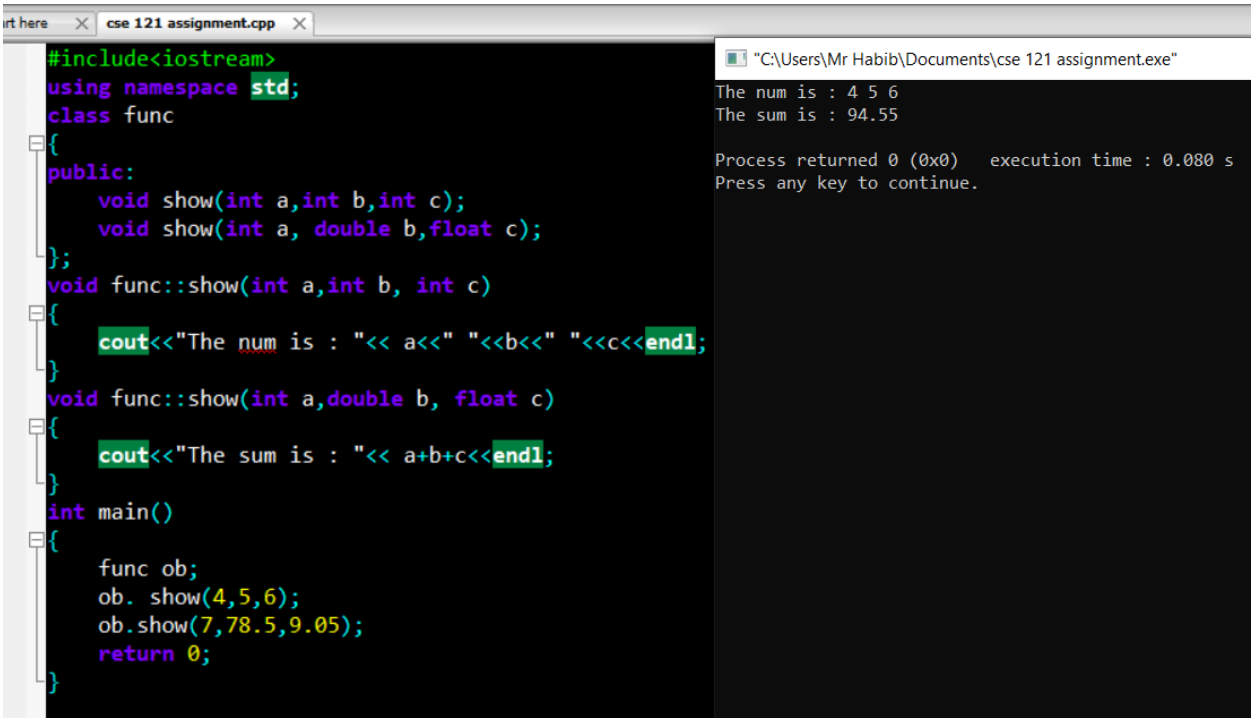
Assignment 1: . Write a program to explain function overloading with different number of arguments.



Assignment 2: Write a program for binary overloading using friend functions.

here | cse 121 assignment.cpp

```cpp
#include <iostream>
using namespace std;
class A
{
    int x,y;
public:
    A()
    {
        x=0;
        y=0;
    }
    A(int a, int b)
    {
        x=a;
        y=b;
    }
    friend A operator + (A &ob1, A &ob2)
    {
        A temp;
        temp.x = ob1.x + ob2.x;
        temp.y = ob1.y + ob2.y;
        return temp;
    }
    void display()
    {
        cout<<"X="<<x<<" ";
        cout<<"Y="<<y<<" ";
    }
};
int main()
```

```
int main()
{
    A o1(2,3);
    A o2(4,5);
    A o3;
    o3 =o1+o2;
    cout<<"The value of o1:"<<" ";
    o1.display();
    cout<<endl;
    cout<<"The value of o2:"<<" ";
    o2.display();
    cout<<endl;
    cout<<"The sum is (o1+o2)="<<" ";
    o3.display();
    return 0;
}
```

```
"C:\Users\Mr Habib\Documents\cse 121 assignment.exe"
The value of o1: X=2 Y=3
The value of o2: X=4 Y=5
The sum is (o1+o2)= X=6 Y=8
Process returned 0 (0x0)   execution time : 0.074 s
Press any key to continue.
```

