C++- Classes and Objects

Introduction

The main purpose of C++ programming is to add object orientation to the C programming language and classes are the central feature of C++.

Class Definitions

A class definition starts with the keyword class followed by the class name; and the class body, enclosed by a pair of curly braces. A class definition must be followed either by a semicolon or a list of declarations. For example, we defined the Box data type using the keyword class as follows:

```
class Box {
   public:
      double length;   // Length of a box
      double breadth;  // Breadth of a box
      double height;   // Height of a box
};
```

The keyword public determines the access attributes of the members of the class that follows it. A public member can be accessed from outside the class anywhere within the scope of the class object.

Objects

A class provides the blueprints for objects, so basically an object is created from a class:

```
Box Box1;          // Declare Box1 of type Box
Box Box2;          // Declare Box2 of type Box
```

Both objects Box1 and Box2 will have their own copy of data members.

Accessing the Data Members

The public data members of objects of a class can be accessed using the direct member access operator .

```
#include <iostream>
using namespace std;
class Box {
   public:
      double length;   // Length of a box
      double breadth;  // Breadth of a box
      double height;   // Height of a box
};
int main() {
   Box Box1;        // Declare Box1 of type Box
   Box Box2;        // Declare Box2 of type Box
   double volume = 0.0;     // Store the volume of a box here
   // box 1 specification
   Box1.height = 5.0;
   Box1.length = 6.0;
   Box1.breadth = 7.0;
   // box 2 specification
   Box2.height = 10.0;
   Box2.length = 12.0;
   Box2.breadth = 13.0;
   // volume of box 1
   volume = Box1.height * Box1.length * Box1.breadth;
```

```
    cout << "Volume of Box1 : " << volume <<endl;

    // volume of box 2
    volume = Box2.height * Box2.length * Box2.breadth;
    cout << "Volume of Box2 : " << volume <<endl;
    return 0;
}
```