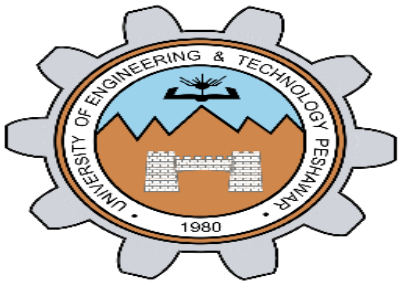
LAB REPORT NO 2



Spring 2020

CSE102L Computer Programming Lab

Submitted by: **Muhammad Ali**

Registration No: **19PWCSE1801**

Class Section: **A**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Submitted to:

MAM. Sumayyea salahuddin

(December 4, 2020)

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Activity Number 2.41

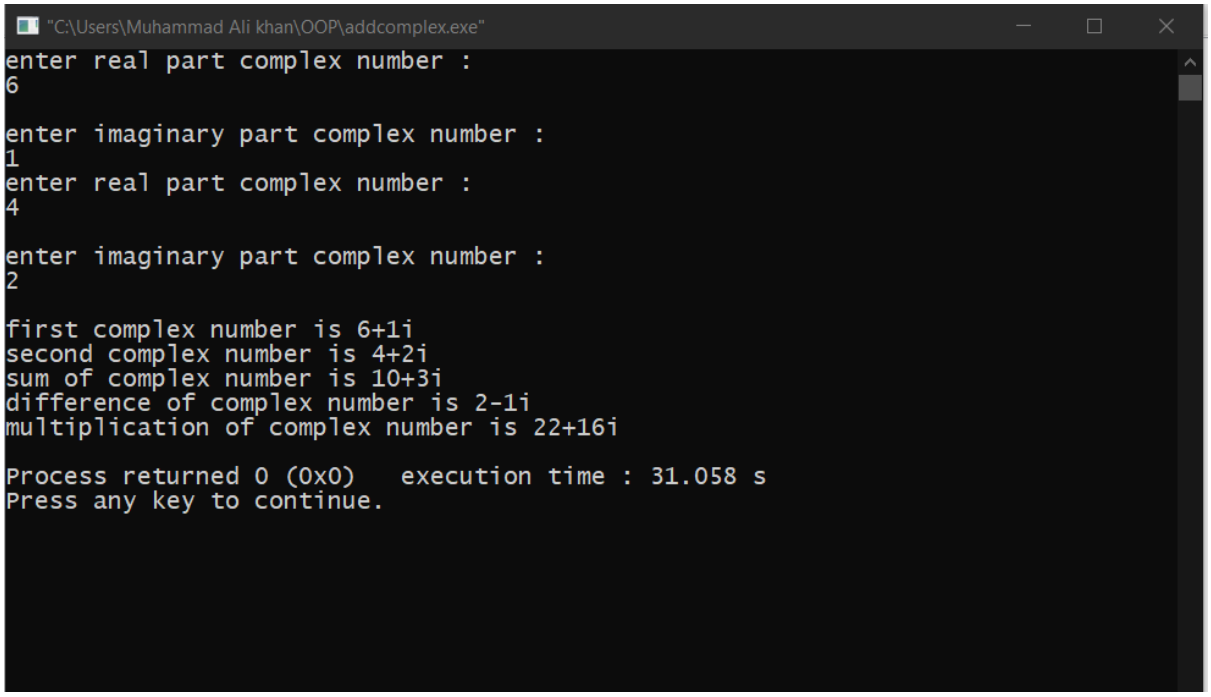
C++ C0DE:-

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

class complex {

double real ,imag;
public:

   complex();
   complex(double real ,double imag);
   void input();
   void addcomplex(complex s1 ,complex s2);
   void subcomplex(complex s1 ,complex s2);
   void mulcomplex(complex s1 ,complex s2);
   void show();
};
complex::complex():real(0),imag(0){}
complex::complex(double r,double i){
   real=r;
   imag=i;
}

