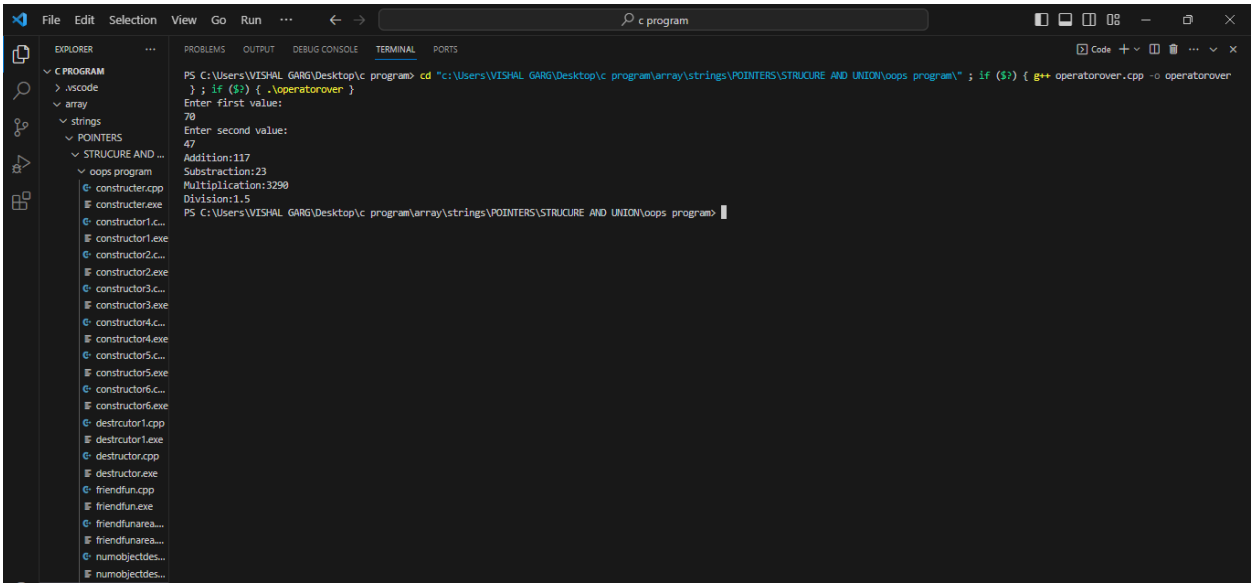
ASSIGNMENT OPERATOR OVERLOADING

1. Create a class FLOAT that contains one float data member .Overload all the four arithmetic operators so that they operate on the objects of FLOAT.

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

class Float
{
public:
    float f;
    void operator+(Float ob)
    {
        float result = f + ob.f;
        cout << "Addition:" << result << endl;
    }
    void operator-(Float ob)
    {
        float result = f - ob.f;
        cout << "Substraction:" << result << endl;
    }
    void operator*(Float ob)
    {
        float result = f * ob.f;
        cout << "Multiplication:" << result << endl;
    }
    void operator/(Float ob)
    {
        float result = f / ob.f;
        cout << "Division:" << setprecision(2) << result << endl;
    }
};
int main()
{
    Float obj1, obj2;
    cout << "Enter first value:" << endl;
    cin >> obj1.f;
    cout << "Enter second value:" << endl;
    cin >> obj2.f;
    obj1 + obj2;
```

```
    obj1 - obj2;
    obj1 *obj2;
    obj1 / obj2;
    return 0;
}
```

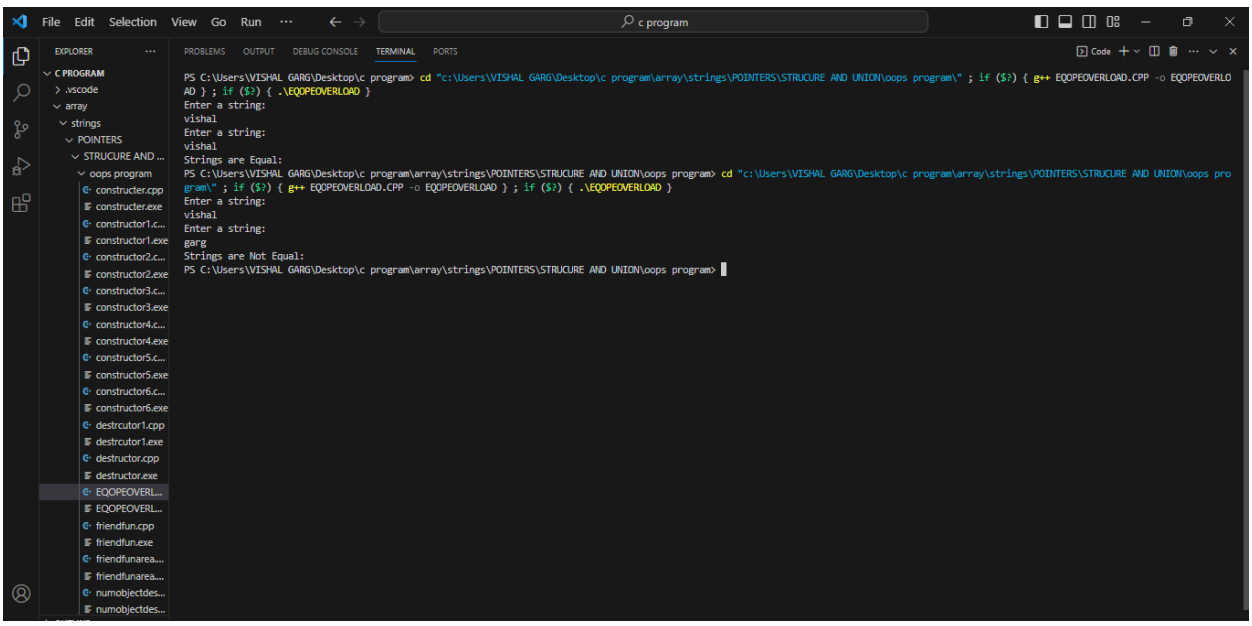


2. Define a class string. Overlaod ==operator to compare 2 strings.

