Assignment No 1

Implement a class Complex which represents the Complex Number data type.

Implement the following operations:

1. Constructor (including a default constructor which creates the complex number 0+0i).

2. Overloaded operator+ to add two complex numbers.

3. Overloaded operator* to multiply two complex numbers.

4. Overloaded << and >> to print and read Complex Numbers.

*/

```
#include<iostream>              //including header files


using namespace std;            //declaring the scope of program

class complex                   //class name "complex"
{
 public:
 float real,img;        //declared variable of type float


      complex()           //default constructor
{
}
      complex operator+ (complex);
      complex operator* (complex);
      friend ostream &operator<<(ostream &,complex&);
```

```
        friend istream &operator<<(istream &,complex&);
};

 complex complex:: operator + (complex obj)
{
 complex temp;
 temp.real=real+obj.real;
 temp.img=img+obj.img;
 return (temp);
}
 istream &operator >> (istream &is,complex &obj)
{
 is>>obj.real;
 is>>obj.img;
 return is;
}
 ostream &operator<<(ostream &outt,complex &obj)
{
 outt<<""<<obj.real;
 outt<<"+"<<obj.img<<"i";
 return outt;
}
 complex complex :: operator * (complex obj)
{
   complex temp;
        temp.real=real*obj.real-img*obj.img;
        temp.img=real*obj.img+img*obj.real;
```

```
        return (temp);
  }



  int main()
  {
   complex a,b,c,d;
    cout<<"\nEnter first complex number\n";
    cout<<"\nEnter real and imaginary:\t";
   cin>>a;
   cout<<"Enter second complex number \n";
   cout<<"\nEnter real and imaginary:\t";
   cin>>b;
   cout<<"\n\tArithmetic operations";
   c=a+b;
   cout<<"\n\tAddition =";
   cout<<c;
   d=a*b;
   cout<<"\n\tMultiplication=";
   cout<<d;
   cout<<endl;
   return 0;


  }
```

Output:

Enter first complex number

Enter real and imaginary: 2 3

Enter second complex number

Enter real and imaginary: 4 6

Arithmetic operations

Addition =6+9i

Multiplication=-10+24i