1. Given a *student* class with the members and methods as follows, write a C++ test program (a.k.a. main function) to display *names*, *courseNum* and grades of *3* students who have appeared in the examination. Declare the class of *name*, *courseNum*. and *grade*. Create an array of class objects. Read and display the contents of the array.

Output is:

```
Enter total number of students: 3
Enter details of student 1:
Enter name: Karthik
Enter course number: 1201
Enter total marks out of 500: 456
Enter details of student 2:
Enter name: Mahesh
Enter course number: 1202
Enter total marks out of 500: 398
Enter details of student 3:
Enter name: Kiran
Enter course number: 1203
Enter total marks out of 500: 456
Details of student 1:
Student details:
Name: Karthik, Course Number: 1201, Total: 456, Percentage: 91.2
Details of student 2:
Student details:
Name: Mahesh, Course Number: 1202, Total: 398, Percentage: 79.6
Details of student 3:
Student details:
Name: Kiran, Course Number: 1203, Total: 456, Percentage: 91.2
```

2. Complete two methods, *get_data()* and *print_data()* within the given class *sample* based on the running results shown as below

Output is:

```
Enter an integer value: 12
Enter a character: S
Enter a float value: 12.12
Values read from keyboard are
Integer value: 12
Character is: S
Float value is: 12.12
```

3. Write a class called *Rectangle* that has floating point data members' *length* and *width*. The class has the following member functions: *void setlength(float)* to set the *length* data member; *void setwidth(float)* to set the *width* data member; *float perimeter(void)* to calculate and return the perimeter of the rectangle; *float area(void)* to calculate and return the area of the rectangle; *void show(void)* to display the *length* and *width* of the rectangle; *int sameArea(Rectangle)* that has one parameter of type *Rectangle*, and *sameArea* returns *1* if the two *Rectangles* have the same area, otherwiese returns *0* if they don't.

```
                Rectangle 1

Length: 5
Width: 2.5
Perimeter: 15
Area: 12.5

                Rectangle 2

Length: 5
Width: 18.9
Perimeter: 47.8
Area: 94.5

The two reactangles are NOT the same.

                Rectangle 1

Length: 15
Width: 6.3
Perimeter: 42.6
Area: 94.5

The two reactangles are the same
```

4. Create a class called *MusicIns* to contain three methods *void string(void)*, *void wind(void)* and *void perc(void)*. Each of these methods should initialize a member *string* type *instrument* array to contain the following
    a. *Veena, guitar, sitar, sarod* and *mandolin* under *void string(void)* method
    b. *Flute, clarinet, saxophone, nadaswaram* and *piccolo* under *void wind(void)* method
    c. *Table, mridangam, bongos, drums* and *tambour* under *void perc(void)* method

    It should also have two methods called *void get(void)* and *void show(void)* to display the contents of the arrays initialized. The *void get(void)* methods must display a menu as follows
    a. The values of *instrument* array within *void string(void)* method
    b. The values of *instrument* array within *void wind(void)* method
    c. The values of *instrument* array within *void perc(void)* method

    After that, generate test program *main.cpp* to verify the above class

Output is:

```
1. String Instrument
2. Wind Instrument
3. Percussion Instrument
Enter the Choice:1
Veena Guitar Sitar Sarod Mandolin


...Program finished with exit code 0
Press ENTER to exit console.
```