

Visual Studio Code interface showing a C++ program for complex number operations.

File: 2.cpp

Code:

```
1 // 2. Write a C++ program to perform complex operations using binary operator overloading.
2
3 #include <iostream>
4 using namespace std;
5
6 struct Complex {
7     public:
8         int real, imaginary;
9
10        void getval() {
11            cin >> real >> imaginary;
12        }
13
14        Complex operator + (Complex obj) {
15            Complex A;
16            A.real = real + obj.real;
17            A.imaginary = imaginary + obj.imaginary;
18            return A;
19        }
20
21        Complex operator - (Complex obj) {
22            Complex A;
23            A.real = real - obj.real;
24            A.imaginary = imaginary - obj.imaginary;
25            return A;
26        }
27
28        Complex operator * (Complex obj) {
29            Complex A;
30            A.real = real * obj.real;
31            A.imaginary = imaginary * obj.imaginary;
32            return A;
33        }
34
35        void add() {
36            cout << real << " + " << imaginary << "j" << endl;
37        }
38
39        void sub() {
40            cout << real << " - " << imaginary << "j" << endl;
41        }
42
43        void mul() {
44            cout << real << " * " << imaginary << "j" << endl;
45        }
46    };
47
48 int main() {
49     Complex c1, c2, c3;
50     c1.getval();
51     c2.getval();
52     c3 = c1 + c2;
53     c3.add();
54     c3 = c1 - c2;
55     c3.sub();
56     c3 = c1 * c2;
57     c3.mul();
58     return 0;
59 }
```

Terminal:

```
PS C:\Users\Asus> cd "D:\OODP\OODP_week_Assignment\OODP_6&7\"; if ($?) { g++ 2.cpp -o 2 }; if ($?) { . 2 }
Enter The First Complex Number {Real <space> Imaginary part} : 2 5
Enter The Second Complex Number {Real <space> Imaginary part} : 3 8

The addition of two complex (real and imaginary) numbers : 5+13j
The subtraction of two complex (real and imaginary) numbers : -1+-3j
The multiplication of two complex (real and imaginary) numbers : 6+40j
PS D:\OODP\OODP_week_Assignment\OODP_6&7>
```

System Tray: 29°C Cloudy, 10:58 PM 10/10/2022

File Edit Selection View Go Run Terminal Help

3.cpp - Visual Studio Code

3.cpp

D:\> OOPP > OOPS_week_Assignment > OOPS_687 > C++ 3.cpp > ...

```
1 // 3. write a C++ program to swap variables using binary operator overloading.
2
3 #include<iostream>
4 using namespace std;
5
6 struct Swap {
7     public:
8         int a, b;
9
10        void getval() {
11            cin >> a >> b;
12        }
13
14        Swap operator "(Swap obj) {
15            Swap A;
16            A.a = obj.a;
17            A.b = obj.b;
18            return A;
19        }
20        void print() {
21            cout << "The value after swapping of A : " << a << " & b : " << b << endl;
22        }
23    };
24
25    int main() {
26        Swap s1, s2, c;
27        cout << "Enter the value of a & b : ";
28        s1.getval();
29        cout << "Enter the value of a & b : ";
30        s2.getval();
31        c = s1 & s2;
32        s1.print();
33        s2.print();
34        return 0;
35    }
36
37 }
38
39 #include <iostream>
40 using namespace std;
41
42 int main() {
```

PROBLEMS 3

OUTPUT

DEBUG CONSOLE

TERMINAL

GIT LENS

SQL CONSOLE

JUPYTER

Code + -

Windows PowerShell

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Install the latest PowerShell for new features and improvements! <https://aka.ms/PSWindows>

PS C:\Users\Asus> cd "d:\OOPP\OOPS_week_Assignment\OOPS_687" ; if (\$?) { g++ 3.cpp -o 3 ; if (\$?) { .\3 ;

Enter The Value Of A & B : 2 5

Enter The Value Of A & B : 3 8

The Value After Swapping of A : 3 & B : 8

The Value After Swapping of A : 2 & B : 5

PS D:\OOPP\OOPS_week_Assignment\OOPS_687>

master*

0 0 0 3

Connect

Live Share

Cloud Code

Cloud Code: Installing Cloud SDK...

