

Administrative

This homework assignment must be done in a partnership. Make sure your name is on everything you turn in. Solutions must be typed and turned in via the Desire2Learn (D2L) dropbox: Assignment 5a. For this assignment you are to turn in the source code for your solution. The assignment is due on **Monday, April 20, by 11:59pm.**

Job Scheduling [20 points]

Do Project P-9.55 on page 399 in Goodrich & Tamassia.

One of the main applications of priority queues is in operating systems—for *scheduling jobs* on a CPU. In this project you are to build a program that schedules simulated CPU jobs. Your program should run in a loop, each iteration of which corresponds to a *time slice* for the CPU. Each job is assigned a priority, which is an integer between -20 (highest priority) and 19 (lowest priority), inclusive. From among all jobs waiting to be processed in a time slice, the CPU must work on a job with highest priority. In this simulation, each job will also come with a *length* value, which is an integer between 1 and 100 , inclusive, indicating the number of time slices that are needed to process this job. For simplicity, you may assume jobs cannot be interrupted—once it is scheduled on the CPU, a job runs for a number of time slices equal to its length. Your simulator must output the name of the job running on the CPU in each time slice and must process a sequence of commands, one per time slice, each of which is of the form “add job *name* with length *n* and priority *p*” or “no new job this slice”.