Assignments - 1

Title :- Arithmatic operator on complex number using operator overloding.

problem statement :-

Implement a class complex which represents, the complex number data type. Implement the following operations.

1. Constructor.
2. Overload operator to add 2 complex number.
3. overload operator to multiply 2 complex number.

prerequisites :- object oriented programming.

objectives :- To learn the concept of constructor adjacent Constructor, operator overloading using member function and friend function

Theory :-

operator overloading :-

It is specific case of polymorphism where different implementation depending on their arguments. In c++ tve overloading principles applies not only to functions, but to operator That is of operator can be extended to work not just with built in data type but also to classes.

eg):- Complex a(1.2, 1.3);
Complex b(2.1, 3);
Complex c = a+b

Syntax:-

return_type class name :: operator op (arrg-list) {
// function body
};

process of overloading has 3 steps.

① create class that define a data type that is used in the overloading operations.

② Declare ~~tve~~ operator function operator op() in the public part of the class. It may be either a member function or a friend function.

③ Define tve operator function to implement tve required operation.

overloading Binary operators:

A statement like

c = sum(A, B);

This functional notation can be replaced by a natural looking expression.

c = A+B;

by overloading tve + operator using an operator +() function.

Facilities:- ~~th~~ linux operating system, &++

Algorithm:-

step 1 : Start
step 2 : Create class complex.
step 3 : Define a default constructor.
step 4 : Declare tve operator function which are going to be overloaded & display function.
step 5 : Define tve overload function such as +, -, /, *, & tve display function.

For Addition:

$(a+bi) + (x+yi) = \{ (a+x) + (x+b) : \}$

For multiplication:

$(a+bi) * (x+yi) = ((a*x) - (b*y)) + ((a*x) + y*b))$

step 6: Create object for complex class in main() function.
step 7 : Create a menu for addition and multiplication of complex number and display the result.
step 8 : Depending upon the choice from the user the arithematic operator will involve tve overloaded operator automatically and return. result.
step 9 : Display tve result using display function.
step 10 : Exit

Conclusion:-

Hence, we have studied Concept of operator overloading.