COMP 550-002. Spring 2016
Homework assignment 1

Assigned: August 29th

Due: September 7th in class

Honor pledge. When submitting your work, please include a signed honor pledge statement: *I certify that no unauthorized assistance has been received or given in the completion of this work.* As stated in the course syllabus, you are encouraged to work on assignments in groups, but must (i) must explicitly list all your collaborators, and (ii) construct and write up your final solutions independently. **Assignments without the list of collaborators ("none", if you worked independently) and the signed honor pledge will not be graded.**

Numbered questions are from the assigned textbook (CLRS 3/E):

1. Question 1.2-2

2. Problem 1-1

3. Read the description of the *searching problem* from question 2.1-3 of the text. Write pseudocode for both *linear search* (described in question 2.1-3) and *binary search* (you should be familiar with binary search from your earlier courses.)

4. Question 2.1-3

   In addition to providing pseudocode as asked for in the question, implement the algorithm using your favorite programming language. Give the running time of your algorithm using Big-Oh notation.

5. Consider the problem of multiplying two n-digit non-negative integers, stored in two n-element arrays A and B of single-digit non-negative integers. The product should be stored in a $2n$-element array C of single-digit non-negative integers. State the problem formally and write pseudocode for multiplying the two integers. Implement this algorithm using your favorite programming language, and give the running time of your algorithm using Big-Oh notation.