

Answer on Question #50356 - Programming, C++

Write a program that can enter marks for number of students and calculate their Total and class average with the following format

The inputs:

ID (As 1 dimension array of Integers), First (As 1 dimension array of Doubles), Second (As 1 dimension array of Doubles), Final (As 1 dimension array of Doubles), Total (As 1 dimension array of Doubles), Grad (As 1 dimension array of Chars)

The Grades are: A for 90's, B for 80's, C for 70's, D for 60's and F for less than 60.

Example of the output:

```
St_Nm ID First Second Final Total Grade
1 20071156 15.5 16.5 30.1 62.1 D
2 20071154 15.0 16.5 30.1 62.6 D
```

Class average for 10 students is: 72.5

Solution.

```
//Connecting libraries
#include <iostream>
#include <iomanip>

using namespace std;

const int SIZE = 10;

//Declaring of prototypes functions
void inputID(int[]);
void inputMarks(double[]);
double ClassAverage(double []);
void Grade(double[],char []);
void Total(double[],double [],double [],double[]);
void print(int[] , double[], double[] , double[],double[], char[]);

// Create a main function
int main()
{
    //Declaring variables
    int ID[SIZE]={0};
    double marksFirst[SIZE]={0}, marksSecond[SIZE]={0}, marksFinal[SIZE]={0};
    double total[SIZE]={0};
    double average[SIZE]={0};
    char courseGrade[SIZE]="\0";

    //Calling functions
    inputID(ID);

    cout<<endl<<"First: "<<endl;
    inputMarks(marksFirst);

    cout<<endl<<"Second: "<<endl;
    inputMarks(marksSecond);

    cout<<endl<<"Final: "<<endl;
    inputMarks(marksFinal);
```

```

//Calling function determination Total
Total(marksFirst, marksSecond, marksFinal, total);

//Calling function determination Grade
Grade(total, courseGrade);

//Calling function print
print(ID, marksFirst, marksSecond, marksFinal, total, courseGrade);

//Stop console
cin.get();
cin.get();
return 0;
}

void inputID(int ID[])
{
    for(int i=0; i<SIZE; i++)
    {
        cout<<"Enter ID for "<<i+1<< " student: ";
        cin>>ID[i];
        cout<<endl;
    }
}

void inputMarks(double marks[])
{
    for(int i=0; i<SIZE; i++)
    {
        cout<<"Enter marks for "<<i+1<< " student: "<<endl;
        cin>>marks[i];
        cout<<endl;
    }
}

void Total(double marksFirst[],double marksSecond[],double marksFinal[],double total[])
{
    for(int i=0; i<SIZE; i++)
    {
        total[i] = marksFirst[i] + marksSecond[i] + marksFinal[i];
    }
}

void Grade(double average[] ,char courseGrade[])
{
    for(int i=0; i<SIZE; i++)
    {
        if (average[i] >= 90)
        {
            courseGrade[i] = 'A';
        }
        else if (average[i] >= 80 && average[i] < 90)
        {
            courseGrade[i] = 'B';
        }
        else if (average[i] >= 70 && average[i] < 80)
        {
            courseGrade[i] = 'C';
        }
        else if (average[i] >= 60 && average[i] < 70)
        {
            courseGrade[i] = 'D';
        }
    }
}

```

```

    }
    else if (average[i] < 60)
    {
        courseGrade[i] = 'F';
    }
}

void print(int ID[] , double marksFirst[], double marksSecond[] , double marksFinal[],
double total[], char courseGrade[])
{
    cout<<"St_Nm   ID   First Second Final Total Grade"<<endl;

    for(int i=0; i<SIZE; i++)
    {

        cout<<setw(4)<<i+1<<setw(9)<<ID[i]<<setw(5)<<marksFirst[i]<<setw(7)<<marksSecond[i]
]<<setw(7)<<marksFinal[i]<<setw(7)<<total[i]<<setw(3)<<courseGrade[i];
        cout<<endl;
    }

    cout<<endl<<endl<<"Class average for 10 students is: "<<ClassAverage(total);
}

double ClassAverage(double total[])
{
    double avg=0;

    for(int i=0; i<SIZE; i++)
    {
        avg+=total[i];
    }

    return avg/SIZE;
}

```

```

C:\Projects\Pr1\Debug\Pr1.exe
10
Enter marks for 8 student:
5
Enter marks for 9 student:
10
Enter marks for 10 student:
5
St_Nm   ID   First Second Final Total Grade
1 11111111 40    10    10    60    D
2 11111111 40     5     5    50    F
3 11111111 40    10    10    60    D
4 11111111 40     5     5    50    F
5 11111111 40    10    10    60    D
6 11111111 40     5     5    50    F
7 11111111 40    10    10    60    D
8 11111111 40     5     5    50    F
9 11111111 40    10    10    60    D
10 11111111 40     5     5    50    F
Class average for 10 students is: 55

```