Class and object

Class:- Class is a collection of similar types of data.

Or

Class is a blueprint for the object. A class is defined in C++ using keyword class followed by the name of class.

The body of class is defined inside the curly brackets and terminated by a semicolon at the end.

Some member of class is private,protected,public.

Private:-private members of a class are accessible only from other members of the same class or from their "friend" classes. They cannot be accessed from the outside world. Nor it can be inherited.

Public:-Public members of a class are accessible from anywhere . They can also be inherited.

Protected:-Protected members of a class are accessible from members of the same class and friend classes. But cannot be accessed from outside of the class hierarchy. We can say that a protected member is an inheritable private member.

Syntax:-

```
class class_name
{
        members;
        object_name;
}
```

Object:-

When class is defined, only the specification for the object is defined; no memory or storage is allocated.

To use the data and access functions defined in the class, you need to create objects.

Syntax:-

Class_Name objectVariableName;

Example 1:-

Solution:-

```
#include<iostream>

using namespace std;

class MyClass {      //  MyClass is classname

  public:          // Access specifier

    int myNum;       // Attribute (int variable)

    string myString;  // Attribute (string variable)

};

int main() {

  MyClass myObj;   // MyClass is classname and myObj is object.

  // Access attributes and set values

  myObj.myNum = 15;

  myObj.myString = "Some text.";

  // Print attribute values
```

```cpp
        cout << myObj.myNum << "\n";
        cout << myObj.myString;
        return 0;
    }
```

Output:-   15

Some text.

Example 2:- **Write a program to put any student Five subject marks and find total , average.**

Solution:-

```cpp
#include<iostream>
using namespace std;
class ajay     //ajay is classname
{
    private:
            int h,e,m,p,c;
            float t,a;
    public:
            void get()
            {
                    cout<<"Enter five subject marks";
                    cin>>h>>e>>m>>p>>c;
            }
    void cal()
    {
      t=h+e+p+c+m;
      a=t/5;
            }
```

```cpp
            void dis()
            {
            cout<<"\nTotal="<<t<<"\n";
                cout<<"Average="<<a<<"\n";
            }
};
int main()
{
      ajay v;     // v is object
      v.get();
      v.cal();
      v.dis();
return 0;
}
```

Output:-

Enter five subject marks   45

                                                        67

                                                        67

                                                        67

                                                        67

Total=313

Average=62.6

Example 3:- Write a program to put any student Five subject marks and find total , average.

Solution:-

```cpp
#include<iostream>
using namespace std;
class ajay
{
```

```cpp
private:
    int a,b,add,mul,sub;
    float div;
public:
    void get()
    {
        cout<<"Enter two value";
        cin>>a>>b;
    }
void cal()
{
    add=a+b;
    mul=a*b;
    div=a/b;
    sub=a-b;

    }
    void dis()
    {
        cout<<"Addition="<<add<<"\n";

cout<<"Division="<<div<<"\nMultiplication="<<mul<<
"\n";
        cout<<"Subtruction="<<sub<<"\n";
    }
};
int main()
{
    ajay v;
    v.get();
```

```
        v.cal();
        v.dis();

    return 0;
    }
```

Output:-   *Enter two value   4   //first time run*
                                 2

        Addition= 6
        Division= 2
        Multiplication = 8
        Subtraction= 2

        Enter two value 8   //second time run
                                 2

        Addition= 10
        Division= 4
        Multiplication = 16
        Subtraction= 6

Class methods:- Methods are functions that belongs to the class.

There are two ways to define functions that belongs to a class:

1. **Inside class definition**
2. **Outside class definition**

1. Inside class definition:-

Example 1:-

```
#include<iostream>
```

```cpp
using namespace std;
class MyClass      // The class

 {
  public:          // Access specifier
   void myMethod()   // Method/function defined

{

//inside the class
     cout << "Hello World!.";
    }
};

int main()

{
  MyClass myObj;    // Create an object of MyClass
  myObj.myMethod();  // Call the method
  return 0;
}
```

Output:-

Hello World!.

2. Outside class definition:-
Example:-

```cpp
#include<iostream>
using namespace std;
class MyClass     // The class

{
  public:          // Access specifier
   void myMethod();   // Method/function declaration
};
```

```cpp
// Method/function definition outside the class
void MyClass::myMethod()

{
  cout << "Hello World!";
}

int main() {
  MyClass myObj;    // Create an object of MyClass
  myObj.myMethod();  // Call the method
  return 0;
}
```

Output:-   Hello World!