void complex::input(){
cout<<"enter real part complex number :\n";
cin>>real;
cout<<"\nenter imaginary part complex number :\n";
```

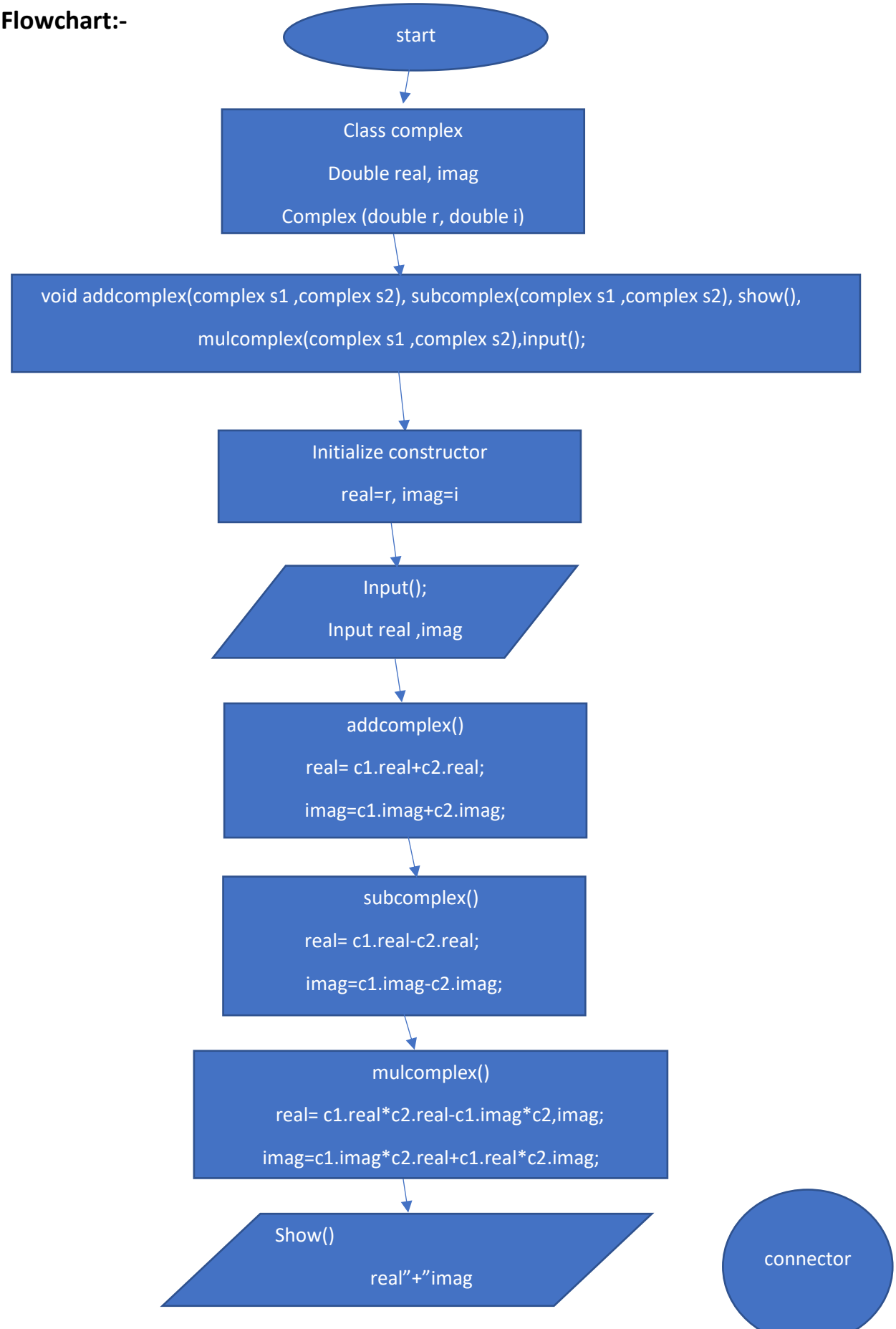
```
cin>>imag;
}
void complex::addcomplex( complex c1,complex c2){
   real=c1.real+c2.real;
   imag=c1.imag+c2.imag;

