**PROGRAMMING ASSIGNMENT #1**

Write an ANSI C program that determines the minimum grade, maximum grade, median grade and average of a class. Your program should first prompt for class name, and then allow user to select how many grades validated(at least 5, but no more than the number of data).
User will enter the corresponding grades when prompted with names and id numbers. Your program should test that each numeric grade value entered is valid via a ***trap loop*** (i.e., between 0 and 100). If the grade entered is not valid, the program should issue an error message similar to the one shown below, and re-prompt for a correct grade. Once all grades are entered, your program should calculate the minimum grade, maximum grade, and average, and median. It will then print the grades listed in descending order (without ***sort*** the program will only be worth 50% for a grade).

Your program should store all the grades entered in integer arrays grade[50] for grades and all of the student id's in the array idno[30], for example, where the student id numbers are random integers, or the ones shown below, up to 5 digits in length and **hard-coded** into the array by you. Similarly the names of students will be up to 20 in length and **hard-coded** into the array by you. For example:

```
int grade[30];
int idno[30] = { 55667,31245,44556,77889,11223,99112,55667,7654};
char name[30][20] =
{
        "John Doe", "Jane Smith","Bill Bailey","Carl Marks","Joy Fully",
        "Chris Tal","John Big","Ed Riley"
};
```

*The I/O must look exactly like the following, with the report data aligned*:

Enter Class Name: **Calc II**
The number of grades to process: **8**

Enter grade for 8 students:

Enter Class Name: Calc IV
The number of grades to process: 8
Enter grade for for students:

John Doe 55667: **77**
Jane Smith 31245: **88**
Bill Bailey 44556: **86**
Carl Marks 77889: **72**
Joy Fully 11223: **90**
Chris Tal 99112: **98**
John Big 55667: **75**
Ed Riley 7654: **69**

Sorted Grade Report for Calc IV

| Student Name | ID | Grade |
|---|---|---|
| Chris Tal | 99112 | 98 |
| Joy Fully | 11223 | 90 |
| Jane Smith | 31245 | 88 |
| Bill Bailey | 44556 | 86 |
| John Doe | 55667 | 77 |
| John Big | 55667 | 75 |
| Carl Marks | 77889 | 72 |
| Ed Riley | 07654 | 69 |

The maximum is 98
The minimum is 69
The median is 81.5

The Calc IV class average is 82

The maximum is 98
The minimum is 69
The median is 81.5

The Calc II class average is 82

*{End of complete program output}*

Note: What the user types in is indicated by the **blue** text above. Once the user enters a valid number of grades to process, the program should run as described above, but prompt for ONLY the number of grades entered by the user.

***** Sample Algorithm for Assignment #1 *****

**Note**: This assignment can be solved many different ways. This algorithm simply illustrates one possible solution outline. Please feel free to ignore this algorithm and use your own design to solve this problem. Make sure you use traditional, efficient code (otherwise there may be deductions).

- Prompt for class name
- Trap LOOP for each grade validating the grade.
- Calculate average as: "sum" of grades divided by number of grades.
- Sort the stored array in descending order with a *bubble* sort, and match the id numbers/names. (function is not required, but allowed)
- Print loop to print out the sorted arrays (with headers).

- Calculate the median.
  - If odd number entered median is the middle one.
  - If even number entered median is the ***average*** of the two middle ones.

- Display results:
  - Display minimum grade.
  - Display maximum grade.
  - Display median
  - Display average.

**(Please ignore any typo's. As with any program, if you are not sure, you can just ask me)**