O COMP 215 Algorithms Θ

Lab #8

This work should be submitted electronically before 11:59pm Friday. Submit a .zip file that contains all the file with your code (preferably a single file lab8.cpp, but you can make it multiple files if you prefer).

This should be a reasonably short one, I want you to have time to study for the midterm. No fancy objects to store the data, no operators to override, just basic arrays of integers.

In this lab, you will be implementing the Insertion Sort and Binary Search.

Let's dive right in.

1. Implement functions `InsertionSort` and `BinarySearch`. Each function should take the array and its size as input, `BinarySearch` will need in addition the element to search for.

Then, we need to read the input file.

2. Ask the user for the name of a file.
3. Read the file assuming that the first line will contain the number `n` of integers that will follow, and that each following line contains exactly one integer.
4. Store all these integers in an array.

Finally, we test the two functions you implemented

5. Run `InsertionSort` on the array of integers you read from the file.
6. Ask the user for elements to search in the array using the `BinarySearch` function. You should keep asking for more integers until the user enters an integer that is *not* in the array.