CS2022/MA2201
HW#4

Due: Thursday, September 18

1. (5 points) • How many ">" comparisons does the following program segment do in the worst-case to find the two largest elements in an array *A* containing *n* elements? We assume A has at least two elements. Do not count the comparisons to run the "for" loop, only the comparisons which compare elements of *A*. Do not use *O*-notation; give the exact number of comparisons.
   • Describe an input which makes the algorithm take this much time.

```
if (A[0]>A[1]) {big=A[0]; second=A[1];}
else { big=A[1]; second=A[0];}
for (k=2;k<n;k++)
    if (A[k]>second)
        {if (A[k]>big) {second=big; big=A[k];}}
    else second=A[k];
```

2. (3 points) Do **Exercise 2.2.8** from our text.

3. (6 points) Do **Exercise 2.2.12** from our text. Do not use *O*-notation; give the exact number of comparisons.

4. (5 points) Do **Exercise 3.1.2** from our text.

5. (5 points) Do **Exercise 3.1.10** from our text.