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/*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>
using namespace std;
class complex
{
      float x;
      float y;
public:
        complex()
      {
            x=0;
            y=0;
      }

      complex operator+(complex);
      complex operator*(complex);
      friend istream &operator >>(istream &input,complex &t)
      {
            cout<<"Enter the real part";
            input>>t.x;
            cout<<"Enter the imaginary part";
            input>>t.y;
      }
      friend ostream &operator <<(ostream &output,complex &t)
      {
                  output<<t.x<<"+"<<t.y<<"i\n";
      }

};

complex complex::operator+(complex c)
{
      complex temp;
      temp.x=x+c.x;
      temp.y=y+c.y;
      return(temp);
}


complex complex::operator*(complex c)
{
      complex temp2;
      temp2.x=(x*c.x)-(y*c.y);
      temp2.y=(y*c.x)+(x*c.y);
      return (temp2);
}


int main()
{
      complex c1,c2,c3,c4;
        cout<<"Default constructor value=\n";
        cout<<c1;
      cout<<"\nEnter the 1st number\n";
      cin>>c1;
      cout<<"\nEnter the 2nd number\n";
      cin>>c2;
      c3=c1+c2;
      c4=c1*c2;
      cout<<"\nThe first number is ";
      cout<<c1;
      cout<<"\nThe second number is ";
      cout<<c2;
      cout<<"\nThe addition is ";
      cout<<c3;
      cout<<"\nThe multiplication is ";
      cout<<c4;
      return 0;
}
/*
student@student-OptiPlex-3010:~$ ./a.out
Default constructor value=
0+0i

Enter the 1st number
Enter the real part2
Enter the imaginary part4

Enter the 2nd number
Enter the real part4
Enter the imaginary part8

The first number is 2+4i

The second number is 4+8i

The addition is 6+12i

The multiplication is -24+32i
student@student-OptiPlex-3010:~$
*/
```