Due by noon, Oct. 13.

1. Build the decision tree for the binary search algorithm on a sorted input array of size 8. What is the average and maximum number of comparisons in this tree?

2. Build the decision tree for the sequential search algorithm on a sorted input array of size 8. What is the average and maximum number of comparisons in this tree?

3. If we do a search for an element that has rank 5 in the list, what queries do we ask? Answer for both the binary and sequential search cases. You can assume here and in the proceeding two cases that all elements are distinct.

4. Construct the heap on the input: 3,7,15,4,25,1,20,8. Show the heap when you insert 17. Show the heap after you delete 7.