Answer on Question #50344 - 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 (As1 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;
}
```