}
void complex::subcomplex( complex c1,complex c2){
   real=c1.real-c2.real;
   imag=c1.imag-c2.imag;
}
void complex::mulcomplex( complex c1,complex c2){
   real=c1.real*c2.real-c1.imag*c2.imag;
   imag=c1.real*c2.imag+c2.real*c1.imag;
}
void complex::show(){
if(imag>0)
cout<<real<<"+"<<imag<<"i"<<endl;
else
cout<<real<<imag<<"i"<<endl;
}

main(){

complex c1(0,0),c2(0,0),c;

cout;c1.input();
cout;c2.input();
cout<<"\nfirst complex number is ";c1.show();
cout<<"second complex number is ";c2.show();
c.addcomplex(c1,c2);
```

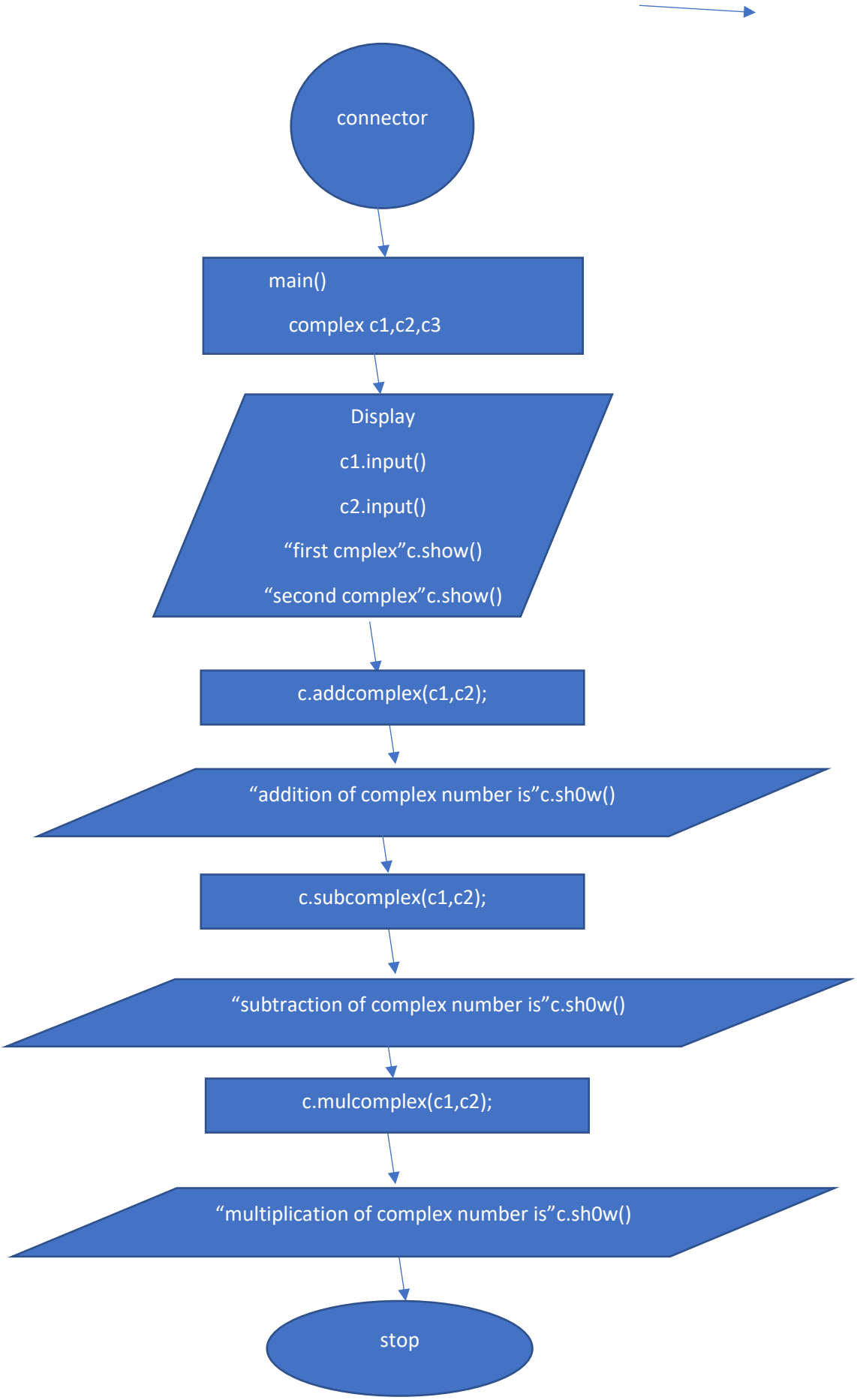
```
cout<<"sum of complex number is ";c.show();

c.subcomplex(c1,c2);

cout<<"difference of complex number is ";c.show();

c.mulcomplex(c1,c2);

cout<<"multiplication of complex number is ";c.show();

return 0;


