

# CS 312: Algorithms

## Homework 3

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### Instructions

Complete all problems and submit by the beginning of class on Thursday, Feb 14. You may work together with other students, but *your written work must be your own*. I highly encourage you to attempt the problems first on your own, especially the simpler ones.

Please make sure to:

- Write your name on your submission
- Write the name of all students with whom you collaborated
- Cite any sources you used other than the textbook or course notes.

### Problems

**Hint:** for one or more of these exercises, it is extremely helpful to think about a BFS tree. We discussed a few variations on how to implement BFS. I recommend focusin on the one on pp. 90-91 of the textbook.

1. (10 points) Chapter 3, Exercise 1. (We'll cover topological sort on Tuesday; do this last)
2. (10 points) Chapter 3, Exercise 4. (We'll discuss this problem in fourth hour on Monday)
3. (10 points) Chapter 3, Exercise 9
4. (10 points) Chapter 3, Exercise 10
5. (fame and fortune) Chapter 3, Exercise 12. You will solve this as a class on Piazza. Participation is optional, but may lead to valuable prizes. I'll tell you more about the prizes on Monday.
6. How much time did you spend on this homework?