**Assignment 2:**

#include <iostream>

using namespace std;

class Complex {

private:

    float real, imag;

public:

    Complex(float r = 0, float i = 0) : real(r), imag(i) {}

    friend istream& operator>>(istream &in, Complex &c) {

        cout << "Enter real part: ";

        in >> c.real;

        cout << "Enter imaginary part: ";

        in >> c.imag;

        return in;

    }

    friend ostream& operator<<(ostream &out, const Complex &c) {

        if (c.imag >= 0)

            out << c.real << " + " << c.imag << "i";

        else

            out << c.real << " - " << -c.imag << "i";

        return out;

    }

    Complex operator+(const Complex &c) const {

        return Complex(real + c.real, imag + c.imag);

    }

    Complex operator-(const Complex &c) const {

        return Complex(real - c.real, imag - c.imag);

    }

    Complex operator\*(const Complex &c) const {

        float r = (real \* c.real) - (imag \* c.imag);

        float i = (real \* c.imag) + (imag \* c.real);

        return Complex(r, i);

    }

    bool operator==(const Complex &c) const {

        return (real == c.real && imag == c.imag);

    }

};

int main() {

    Complex c1, c2, result;

    int choice;

    cout << "Enter first complex number:\n";

    cin >> c1;

    cout << "Enter second complex number:\n";

    cin >> c2;

    do {

        cout << "\n--- Complex Number Calculator ---\n";

        cout << "1. Add (+)\n2. Subtract (-)\n3. Multiply (\*)\n4. Compare (==)\n5. Exit\n";

        cout << "Enter your choice: ";

        cin >> choice;

        switch (choice) {

            case 1:

                result = c1 + c2;

                cout << "Result: " << result << endl;

                break;

            case 2:

                result = c1 - c2;

                cout << "Result: " << result << endl;

                break;

            case 3:

                result = c1 \* c2;

                cout << "Result: " << result << endl;

                break;

            case 4:

                if (c1 == c2)

                    cout << "Both complex numbers are equal.\n";

                else

                    cout << "Complex numbers are not equal.\n";

                break;

            case 5:

                cout << "Exiting...\n";

                break;

            default:

                cout << "Invalid choice.\n";

        }

    } while (choice != 5);

    return 0;

}