Understanding

The program ultimately will display the lowest and largest values in a list of integers. This is accomplished by first instructing the user to enter the total number of integers to be used in the list. Then, the user enters integers sequentially until the number of integers has been entered. The program determines whether an integer is largest or smallest in the list as it is entered until the list is complete, and finally outputs the maximum and minimum values entered.

The following techniques used in the program are new to this week's material:

- **`for` loop:** once the user enters the number of integers to be evaluated, this number is used as the number of iterations that the loop is performed. Each iteration of the loop prompts the user to enter an integer. An `if/else` statement tests whether the integer is the first one entered, and then a nested `if` statement determines the maximum and minimum for each iteration.

- **`if/else` statement:** in the first iteration of the loop (if the count is 1), the integer entered is set as both the maximum and the minimum. For each subsequent iteration (else), the integer entered is tested against the prior integer.

- **`if` statement:** if the integer entered is less than the previous integer, it's the new minimum. If the integer entered is more than the previous integer, it's the new maximum.

Testing Plan

Description			Expected Results		
Number of integers	**Integers entered**	**Description of test**	**Min**	**Max**	**Description of results**
1	4	Program correctly executes with a list of only one integer	4	4	The nested `if/else` statement should set 4 as both the minimum and maximum, then trigger the end of the `for` loop after one iteration.
3	2, 2, 2	Program correctly executes on a list of multiple instances of the same integer	2	2	The first iteration of the `for` loop sets the min and max to 2, then the test in each remaining iteration changes nothing.
9	1, 2, 3, 4, 5, 6, 7, 8, 9	Program correctly executes on a list of consecutive ascending integers	1	9	The minimum is set in the first iteration and never changes, while the maximum is set to the input integer with each iteration.
9	9, 8, 7, 6, 5, 4, 3, 2, 1	Program correctly executes on a list of consecutive descending integers	1	9	The maximum is set in the first iteration and never changes, while the minimum is set to the input integer with each iteration

Design

Get the number of integers in the list from the user.

Set the list counter to 1.

For each iteration, while list counter <= the integer entered, incrementing with each iteration:

    If list counter = 1:

        The user enters an integer.

        Set this integer as the minimum/maximum (minimum = integer, maximum = integer).

    Else:

        The user enters an integer.

        If the integer < minimum:

            The integer is the new minimum (minimum = integer).

        If the integer > maximum:

            The integer is the new maximum (maximum = integer).

Print the minimum.

Print the maximum.