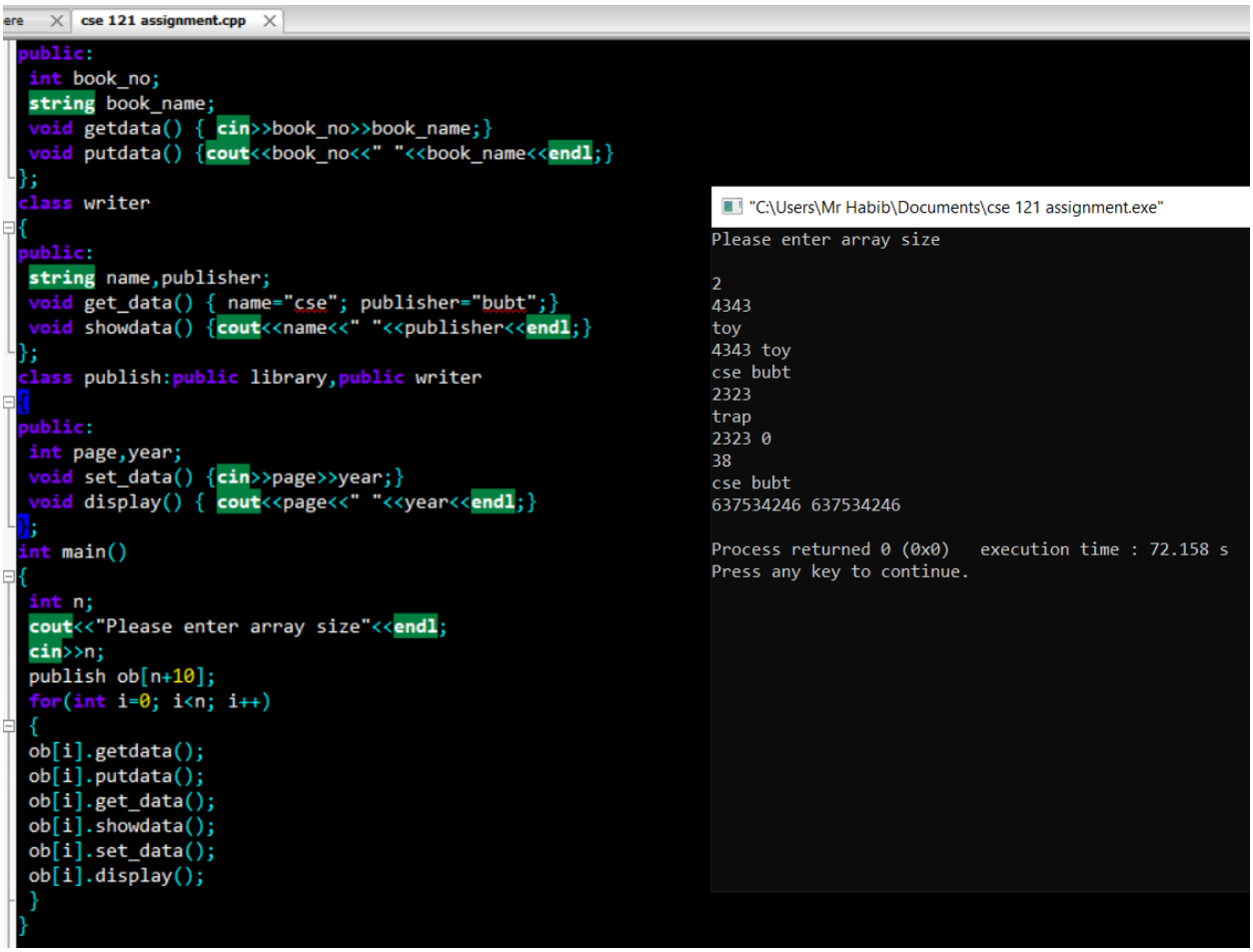
Assignment 3: Write a program to explain diamond problem in inheritances.

```
here   cse 121 assignment.cpp
#include <iostream>
using namespace std;
class Animal
{
public:
    Animal()
    {
        cout << "animal " << endl;
    }
    void show()
    {
        cout << "it is an animal " << endl;
    }
};
class Tiger :virtual public Animal
{
public:
};
class Lion :virtual public Animal
{
public:
};
class Liger : public Tiger, public Lion
{
public:
    Liger()
    {
        cout << "Liger" << endl;
    }
};
int main()
{
    Liger ob;
    ob.show();
    return 0;
}
```

```
"C:\Users\Mr Habib\Documents\cse 121 assignment.exe"
animal
Liger
it is an animal

Process returned 0 (0x0)   execution time : 0.065 s
Press any key to continue.
```

