**Homework-2**

**Out Date:** 09/11/2018 (Tuesday)

**Due Date:** 09/16/2018 (Sunday) 11:59PM

**Problem Statement:** Write a program that can be used to gather statistical data about the number of movies college students see in a month. The program should perform the following steps:

1. Ask the user how many students were surveyed **[5 points]**. An array of integers with this many elements should then be **dynamically** allocated **[15 points]**. You must use pointers.
2. Allow the user to enter the number of movies each student saw into the array **[5 points]**.
3. Calculate and display the average **[5 points]**, and median **[20 points]**, of the values entered. Use a function for each operation. In statistics, when a set of values is sorted in ascending or descending order, its median is the middle value. If the set contains an even number of values, the median is the mean, or average, of the two middle values.
4. Draw a bar graph of the input data **[10 points]**. For example, let assume the following inputs:

|  |  |
| --- | --- |
| Students | Total movies |
| S1 | 5 |
| S2 | 3 |
| S3 | 6 |
| S4 | 1 |
| S5 | 7 |

The program should display a bar graph similar to the one given below:



The bar graph should be updated dynamically for any number of students and for any number of movies.

**Input Validation:** Do not accept negative numbers for input. If the user enters a negative number, display an error message and let the user enter the value again. Repeat this step as long as user does not correct the mistake **[10 points]**.

**Algorithm:** Develop a flowchart before actually coding the program **[10 points]**.

**Scoring Distribution [100 points]**

* 10 points for developing an algorithm
* 70 points for implementing the above mentioned requirements.
* 10 points for appropriate comments
* 10 points for programing style

**Blackboard Submission**

1. Submit the CPP file (e.g., HW2\_Team#.cpp)
2. Submit the algorithm (e.g., HW2\_Team#.doc)
3. Zip the files
4. Upload the zip file to Blackboard