

## CS 121 Lab 5

Sorting

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In this lab, we will write codes using branching and loop statements. The code is due before midnight on 10/12/2010 for CS121A and 10/14/2010 for CS121B.

### Pre-lab activity

Before coming to the lab session, write an algorithm to solve each of the two problems below. Make sure that your algorithms are precise and unambiguous.

### In-lab activity

#### 1. Counting Program

Write a C++ program that continuously prompts the user to enter an integer number from the keyboard. The program will prompt the user for another integer over and over, until the user enters a zero. After that, the program will display how many of the numbers that the user has entered were positive, and how many of them were negative.

Sample Output

```
Please input an integer (enter 0 to stop): 4
Please input an integer (enter 0 to stop): 3
Please input an integer (enter 0 to stop): 2
Please input an integer (enter 0 to stop): -1
Please input an integer (enter 0 to stop): 0
Total positive numbers: 3
Total negative numbers: 1
```

#### 2. Sorting

Write a C++ program that prompts the user to enter three integer numbers into variables a, b, and c. After that, the program sorts entered numbers so that the smallest number is in variable a, the middle number is in variable b, and the largest number is in variable c. After that, the program asks the user if he or she would like to start another round of sorting. As long as the user answers 'Y' or 'y', the program will continue to ask for the three numbers and to sort the numbers in ascending order.

Sample Output:

```
Please input an integer for variable a: 3
Please input an integer for variable b: 2
Please input an integer for variable c: 1
After sorting, the result is a= 1 b= 2 c= 3
Do you want to continue? Y for yes and N for no: y

Please input an integer for variable a: 2
Please input an integer for variable b: 1
Please input an integer for variable c: 3
After sorting, the result is a= 1 b= 2 c= 3
Do you want to continue? Y for yes and N for no: y

Please input an integer for variable a: -3
Please input an integer for variable b: -2
Please input an integer for variable c: -1
After sorting, the result is a= -3 b= -2 c= -1
Do you want to continue? Y for yes and N for no: y

Please input an integer for variable a: -100
Please input an integer for variable b: 0
Please input an integer for variable c: -101
After sorting, the result is a= -101 b= -100 c= 0
Do you want to continue? Y for yes and N for no: n
```