Eclipse, Kliezl P. Exercise 10.4-2

Q: Design a simple algorithm for checking whether a given marriage matching is stable and determine its time efficiency class.

A:

ALGORITHM:
//Input: Marriage Matching *M* of *n* (*m*, *w*) pairs and a
ranking of men's preferences and women's preferences
//Output: "Stable" if *M* is stable, the blocking pair if otherwise

for $m \leftarrow 1$ to n
for each *w* such that *m* prefers *w* in *M*, **do**
if *w* prefers *m* instead of her current pair in *M*, then
return (*m*, *w*)
return "Stable"

Time complexity is O (n^2)