Assignment 4: Create class Library with data members book no, book name and member function getdata() and putdata(). Create a class Writer with data members author name, publisher and members getdata() and showdata(). Derive a class Publish from Library and Writer with data member no of pages and year of publication. Display all these information using array of objects of Publish class.



```
public:
 int book_no;
 string book_name;
 void getdata() { cin>>book_no>>book_name;}
 void putdata() {cout<<book_no<<" "<<book_name<<endl;}
};
class writer
{
public:
 string name,publisher;
 void get_data() { name="cse"; publisher="bubt";}
 void showdata() {cout<<name<<" "<<publisher<<endl;}
};
class publish:public library,public writer
{
public:
 int page,year;
 void set_data() {cin>>page>>year;}
 void display() { cout<<page<<" "<<year<<endl;}
};
int main()
{
 int n;
 cout<<"Please enter array size"<<endl;
 cin>>n;
 publish ob[n+10];
 for(int i=0; i<n; i++)
 {
 ob[i].getdata();
 ob[i].putdata();
 ob[i].get_data();
 ob[i].showdata();
 ob[i].set_data();
 ob[i].display();
 }
}
```

```
"C:\Users\Mr Habib\Documents\cse 121 assignment.exe"
Please enter array size

2
4343
toy
4343 toy
cse bubt
2323
trap
2323 0
38
cse bubt
637534246 637534246

Process returned 0 (0x0)   execution time : 72.158 s
Press any key to continue.
```

Assignment 5: Design a class named Distance to represent a point with x and y-coordinates. The class contains: ■ Two data fields x and y that represent the coordinates. ■ A no-arg constructor that creates a point (0, 0). ■ A constructor that constructs a point with specified coordinates. ■ Two get functions for data fields x and y, respectively. ■ A function named Cal_distance0 that returns the distance from this point to another point of the Distance type. Implement the class by writing a test program that creates two points (0, 0) and (10, 30.5) and displays the distance between them.

here | cse 121 assignment.cpp

```cpp
#include<bits/stdc++.h>
using namespace std;
class Distance
{
public:
    double x,y;
    Distance()
    {
        x=0;
        y=0;
    }
    Distance(double a,double b)
    {
        x=a;
        y=b;
    }
    void getx(double v)
    {
        x=v;
    }
    void gety(double c)
    {
        y=c;
    }
    void cal_distance()
    {
        cout<<"Distance between two point is = "<<y-x<<endl;
    }
};
int main()
{
    Distance ob(0,0),ob1(10.0,30.5);
    ob1.cal_distance();
    ob.cal_distance();
}
```

```
"C:\Users\Mr Habib\Documents\cse 121 assignment.exe"
Distance between two point is = 20.5
Distance between two point is = 0

Process returned 0 (0x0)   execution time : 0.070 s
Press any key to continue.
```