The University of Chicago
Department of Computer Science

CMSC 15200 – Introduction to Computer Science 2
Summer Quarter 2005
Homework #9 (08/24/2005)
Due: 08/25/2005 @ 5pm

Name:

Student ID:

Instructor: Borja Sotomayor

Do not write in this area

1	2	**TOTAL**

Maximum possible points: 25

Exercise 1 <<15 points>>

The homework files include an implementation of a Stack ADT (from Lab #4). The items in this stack can only be of integer type. You must modify this implementation using templates to allow the Stack ADT to contain *any* data type. A main.cpp file is provided to test your implementation. The expected output is the following:

```
9 8 7 6 5 4 3 2 1
First element is 9
9 8 7 6 5 4 3 2 1
Popped element 9
8 7 6 5 4 3 2 1
Popped element 8
7 6 5 4 3 2 1
Popped element 7
6 5 4 3 2 1
Popped element 6
5 4 3 2 1
Popped element 5
4 3 2 1
Popped element 4
3 2 1
Popped element 3
2 1
Popped element 2
1
Popped element 1
Stack is empty!
5 4 3 2 1
8 7 6 5 4 3 2 1
```

Exercise 2 <<10 points>>

You will write a simple program that will ask the user for an undefined amount of numbers (i.e. the user just keeps on inserting numbers until he decides to stop). You will use an STL vector to store these numbers. Once the user has finished typing in numbers, you will print out the contents of the vector (a) using the vector class's bracket operator, and (b) using iterators. Then you will sort the vector using one of the STL algorithm functions, and will print the contents of the vector again.

```
Type in number #1: 56
Another number? (y/n): y
Type in number #2: 12
Another number? (y/n): y
Type in number #3: 78
Another number? (y/n): y
Type in number #4: 99
Another number? (y/n): y
Type in number #5: 34
Another number? (y/n): y
Type in number #6: 2
Another number? (y/n): y
Type in number #7: 89
Another number? (y/n): n

Numbers: 56 12 78 99 34 2 89
Numbers (with iterators): 56 12 78 99 34 2 89

Sorting...

Numbers: 2 12 34 56 78 89 99
Numbers (with iterators): 2 12 34 56 78 89 99
```