Lab 12

Data Structures

Gabe Imes, Joe Schnizer, Eric Bridgens

Task distribution:

Task 1: All group members contributed

Task 2: Eric and Gabe

Task 3: Joe

Each group member equally contributed to this lab equally.

The results from our testing can be seen in the excel file called “Lab 12 Sorting Results” in the folder.

Task 2 Write up:

The data from the tests matched our expectations for bubble sort, it was not the worst algorithm for arrays with a smaller number of items, but when the number of items started to increase it became the least efficient algorithm. With Insertion sort having the same Big O notation as bubble sort we expected the results to be similar to bubble sort, which was the case when we ran our tests. With quick sort having an overage Big O notation of O(n log(n)) we expected quick sort to be one of the most efficient algorithms, our results showed that quick sort was very efficient compared to the other algorithms. Counting Sort had the best performance, which is what we expected due to it having a Big O notation of O(n). Merge Sort and Heap Sort had similar results all sharing a Big O notation of O(n log(n)), with their time complexities we expected that they would have the same efficiency as the number of elements increased, and the graph showed that our results matched our expectations. With Radix Sort having a Big O notation of O(n) we expected that radix sort would be more efficient than our results showed.