1. Consider the Gale-Shapley algorithm with \( n \) men and \( n \) women. Suppose each man has a different woman first on his list. Describe how the algorithm will work. How many times will the WHILE loop be employed?

2. With \( n = 4 \) select random permutations for each man and each woman as your data and then run the Gale-Shapley algorithm by hand, giving the intermediate positions until reaching the final matching.

3. Construct an example with \( n = 5 \) in which man 1 proposes to all women 1, 2, 3, 4, 5 and in which women 1, 2, 3, 4 initially accept his proposal and later jilt him and in which woman 5 accepts his proposal and is his final mate.

4. Page 22, Exercise 1

5. Page 22, Exercise 2

No one has yet programmed a computer to be of two minds about a hard problem, or to burst out laughing, but that may come.

– Lewis Thomas