}
```

Output display:-



Flowchart:-


start
Class complex
Double real, imag
Complex (double r, double i)
void addcomplex(complex s1 ,complex s2), subcomplex(complex s1 ,complex s2), show(),
mulcomplex(complex s1 ,complex s2),input();
Initialize constructor
real=r, imag=i
Input();
Input real ,imag
addcomplex()
real= c1.real+c2.real;
imag=c1.imag+c2.imag;
subcomplex()
real= c1.real-c2.real;
imag=c1.imag-c2.imag;
mulcomplex()
real= c1.real*c2.real-c1.imag*c2,imag;
imag=c1.imag*c2.real+c1.real*c2.imag;
Show()
real"+"imag
connector


connector
main()
complex c1,c2,c3
Display
c1.input()
c2.input()
“first cmplex”c.show()
“second complex”c.show()
c.addcomplex(c1,c2);
“addition of complex number is”c.sh0w()
c.subcomplex(c1,c2);
“subtraction of complex number is”c.sh0w()
c.mulcomplex(c1,c2);
“multiplication of complex number is”c.sh0w()
stop

Activity Number 2.42

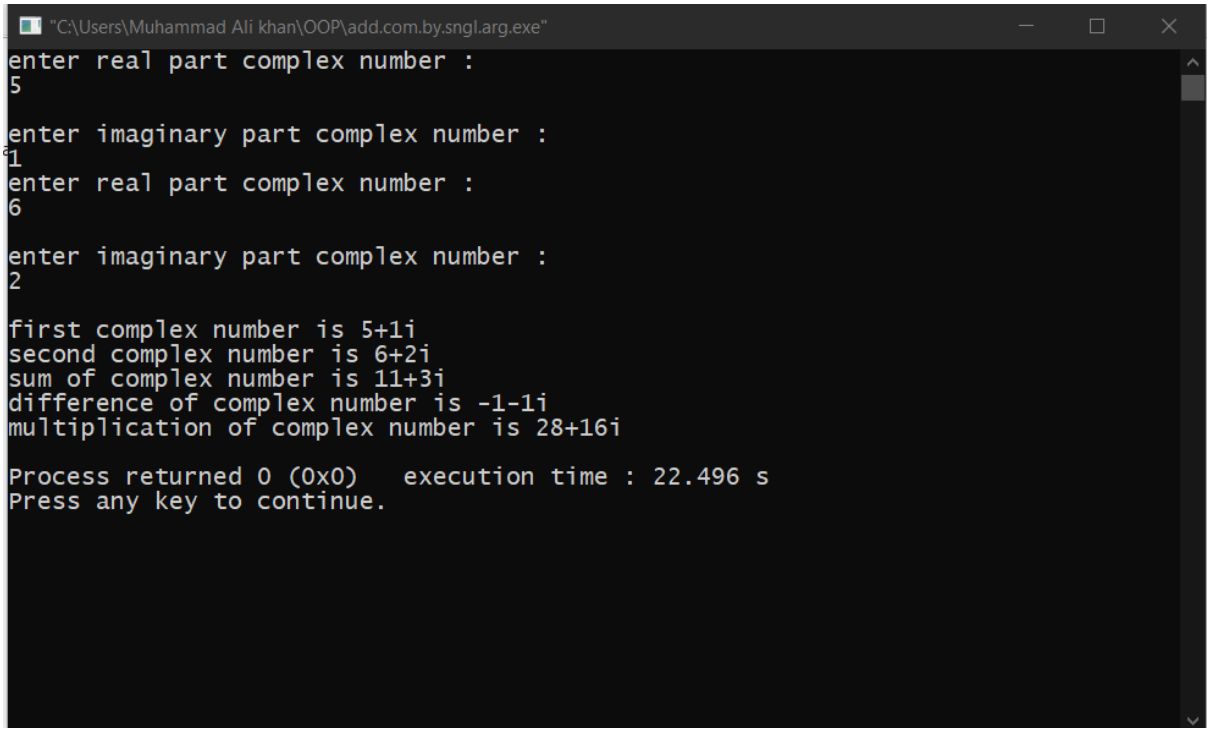
C++ code:-

