CSCI-101 Programming 1

Week of Sep 25 - Lab 6

INSTRUCTIONS

Log into cs.bridgewater.edu and navigate to your **labs** directory. Make a directory named **lab6** and include the files for this lab in the **lab6** directory.

Note: In this lab all loops must be for-loops. Also, you may not use methods in the Math class.

Let's Code

Create a class named **Lab6** and include in the class the following:

A method named **printArray** that takes an array of decimal numbers as an argument and prints the elements in the array to the screen, on a single line with spaces between them.

A method named **elementAt** that has 2 parameters. The first parameter is an array of decimal numbers and the second parameter is an integer. If the value in the second parameter is a valid index for the array the method returns the element in the array whose index is in the second parameter; otherwise the method returns 0.

A method named **max** that takes an array of decimal numbers as an argument and returns the largest value in the array.

A method named **meanAverage** that takes an array of decimal numbers as an argument and returns the mean average of the values in the array.

A method named **numPositive** that takes an array of decimal numbers as an argument and returns the number of elements in the array that are positive.

A method named **containsGreaterThan** that has 2 parameters. The first parameter is an array of decimal numbers and the second parameter is a decimal value. The method returns true if the array contains at least one element that is greater than the second parameter; otherwise the method returns false.

A method named **numGreaterThan** that has 2 parameters. The first parameter is an array of decimal numbers and the second parameter is a decimal value. The method returns the number of elements in the array that are greater than the second parameter.

A method named **main** that does the following:

- Declare an array named **array** that can hold 5 decimal values.
- Print to the screen the contents of **array** by calling **printArray**.

- Ask the user to enter 5 decimal values from the keyboard.
- Read the values from the keyboard and store them in **array**.
- Print the contents of **array** by calling **printArray**.

- Print to the screen, "Let's get an element".
- Ask the user to enter a valid index for the array.

- Store the value entered by the user in a variable named **position**.
- Get the value of the element in **array** whose index is in **position** using the **elementAt** method and store the value returned by the method in a variable named **elm**.
- Print to the screen "Element found: " followed by the value in **elm**.

- Get the largest value in **array** by calling **max** and store the value in a variable named **largestValue**.
- Print to the screen "Largest: " followed by the value in **largestValue**.

- Compute the mean average of the elements in **array** by calling **meanAverage** and store the result in a variable named **mean**.
- Print to the screen "Mean average: " followed by the value in **mean**.

- Get the number of positive values in **array** by calling **numPositive** and store the value in a variable named **positiveCount**.
- Print to the screen "Positive count: " followed by the value in **positiveCount**.

- Print to the screen "Enter a decimal value".
- Store the value entered by the user in a variable named **threshold**.
- Determine if there is at least one element in **array** that is greater than the value in **threshold** by calling **containsGreaterThan** and store the result in a variable named **atLeastOneFound**.
- Print to the screen "Found at least one greater: " followed by the value in **atLeastOneFound**.
-
- Determine the number of elements in **array** that are greater than the value in **threshold** by calling **numGreaterThan** and store the value returned by the method in a variable named **greaterThanCount**.
- Print to the screen "Greater than count: " followed by the value in the variable **greaterThanCount**.