OOP ASSIGNMENT- 04

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

class Complex {
    float real;
    float imag;

public:
    // Overload + operator as member function
    Complex operator+(const Complex &c) {
        Complex temp;
        temp.real = real + c.real;
        temp.imag = imag + c.imag;
        return temp;
    }

    // Overload * operator as friend function
    friend Complex operator*(const Complex &c1, const Complex &c2);

    // # Overload << and >> as friend functions
    friend ostream& operator<<(ostream &out, const Complex &c);
    friend istream& operator>>(istream &in, Complex &c);
};

// Definition of friend function operator*
Complex operator*(const Complex &c1, const Complex &c2) {
    Complex temp;
    temp.real = c1.real * c2.real - c1.imag * c2.imag;
    temp.imag = c1.real * c2.imag + c1.imag * c2.real;
    return temp;
}

// Definition of friend function operator<<
ostream& operator<<(ostream &out, const Complex &c) {
    out << c.real << " + j" << c.imag;
    return out;
}

// Definition of friend function operator>>
istream& operator>>(istream &in, Complex &c) {
    cout << "Enter real part: ";
    in >> c.real;
    cout << "Enter imaginary part: ";
    in >> c.imag;
```

```
    return in;
}

int main() {
    Complex c1, c2, c3, c4;

    cout << "Input first complex number:\n";
    cin >> c1;
    cout << "Input second complex number:\n";
    cin >> c2;

    c3 = c1 + c2;
    c4 = c1 * c2;

    cout << "\nFirst Complex Number: " << c1 << endl;
    cout << "Second Complex Number: " << c2 << endl;

    cout << "Sum: " << c3 << endl;
    cout << "Product: " << c4 << endl;

    return 0;
}
```

OUTPUT:

```
Input first complex number:
Enter real part: 2
Enter imaginary part: 5
Input second complex number:
Enter real part: 7
Enter imaginary part: 3

First Complex Number: 2 + j5
Second Complex Number: 7 + j3
Sum: 9 + j8
Product: -1 + j41


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(program exited with code: 0)
Press return to continue
```