```
#include<iostream>
using namespace std;
class complex {
double real ,imag;
public:
   complex();
   complex(double real ,double imag);
   void input();
   complex addcomplex(complex s1);
   complex subcomplex(complex s1);
   complex mulcomplex(complex s1);
   void show();

};

complex::complex():real(0),imag(0){}
complex::complex(double r,double i){
   real=r;
   imag=i;
}
void complex::input(){
cout<<"enter real part complex number :\n";
cin>>real;
cout<<"\nenter imaginary part complex number :\n";
cin>>imag;
```

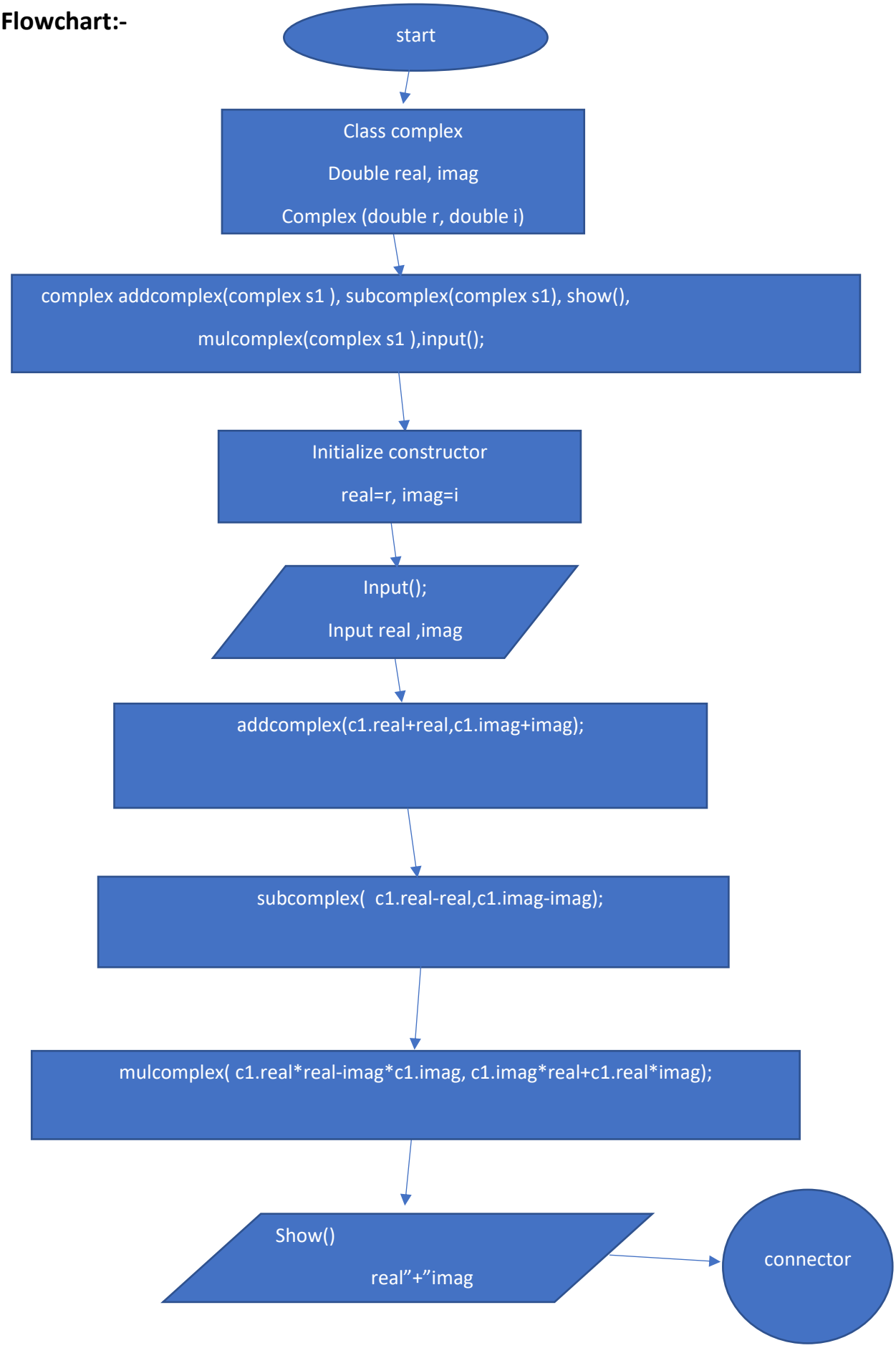
```
}

