CS 330: HW 01

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1 Problem 1

"Show a complete, non-stable matching."
Consider women w and w', and men m and m', whose preferences are as follows:

$w = (m', m)$ [i.e., w prefers m' to m]
$w' = (m, m')$
$m = (w', w)$
$m' = (w, w')$

A complete matching could be one in which (w, m) are together and (w', m') are together, however since w prefers m' and m' prefers w as well, these two would pair off, therefore the matching is not stable (the alternative matching that would be formed if these two paired off, however, *is* stable, as m and w' prefer each other anyway).

2 Problem 2

2.a

3 Problem 3