Test 1 Programming Component (40 pts)

Problem One

Write a complete C++ program named "random.cpp" that generates x number of random numbers between 1 and 100. The program first prompts the user to enter the number of random values to generate. Then it prints out that many random numbers, and how many of the numbers are above the mid point of the range, and how many numbers are below the mid point.

You are required to use two functions in this program:

- The first function "GetRange" is responsible for prompting the user to enter the number of values to generate. It sends the number back to the calling function;
- The second function "DisplayResults" is responsible for generating and displaying the 10 random values within the range. It counts and displays the number of random values above the average, and the number of random values below the average.

Your program should include all the needed directives and comments.

NOTE: Submit your program using the following command:

handin test1A random.cpp

A sample run would be as follows (user input is in boldface to differentiate between output and input for the example):

Enter how many random values to generate : **10**
The 10 random values are:
24
34
33
29
20
28
32
27
21
35
6 numbers are above the average of 30.
4 numbers are below the average of 30.

Problem Two

Write a program (**array.cpp**) that reads positive floating point numbers from a data file into an array of capacity/size 100.
Then, it calls the function Display to display all the values in the array, one value per line.

Then the program calls function FindMax to compute and return the largest value in the array.

Your program should define at least the following two user defined functions
- Display: This function displays all the values in the array
- FindMax: This function finds and prints the largest value in an array

Copy the data file into the project directory using the command:

    cp   ~cen/data/arraytest.dat .

Your program should include all the needed directives and comments.

NOTE: Submit your program using the following command:
        handin test1B array.cpp

Here is an example output of the program:

There are 9 values read:
45.5
3.2
7.6
10.3
9.7
3.4
234.5
8.8
4
73.5

The largest value is : 234.5.