CSE 565	Martin Fürer	Algorithm Design and Analysis

Assignment 1 Given: 8/22/18 Due: 8/29/18

Exercises

Exercises are for your own practice. Don't hand them in.

1. Solve Exercise 1, Chapter 1 on page 22 of the Textbook.
   (Property of stable matching)
2. Solve Exercise 1, Chapter 2 on page 67 of the Textbook.
   (Time increase when instance size increases)
3. Solve Exercise 3, Chapter 2 on page 67 of the Textbook.
   (Rank functions)

Problems

Problem solutions have to be handed in. A subset of them will be graded.

Remember: Even though collaboration is permitted, you have to write the solutions by yourself without assistance. Be ready to explain them orally if asked. Write your collaborators on your first sheet. You are not allowed to get solutions from outside sources such as the Web or students not enrolled in this class.
For additional information see the Course Announcement on Canvas.

1. [5 points] Solve Problem 2, Chapter 1 on page 22 of the Textbook.
   (Pair ranks each other first)
2. [10 points] Solve Problem 4, Chapter 1 on page 23 of the Textbook.
   (Hospitals vs Residents)
3. [20 points] Solve Problem 5, Chapter 1 on page 24 of the Textbook.
   (Stable matchings with indifferences)
4. [20 points] Solve Problem 8, Chapter 1 on page 27 of the Textbook.
   (Truthfulness in stable matchings)
5. [15 points] Solve Problem 5, Chapter 2 on page 68 of the Textbook.
   (Implications for O-notation)
   The question is whether the statements under (a), (b), (c) are always true for $f(n) = O(g(n))$.