Module3, Assignment 3(design)

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Understanding

1. Description of assignment

   1) The program asks the user how many integers to enter and lets them input as many as they want.

   2) The user enters the desired number of integers.

   3) Once the user finishes entering the numbers, the program respectively outputs the minimum and the maximum number among the integers the user entered.

2. Description of techniques

In order to eventually get the minimum and maximum value, the program has to compare every integer to each other. The minimum and maximum numbers have to be compared with the number which is newly entered in by the user to prove those numbers are still the minimum and maximum numbers. This comparison has to happen everytime the user enters a new integer.

The "for" loop is needed to compare every integer with the former min number and the max number respectively whenever the user enters a number. The "If" statement is needed to compare which one is bigger and which one is smaller when the program compares the integers.

Testing Plan

Description of each tests	entered integer(s)			Expected Values	
				Min	Max
Test 1 The number of integers to be entered = 1 - purpose : Program correctly handles the result even if only one integer is entered in 3 different types. (0, negative number, positive number)	-1			-1	-1
	0			0	0
	1			1	1
Test 2 The number of integers to be entered = 2 - purpose : Program correctly handles the result even if 1) same integers get entered. 2) even if two different kinds of integers get entered. (negative num, positive num) (0, positive num) (0, negative num)	0	0		0	0
	1	1		1	1
	-1	-1		-1	-1
	-1	1		-1	1
	0	1		0	1
	0	-1		-1	0
Test 3 The number of integers to be entered = 3 - purpose : Program correctly handles the result even if 1) integers get entered in a different order. 2) different kinds of integers get entered in a different order.	0	1	-1	-1	1
	0	-1	1	-1	1
	1	-1	0	-1	1
	1	0	-1	-1	1
	-1	0	1	-1	1
	-1	1	0	-1	1

Design (Pseudocode for 3.a)

```
set numOfInteger, minNum, maxNum to 0
get the number of integers the user wants to enter
set numOfInteger to the number of integers the user wants to enter.

Let the user type the integers as many as numOfInteger
set minNum and maxNum to the number the user first entered.

For all the integers the user would type in
  if minNum is bigger than the integer just typed
    set minNum to the integer just typed by the user
  if maxNum is smaller than the integer just typed
    set maxNum to the integer just typed by the user

print minNum and maxNum respectively
```