possible. Consider the following file with number of subjects=3. Men and women preference lists are shown below.**

Men & Women	**Preference List**		
M1	W2	W1	W3
M2	W1	W3	W2
M3	W1	W2	W3
W1	M1	M2	M3
W2	M2	M3	M1
W3	M2	M1	M3

This is W3's false preference list.

W3`	M2	M3	M1

When we use the W3's true preference list and run the stable marriage algorithm. The following is the result.

m1→w1

m3→w2

m2→w3

Now, we use the W3's false preference list and try to run the Stable marriage algorithm. Then the stable matching algorithm result the following output.

m1→w1

m3 →w2

m2 →w3

From the above two set of results the matching between the men and woman doesn't change even though preference list for w3 has changed. Hence from the above experiment, we can conclude that by switching the priorities in preference list wouldn't improve the partner of a woman who switched preferences.

b) **Yes, it's possible. Consider the following file with number of subjects=3. Men and women preference lists are shown below.**

Men & Women	**Preference List**		
M1	W3	W1	W2
M2	W1	W3	W2
M3	W3	W1	W2
W1	M1	M2	M3
W2	M1	M2	M3
W3	M2	M1	M3

This is W3's false preference list.

W3`	M2	M3	M1

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When we use the W3's true preference list and run the stable marriage algorithm. The following is the result.

m2→w1

m3→w2

m1→w3

Now, we use the W3's false preference list and try to run the Stable marriage algorithm. Then the stable matching algorithm result the following output.

m1→w1

m3 →w2

m2 →w3

From the above two set of results, in later one result set the w3 has matched with m2 which is its highest preference. Hence from the above experiment, we can conclude that by switching the priorities in preference list would improve the partner of a woman who switched preferences.