**CSCI 232 - HW 1**

**Due: 11pm, February 1, 2019**

Submit a PDF of your solution to ecat.

*Note: please show your work on each problem, not just the final answer.*

**Problems (10 pts each):**

* Exercise 1.4.6

1. Order of growth: (N + N/2 + N/4 … + 2 + 1) = O(N). Linear
2. Order of growth: (1 + 2 + 4 + … N/4 + N/2) = O(N). Linear
3. Order of growth: (N + N + N + … N) = O(N\*log N). Linearthmic

* Creative problem 1.4.24
* Exercise 1.5.8
  + The issue with the given algorithm is that it changes the value of id[p] to id[q] as it works. This means that any values larger than the value at id[p] will not be changed to id[q] because the if statement is equivalent to: if (id[i] == id[q]).
* Creative problem 2.3.15 (hint: think about adapting the quicksort algorithm)
* Exercise 2.4.4
* Exercise 2.4.5
* Exercise 2.4.17

**Short programming project: (20 pts):**

Do either:

* Creative problem 1.4.15
* Creative problem 2.4.25

Provide your source code and sample output showing that it works.

**Bonus Problem:** do both programming problems **(+5 bonus pts)**