Lab Exercise 4 | Week 5

Implement ***Gale–Shapley algorithm*** *to solve stable marriage problem*.

The ***stable marriage problem*** has been stated as follows:

> Given ***n*** men and ***n*** women, where each person has ranked all members of the opposite sex in order of preference, marry the men and women together such that there are no two people of opposite sex who would both rather have each other than their current partners. When there are no such pairs of people, the set of marriages is deemed stable.

***Input*:** 2D matrix of size (2*N)*N where N is number of women or men. Rows from 0 to N-1 represent preference lists of men and rows from N to 2*N – 1 represent preference lists of women. Men are numbered from 0 to N-1 and women are numbered from N to 2*N – 1.

Output: The output is list of married pairs.

> While the solution is stable, comment on the optimality of the solution.