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//OOP Lab 01 Complex
#include<iostream>
using namespace std;

class complex{
private:
    double real , imag;
public :
    complex(){
        real = 0;
        imag = 0;
    }
    complex(double r, double i){
        real = r;
        imag = i;
    }

/*    void input(){

   cout<<"Enter real part of complex number: ";
   cin>>real;
   cout<<"\nEnter imaginary part of complex number: ";
   cin>>imag;
   cout<<real<<"+"<<imag<<"i"<<endl;

}*/
    friend istream&operator>>(istream& a, complex& z)
    {
        a>>z.real;
        a>>z.imag;
        return a;
    }
complex operator + (complex c){
complex sum;
sum.real = real + c.real;
sum.imag = imag + c.imag;
cout<<"\n\nSum of complex numbers ""("<<real<<"+"<<imag<<"i) +
"<<"("<<c.real<<"+"<<c.imag<<"i) is: "<<sum.real<<"+"<<sum.imag<<"i"<<endl;
return sum;
}
complex operator * (complex c){
    complex multi;
    multi.real = (real * c.real) - (imag * c.imag);
    multi.imag = (imag * c.real) - (real * c.imag);
    cout<<"\n\nMultiplication of complex numbers ""("<<real<<"+"<<imag<<"i) *
"<<"("<<c.real<<"+"<<c.imag<<"i) is:
"<<multi.real<<"+"<<multi.imag<<"i"<<endl;
    return  multi;
}
complex operator - (complex c){
complex subs;
subs.real = real - c.real;
subs.imag = imag - c.imag;
cout<<"\n\nSubstraction of complex numbers ""("<<real<<"+"<<imag<<"i) -
"<<"("<<c.real<<"+"<<c.imag<<"i) is: "<<subs.real<<"+"<<subs.imag<<"i"<<endl;
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return subs;
}
complex operator / (complex c){
    complex division;
    division.real = ((real * c.real) + (imag * c.imag)) / ((c.real * c.real)
+ (c.imag*c.imag));
    division.imag = ((imag * c.real) + (real * c.imag)) / ((c.real * c.real)
+ (c.imag*c.imag));
cout<<"\n\nDivision of complex numbers ""("<<real<<"+"<<imag<<"i) /
"<<"("<<c.real<<"+"<<c.imag<<"i) is:
"<<division.real<<"+"<<division.imag<<"i"<<endl;
return division;
}

};

int main(){
complex complex1, complex2, result;
cout<<"Enter first complex number:"<<endl;
cin>>complex1;
cout<<"Enter second complex number:"<<endl;
cin>>complex2;

int option = 1;
    while (option !=0) {
    cout<<"\n\n<---------- MENU ---------->"<<endl;
    cout<<"1. Addition"<<endl;
    cout<<"2. Substration"<<endl;
    cout<<"3. Division"<<endl;
    cout<<"4. Multiplication"<<endl;
    cout<<"(enter 0 to end program!): "<<endl;
    cin>>option;
    switch (option) {
    case 1:
        complex1 + complex2;
        break;

    case 2:
    complex1 - complex2;
    break;

    case 3:
    complex1 / complex2;
    break;

    case 4:
        complex1 * complex2;
        break;

    default:
        cout << "\nProgram ended!"<<endl;
        break;
    }
    }
}
```