```
#include <iostream>
#include <string.h>
using namespace std;
class String
{
    char str[20];

public:
    void display()
    {
        cout << "Enter a string:" << endl;
        cin >> str;
    }
    int operator==(String x)
    {
        if (strcmp(str, x.str) == 0)
            return 1;
        else
            return 0;
    }
```

```
};
int main()
{
    String s1, s2;
    s1.display();
    s2.display();
    if (s1 == s2)
        cout << "Strings are Equal:" << endl;
    else
        cout << "Strings are Not Equal:" << endl;
    return 0;
}
```

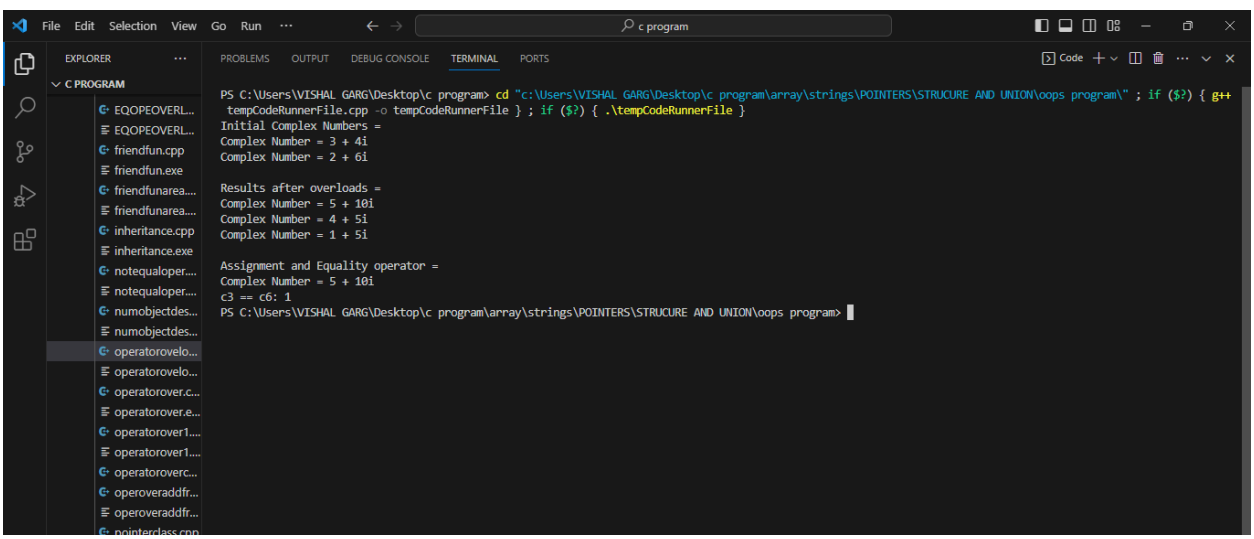


3. Create a Complex class that has real(int) and img(int) as member data, and has getData and showData functions. Then also overload the following operators for Complex class. =, ==, +, ++, --,

```
#include <iostream>
using namespace std;
class Complex
{
private:
    int real;
    int imag;
```

```
public:
    Complex(int r = 0, int i = 0) : real(r), imag(i) {}
    void getData()
    {
        cout << "Real = " << real << ", Imaginary = " << imag << endl;
    }
    void showData() const
    {
        cout << "Complex Number = " << real << " + " << imag << "i" << endl;
    }
    Complex &operator=(const Complex &other)
    {
        real = other.real;
        imag = other.imag;
        return *this;
    }
    bool operator==(const Complex &other) const
    {
        return (real == other.real && imag == other.imag);
    }
    Complex operator+(const Complex &other) const
    {
        Complex result;
        result.real = real + other.real;
        result.imag = imag + other.imag;
        return result;
    }
    Complex &operator++()
    {
        ++real;
        ++imag;
        return *this;
    }
    Complex &operator--()
    {
        --real;
        --imag;
        return *this;
    }
};
int main()
{
    Complex c1(3, 4);
    Complex c2(2, 6);
```