complex complex::addcomplex( complex c1){
   complex one(c1.real+real,c1.imag+imag);
   return one;

}
complex  complex::subcomplex( complex c1)
{
   complex one(c1.real-real,c1.imag-imag);
     return one;
}
 complex complex::mulcomplex( complex c1){
   complex one(c1.real*real-c1.imag*imag,c1.real*imag+real*c1.imag);
   return one;

}

void complex::show(){
if(imag>0)
cout<<real<<"+"<<imag<<"i"<<endl;
else
cout<<real<<imag<<"i"<<endl;

}

main(){

complex c,c1,c2;

cout;c1.input();
```

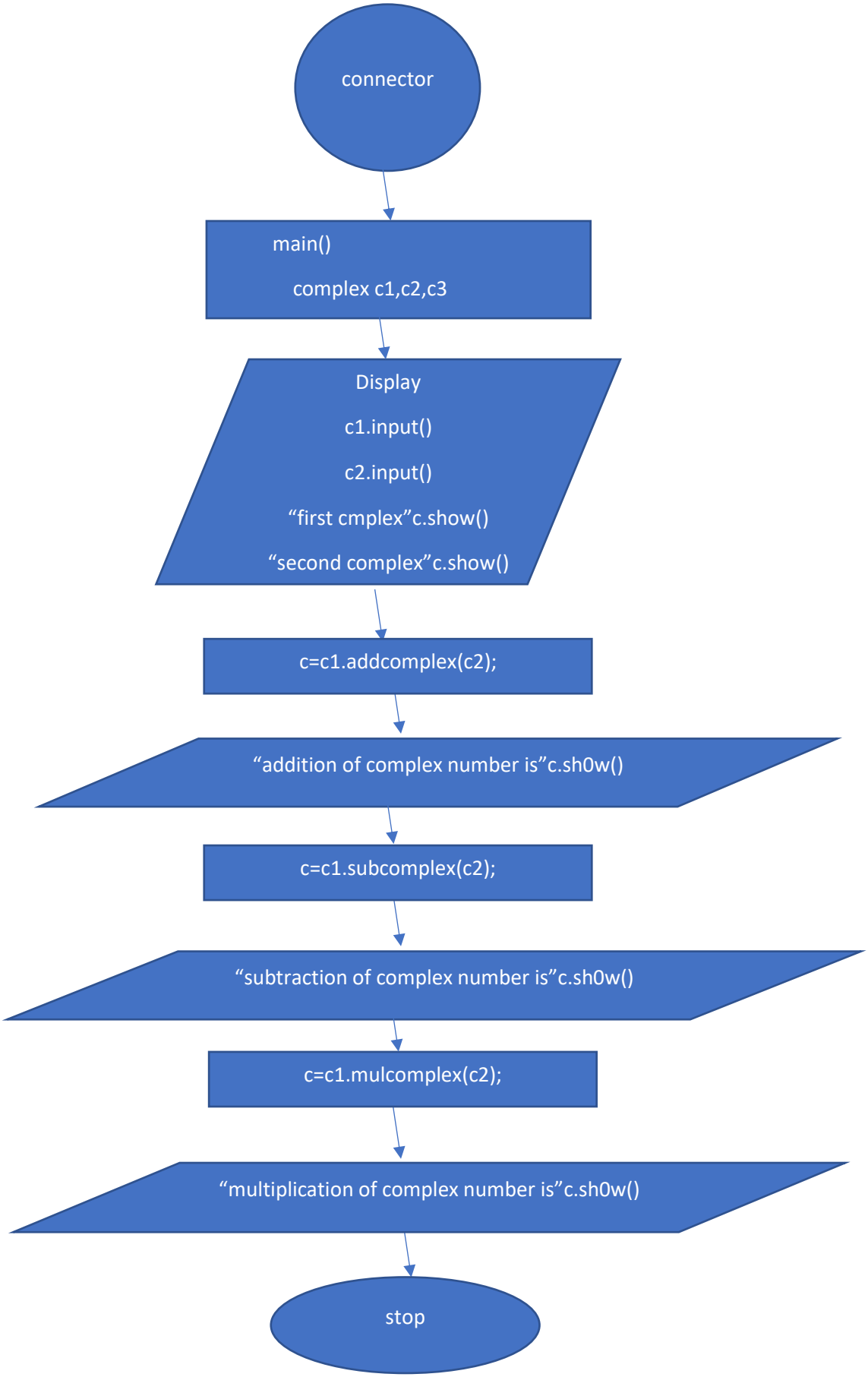
```
cout;c2.input();
cout<<"\nfirst complex number is ";c1.show();
cout<<"second complex number is ";c2.show();
c=c1.addcomplex(c2);
cout<<"sum of complex number is ";c.show();
c=c2.subcomplex(c1);
cout<<"difference of complex number is ";c.show();
c=c2.mulcomplex(c1);
cout<<"multiplication of complex number is ";c.show();
return 0;

