

Problem 1. [10 points] The following questions concern the following preferences. Since there are unequal numbers of boys and girls, assume that being matched is preferred to being unmatched.

<i>girls</i>	<i>boys</i>
Wendy : Stan, Kenny, Butters, Eric	Stan: Wendy, Bebe, Heidi
Bebe : Kenny, Eric, Butters, Stan	Kenny : Heidi, Wendy, Bebe
Heidi : Eric, Butters, Stan, Kenny	Butters : Bebe, Wendy, Heidi
	Eric : Bebe, Heidi, Wendy

(a) [3 pts] Is the following a stable marriage? If not, list a rogue couple.

Wendy - Stan
 Bebe - Eric
 Heidi - Butters
 None - Kenny

Solution. The following is not a stable marriage. Heidi prefers Eric to Butters and Eric prefers Heidi to Bebe. ■

(b) [7 pts] Find the matching produced by the stable matching algorithm.

Solution.

Day 1

Wendy - Stan
 Bebe - Eric, Butters
 Heidi - Kenny
 None - no one

Day 2

Wendy - Stan, Butters
 Bebe - Eric
 Heidi - Kenny
 None - no one

Day 3

Wendy - Stan
 Bebe - Eric
 Heidi - Kenny, Butters
 None - no one

Day 4

Wendy - Stan

Bebe - Eric, Kenny

Heidi - Butters

None - no one

Day 5 - Stable

Wendy - Stan

Bebe - Kenny

Heidi - Eric

None - Butters

