COSC-211: DATA STRUCTURES
FINAL EXAM TOPICS AND LOGISTICS

1 Logistics

- This midterm will be asynchronous; you'll be able to complete it at your preferred time within the exam window.

- The midterm will be available on Gradescope from Monday, May 24, 12:00am ET until Wednesday, May 26, 11:59pm ET (i.e., the 72-hour period including all of Monday, Tuesday, and Wednesday, ET).

- This is a timed exam; you'll have 3 hours to solve the problems and upload your work to Gradescope. The exam will be about the length of the two midterms (maybe a little longer). We are giving you much more time for this exam than we expect you to need to solve the problems. The additional time is to ensure that you have plenty of time to scan and upload your work. **Please budget your time accordingly, and make sure you submit before your 3 hours end.** You've taken two midterms; by this point, you should know about how long the scan/upload process takes you, and you should know to leave more time than that in case of technical difficulties.

- Your 3 hours will start as soon as you open the midterm on Gradescope. Gradescope won't let you submit your work after the 3 hours are up. If you run into a technical problem (e.g., your internet goes out) and you can't submit your work on time, **don't panic**. Send your instructor (Prof. Gardner or Prof. Kaplan) an email right away, attaching your work, and we'll figure it out. Again, however, we expect you to do everything you can to ensure that this doesn't happen!

- If you use extended time for exams, please email your instructor as soon as possible—and no later than the morning of Sunday, May 23—to let us know (a) that you use extended time, and (b) what % time you use. Send an email even if you think we already know! We need to manually configure this in Gradescope, and it will not happen unless we hear from you.

2 Intellectual Responsibility and Asking Questions

- You're responsible for doing and submitting your own work on this midterm. Talking with your classmates, friends, family, etc. about the exam problems is not permitted. Because students will be taking the exam at different times during the exam window, we highly recommend not discussing the problems at all, with anyone, until Thursday.

- The midterm is open notes, meaning that you're allowed to look at your notes and anything posted on the course Moodle page or Slack channel while you're taking the midterm.

- As is the case for all work in this class, do not go to the internet with the express purpose of looking for solutions.

- Unfortunately, we cannot be available during the entire 72-hour exam window to answer questions. To ensure equitable midterm conditions for all students, including those who are in distant time zones or who may opt to take the midterm late at night, we are not going to answer any exam-related questions during the exam window. We will try to make the questions as clear and unambiguous as possible. If you're truly unsure of what a question is asking you to do, you can write down the question that you want to ask and your best guess at how we'd answer it, and we may take this into account when grading.

3   Topics and Structure

The final exam is cumulative, meaning that you are responsible for **everything we've covered this semester**. This exam will be slightly more heavily weighted towards the most recent material, which includes:

- ADT definitions: Priority Queue, Union-Find

- Data structures: sorted and unsorted array priority queue implementations, heaps, linked-list-based union-find, graphs (adjacency list and adjacency matrix representation)

- Depth-first and breadth-first search in graphs

As usual, for all of the implementations we've seen, you should know how to do the main operations and you should understand the runtimes of those operations. You should also be comfortable using the data structures to solve unfamiliar problems, as you've done on some of the problems on the first two midterms.

Want practice problems? Open Data Structures has lots of good exercises. Feel free to give some of these a try, and discuss them amongst yourselves on Slack!