CSCI 421 Design and Analysis of Algorithms Spring 2019

Lecture 2 Activity 3

1. Randomized quicksort. Modify partition() so that it always chooses the partitioning item uniformly at random from the array (instead of shuffling the array initially). Compare the performance against the original version of quicksort. Attach your code in plaintext and screenshots of your output here.
2. Write a performance driver client program that uses “insert” to fill a priority queue, then uses “remove the maximum” to remove half the keys, then uses insert to fill it up again, then uses remove the maximum to remove all the keys, doing so multiple times on random sequences of keys of various lengths ranging from small to large; measures the time taken for each run; and prints out or plots the average running times.