Reconnect to Discord

Ln 1, Col 1

Spaces: 4

UTF-8

CRLF

C++

Go Live

3 Spell

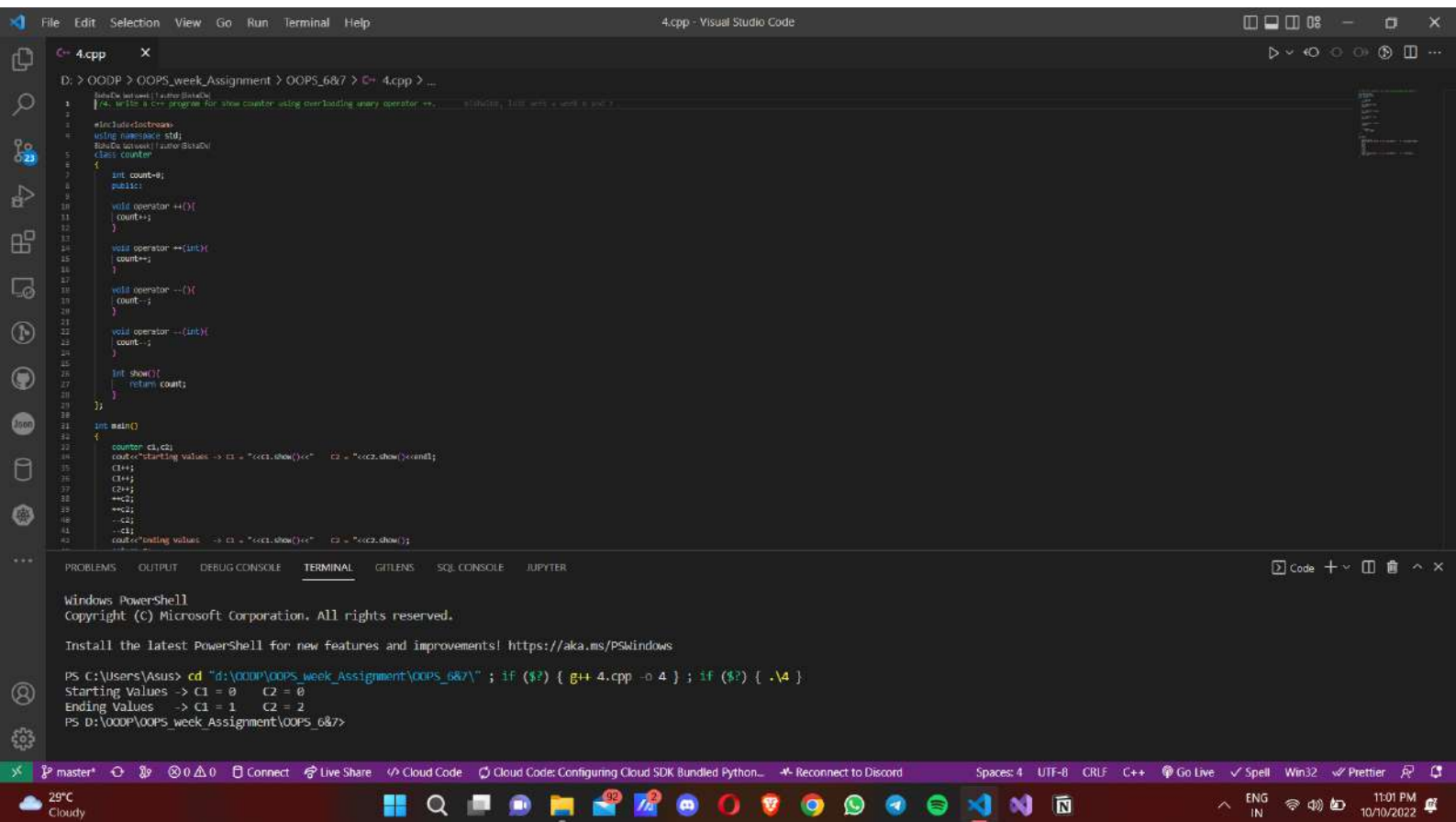
Win32

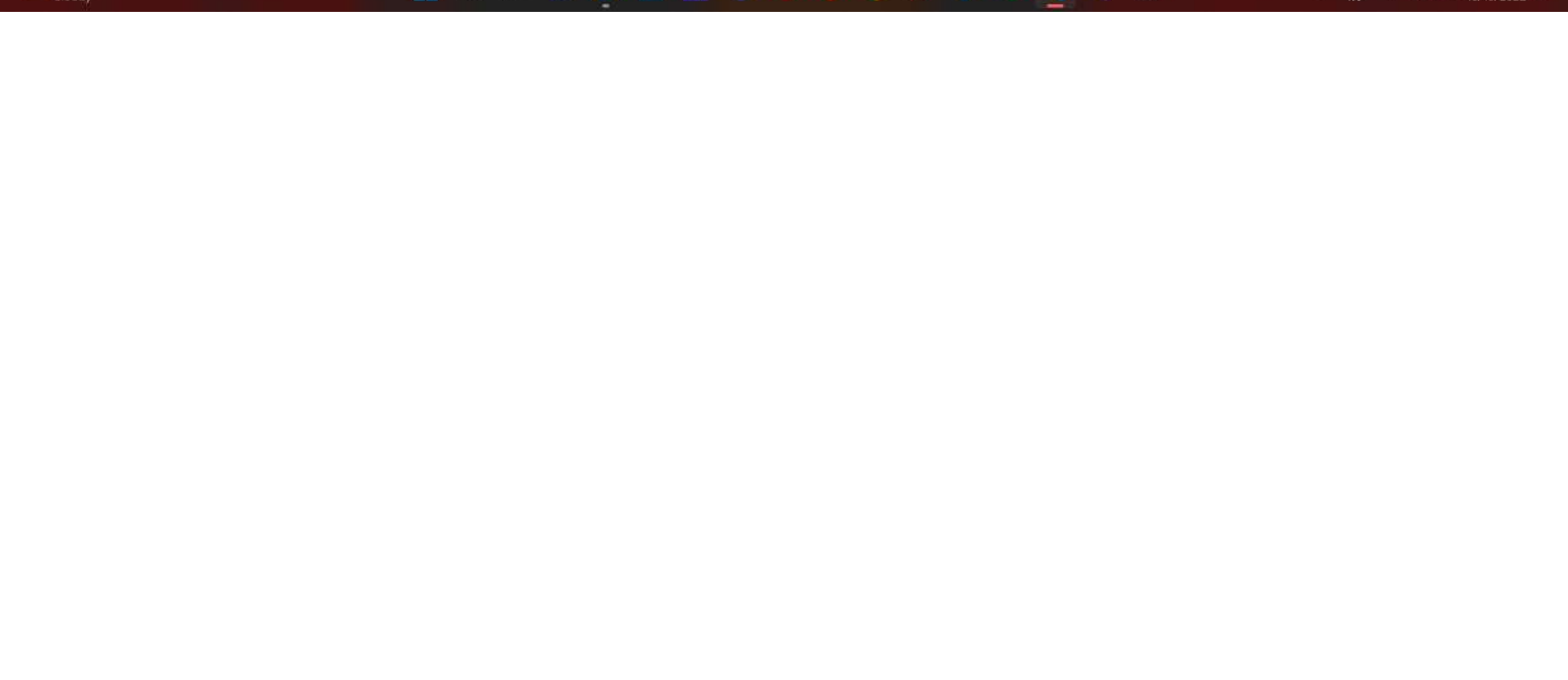
Prettier

29°C Cloudy

ENG IN

11:00 PM 10/10/2022





File Edit Selection View Go Run Terminal Help 6.cpp - Visual Studio Code

C++ 6.cpp X

D:\> OODP > OOPS_week_Assignment > OOPS_6&7 > C++ 6.cpp > ...

```
1 // 6. Write a C++ class Program to perform rational number arithmetic using operator overloading. // 6. Write a C++ class Program to perform rational number arithmetic using operator overloading.
2
3 #include <iostream>
4 using namespace std;
5
6 // 6. Write a C++ class Program to perform rational number arithmetic using operator overloading.
7 class rational
8 {
9     int num;
10    int den;
11
12 public:
13    void getdata()
14    {
15        cout << "Enter the numerator of the rational number: ";
16        cin >> num;
17        cout << "Enter the denominator of the rational number: ";
18        cin >> den;
19    }
20    void operator +(rational);
21    void operator -(rational);
22    void operator *(rational);
23    void operator /(rational);
24
25 void rational::operator+(rational r1)
26 {
27     rational temp;
28     temp.num = (num * r1.den) + (r1.num * den);
29     temp.den = den * r1.den;
30     cout << "Rational no. after addition: ";
31     cout << "Numerator = " << temp.num << " Denominator = " << temp.den << endl;
32     cout << "In Fraction Form : " << temp.num << "/" << temp.den;
33 }
34 void rational::operator-(rational r1)
35 {
36     rational temp;
37     temp.num = (num * r1.den) - (r1.num * den);
38 }
```

