CAP281 **Lab Evolution 3**

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Question:

Write 2 programs

1) implement multilevel inheritance

2) overload + (binary) operator

Solution:

```
                        // multilevel inheritance
#include<iostream>
using namespace std;
class Student
{
   protected:
          int marks;

   public:
       void get()
       {
              cout<<"Enter marks: ";
              cin>>marks;
       }
};
```

```
class Test : public Student
{
   protected:
              bool p=false; //boolian datatype {true,false} intially false

   public:
        void check()
        {
              if(marks>=60)  //if mrkas are >= 60 then p change to true
              {
                    p=true;
              }
        }
};

class Result : public Test
{
   public:
        void print()
        {
              if(p==true)           //check if p=true means pass else fail
                    cout<<"\nYou have passed";
              else
                    cout<<"\nYou have not passed";
        }
};
```

```
int main()
{
   class Result r;

         r.get();
         r.check();
         r.print();

  return 0;
}
```

Output:

Enter marks: 61

You have passed

//overload + (binary) operator

```
#include <iostream>
using namespace std;

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

  public:

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




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

        void setBreadth( double bre )
        {
                breadth = bre;
        }
```

```
      void setHeight( double hei )
       {
             height = hei;
      }

       // Overload + operator to add two Box objects.
       Box operator+(Box&  b)
       {
             Box temp;

             temp.length  = this->length  + b.length;
             temp.breadth = this->breadth + b.breadth;
             temp.height  = this->height  + b.height;
             return temp;
       }
};




// Main function for the program
int main()
{
  Box Box1;             // Declare Box1 of type Box
  Box Box2;             // Declare Box2 of type Box
  Box Box3;             // Declare Box3 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);

        // volum 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;

        // Add two object as follows:
   Box3 = Box1 + Box2;
        // volume of box 3
   volume = Box3.getVolume();
   cout << "Volume of Box3 : " << volume <<endl;

   return 0;
}
```

Output:

Volume of Box1 : 210

Volume of Box2 : 1560

Volume of Box3 : 5400