}
```

Output display:-



Flowchart:-


start
Class complex
Double real, imag
Complex (double r, double i)
complex addcomplex(complex s1), subcomplex(complex s1), show(),
mulcomplex(complex s1),input();
Initialize constructor
real=r, imag=i
Input();
Input real ,imag
addcomplex(c1.real+real,c1.imag+imag);
subcomplex(c1.real-real,c1.imag-imag);
mulcomplex(c1.real*real-imag*c1.imag, c1.imag*real+c1.real*imag);
Show()
real"+"imag
connector


connector
main()
complex c1,c2,c3
Display
c1.input()
c2.input()
“first cmplex”c.show()
“second complex”c.show()
c=c1.addcomplex(c2);
“addition of complex number is”c.sh0w()
c=c1.subcomplex(c2);
“subtraction of complex number is”c.sh0w()
c=c1.mulcomplex(c2);
“multiplication of complex number is”c.sh0w()
stop

Activity Number 2.4.3:-

C++ CODE :-

```
#include<iostream>
using namespace std;
class IntegerSet {
	private:
		int array[50];
	public:
	IntegerSet() {
	for(int i = 0; i < 50; i++) {
		array[i] = 0;}
	}
	void newIntegerSet(int * pointer) {
		for(int i = 0; i < 50; i++) {
		array[i] = *(pointer + i);}
		}
		void insertElement(int k) {
			array[k] = 1;
		}
		IntegerSet unionOfIntegerSets(IntegerSet par) {
			IntegerSet temp;
			for(int i = 0; i < 50; i++) {
				if(array[i] == 1 || par.array[i]) {
					temp.insertElement(i);
			}}
			return temp;
}
		IntegerSet intersectionOfIntegerSets(IntegerSet par) {
			IntegerSet temp;
			for(int i = 0; i < 50; i++) {
```

```
                        if(array[i] == 1 && par.array[i] == 1)
                                temp.insertElement(i);
                }
                return temp;
        }
        void deleteElement(int indx) {
                array[indx] = 0;
        }
        void setPrint() {
                for(int i = 0; i < 50; i++)
                        cout<<array[i]<<" ";
                cout<<endl;
        }
        bool isEqualTo(IntegerSet par) {
                for(int i = 0; i < 50; i++) {
                        if(array[i] != par.array[i])
                                return false;}
                return true;    }
};
int main() {
        int x[50];
        for(int i = 0; i< 50; i++) x[i] = 0;
        IntegerSet i1;
        i1.newIntegerSet(x);
        i1.insertElement(8);  //Eight Position value will be display 1 //
        i1.setPrint();
        return 0;
}
```

Output display:-