Sorting: Homework

27/3/2019

- Implement Insertion Sort and Quick Sort.
- Implement Heap Sort by using binary heap implementation required by homework on heaps.
- Implement Counting Sort, Radix Sort, and Bucket Sort.
- Implement the Select Algorithm.
- Test the implementations on a set of instances of the problem and evaluate their execution times.
- Prove by testing that both Insertion Sort and Quick Sort take time $O(n^2)$ in the worst case.
- Prove by testing that Insertion Sort and Quick Sort take in the best case time $O(n)$ and $O(n \log n)$, respectively.
- Why did we assume that there were no repeated values in A? Generalize the implementation of the Select Algorithm to also deal with repeated values.