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CS 165_Spring_2019
Module 2
Project 2a Plan

Project Prompt:
Write a program that asks the user how many integers they would like to enter. You can assume they will enter an integer >= 1. The program will then prompt the user to enter that many integers. After all the numbers have been entered, the program should display the largest, and smallest of those numbers. It also should display the difference between the largest and smallest of those numbers.

Design:
There are a few challenging aspects of this project we must consider. We need to keep track of 1) the number of integers a user will enter, 2) the minimum number, 3) the maximum, and 4) the user input. So, we're going to need at least four variables. Since we are unable to use arrays, we must also evaluate each integer as a user inputs it. In other words – we must evaluate each integer streaming through std::cin as it enters individually. We'll also need to have a default value from which to compare the following numbers. We can do this by taking the first integer inputted and setting that to both min and max, using a for loop until user input is done, two conditional statements and then subtracting max from min. Here's the pseudocode:

```
prompt user to enter number of integers

      ask user for first integer
           set that integer for both max and min values

      for each integer thereafter compare to min and max

                if input >= max
                     set max to input
                if input <= min
                     set min to input

      subtract max from min and output result
```

Testing Plan

User inputs only 1 integer	Max and min are set to the same integer and difference is zero. Change prompt to "Please enter an integer."
User inputs n integers of the same value (e.g. 10, 10, 10, 10)	Max and min remain the same and output is zero.

User inputs n integers of different values	Max and min are set to appropriate values and output the difference.
User inputs value that is greater than or less than allowed for int value.	Warn user that this is not possible and prompt them for another number.