```
    cout << "Initial Complex Numbers = " << endl;
    c1.showData();
    c2.showData();
    Complex c3 = c1 + c2;
    Complex c4 = ++c1;
    Complex c5 = --c2;
    cout << "\nResults after overloads = " << endl;
    c3.showData();
    c4.showData();
    c5.showData();
    Complex c6 = c3;
    cout << "\nAssignment and Equality operator = " << endl;
    c6.showData();
    cout << "c3 == c6: " << (c3 == c6) << endl;
    return 0;
}
```

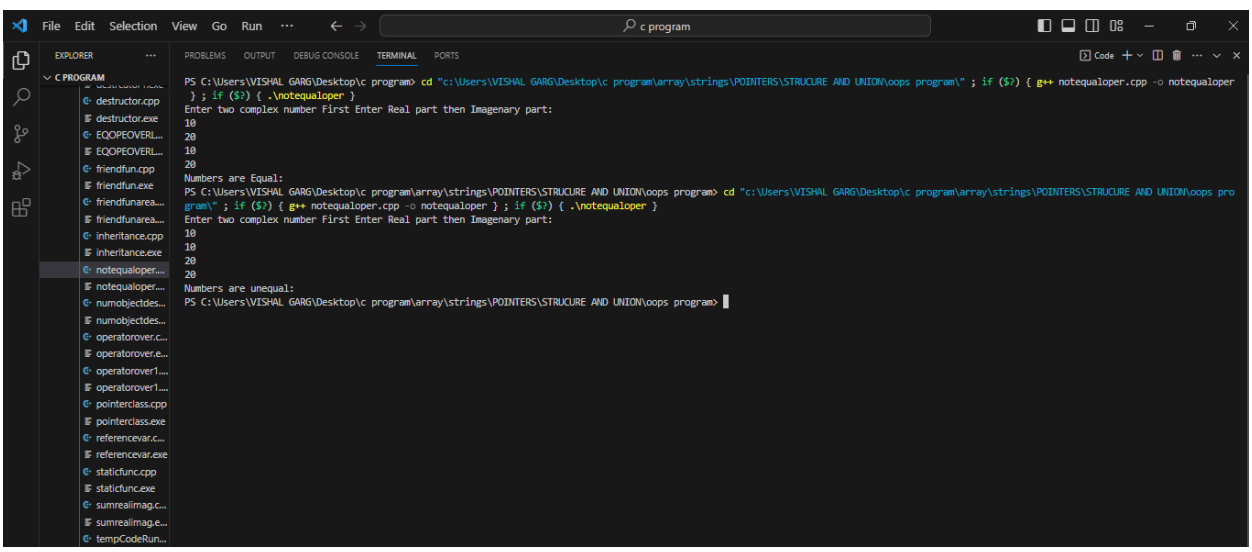


4. Write a C++ program to overload '!' operator using friend function

```
#include <iostream>
using namespace std;
class Complex
{
public:
    float real, imag;
    friend bool operator!=(const Complex &lhs, const Complex &rhs);
};
bool operator!=(const Complex &lhs, const Complex &rhs)
{
```

```
    if (lhs.real != rhs.real || lhs.imag != rhs.imag)
    {
        cout << "Numbers are unequal:" << endl;
        return true;
    }

    else
        cout << "Numbers are Equal:" << endl;
    return false;
}
int main()
{
    Complex c1,
        c2;
    cout << "Enter two complex number:" << endl;
    cin >> c1.real >> c1.imag >> c2.real >> c2.imag;
    c1 != c2;
    return 0;
}
```



5. Read a value of distance from one object and add with a value in another object using friend function.

```
#include <iostream>
using namespace std;
class Ftinch;
class Mtrcm
{
    int mtr, cm;
```

```
public:
    Mtrcm()
    {
        mtr = 0;
        cm = 0;
    }
    Mtrcm(int x, int y)
    {
        mtr = x;
        cm = y;
    }
    void display()
    {
        cout << mtr << "m" << cm << "cm";
    }
    friend Mtrcm add(Mtrcm, Ftinch);
};
class Ftinch
{
    int ft, in;

public:
    Ftinch(int x, int y)
    {
        ft = x;
        in = y;
    }
    void display()
    {
        cout << ft << "ft" << in << "in";
    }
    friend Mtrcm add(Mtrcm, Ftinch);
};
Mtrcm add(Mtrcm d1, Ftinch d2)
{
    int t_cm = (d1.mtr * 100 + d1.cm) + (d2.ft * 12 + d2.in) * 2.54;
    int mtr, cm;
    mtr = t_cm / 100;
    cm = t_cm % 100;
    Mtrcm d3(mtr, cm);
    return d3;
}
int main()
{
```

```
    Mtrcm obj1(4, 15);
    Ftinch obj2(5, 10);
    Mtrcm obj3 = add(obj1, obj2);
    cout << "T_DISTANCE-1:\n";
    obj1.display();
    cout << "\nT_DISTANCE-2:\n";
    obj2.display();
    cout << "\nT_Total\n";
    obj3.display();
}
```