C++ CLASS MEMBER FUNCTIONS

http://www.tutorialspoint.com/cplusplus/cpp_class_member_functions.htm

A member function of a class is a function that has its definition or its prototype within the class definition like any other variable. It operates on any object of the class of which it is a member, and has access to all the members of a class for that object.

Let us take previously defined class to access the members of the class using a member function instead of directly accessing them:

```
class Box
{
   public:
      double length;         // Length of a box
      double breadth;        // Breadth of a box
      double height;         // Height of a box
      double getVolume(void);// Returns box volume
};
```

Member functions can be defined within the class definition or separately using **scope resolution operator, ::**. Defining a member function within the class definition declares the function **inline**, even if you do not use the inline specifier. So either you can define **Volume** function as below:

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

      double getVolume(void)
      {
         return length * breadth * height;
      }
};
```

If you like you can define same function outside the class using **scope resolution operator, ::** as follows:

```
double Box::getVolume(void)
{
    return length * breadth * height;
}
```

Here, only important point is that you would have to use class name just before :: operator. A member function will be called using a dot operator (**.**) on a object where it will manipulate data related to that object only as follows:

```
Box myBox;          // Create an object

myBox.getVolume();  // Call member function for the object
```

Let us put above concepts to set and get the value of different class members in a class:

```
#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

      // Member functions declaration
      double getVolume(void);
      void setLength( double len );
      void setBreadth( double bre );
      void setHeight( double hei );
};

// Member functions definitions
double Box::getVolume(void)
{
    return length * breadth * height;
}

void Box::setLength( double len )
{
    length = len;
}

void Box::setBreadth( double bre )
{
    breadth = bre;
}

void Box::setHeight( double hei )
{
    height = hei;
}

// Main function for the program
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.setLength(6.0);
   Box1.setBreadth(7.0);
   Box1.setHeight(5.0);

   // box 2 specification
   Box2.setLength(12.0);
   Box2.setBreadth(13.0);
   Box2.setHeight(10.0);

   // volume of box 1
   volume = Box1.getVolume();
   cout << "Volume of Box1 : " << volume <<endl;

   // volume of box 2
   volume = Box2.getVolume();
   cout << "Volume of Box2 : " << volume <<endl;
   return 0;
}
```

When the above code is compiled and executed, it produces the following result:

```
Volume of Box1 : 210
Volume of Box2 : 1560
```