PROBLEMS 3 OUTPUT DEBUG CONSOLE TERMINAL GITLENS SQL CONSOLE JUPYTER

1. Input data for rational no.
2. Addition of rational no.
3. Subtraction of rational no.
4. Multiplication of rational no.
5. Division of rational no.
6. Quit

Enter your choice :: 2

rational no. after addition:
numerator = 5568

29°C Cloudy 11:05 PM 10/10/2022

Visual Studio Code interface showing a C++ program for complex number operations.

File: 7.cpp - Visual Studio Code

Code Editor: 7.cpp

```
1 // 2. write a C++ program to perform complex operations using binary operator overloading.
2
3 #include <iostream>
4 using namespace std;
5
6 struct Complex {
7     public:
8         int real, imaginary;
9
10        void getval() {
11            cin >> real >> imaginary;
12        }
13
14        Complex operator + (Complex obj) {
15            Complex A;
16            A.real = real + obj.real;
17            A.imaginary = imaginary + obj.imaginary;
18            return A;
19        }
20
21        Complex operator - (Complex obj) {
22            Complex A;
23            A.real = real - obj.real;
24            A.imaginary = imaginary - obj.imaginary;
25            return A;
26        }
27
28        Complex operator * (Complex obj) {
29            Complex A;
30            A.real = real * obj.real;
31            A.imaginary = imaginary * obj.imaginary;
32            return A;
33        }
34
35        Complex operator / (Complex obj) {
36            Complex A;
37            A.real = real / obj.real;
38            A.imaginary = imaginary / obj.imaginary;
39            return A;
40        }
41
42        void add() {
43            cout << "real << " << real << "imaginary << " << imaginary << endl;
44        }
45    };
46
47 int main() {
48     Complex c1, c2, c3, c4;
49     c1.getval();
50     c2.getval();
51     c3 = c1 + c2;
52     c4 = c1 - c2;
53     c3.add();
54     c4.add();
55     c3 = c1 * c2;
56     c4 = c1 / c2;
57     c3.add();
58     c4.add();
59     return 0;
60 }
```

Terminal:

```
Enter The Second Complex Number {Real <space> Imaginary part} : 3 8
The addition of two complex (real and imaginary) numbers : 5+13j
The subtraction of two complex (real and imaginary) numbers : -1+-3j
The multiplication of two complex (real and imaginary) numbers : 6+40j
The Division of two complex (real and imaginary) numbers : 0+0j
PS D:\OOP\OOPS_week_Assignment\OOPS_6&7>
```

Taskbar: 30°C Cloudy, 11:06 PM 10/10/2022

Visual Studio Code interface showing a C++ program (8.cpp) and its execution output in the terminal.

8.cpp

```
1 // Write a C++ program to find the area of shapes using function and namespace overloading.
2
3 #include <iostream>
4 using namespace std;
5 namespace Shapes {
6     int a, b, r;
7     float Area, Height;
8     void Input();
9
10 public:
11     void InputRect() {
12         cout << "Enter length and breadth of the rectangle: ";
13         cin >> a;
14         cin >> b;
15     }
16     void InputSq() {
17         cout << "Enter side of the square: ";
18         cin >> a;
19     }
20     void InputCir() {
21         cout << "Enter radius of the circle: ";
22         cin >> r;
23     }
24     void InputTriangle() {
25         cout << "Enter base and height of the triangle: ";
26         cin >> base;
27         cin >> Height;
28     }
29     Area operator+(Area a1) {
30         Area A2;
31         A2.a = a1.a;
32         A2.b = a1.b;
33         cout << "Area of rectangle: " << a1.a * a1.b;
34         return A2;
35     }
36     Area operator+(Area a1) {
37         Area A2;
38         A2.a = a1.a;
39         cout << "Area of square: " << a1.a * a1.a;
40         return A2;
41     }
42 }
```

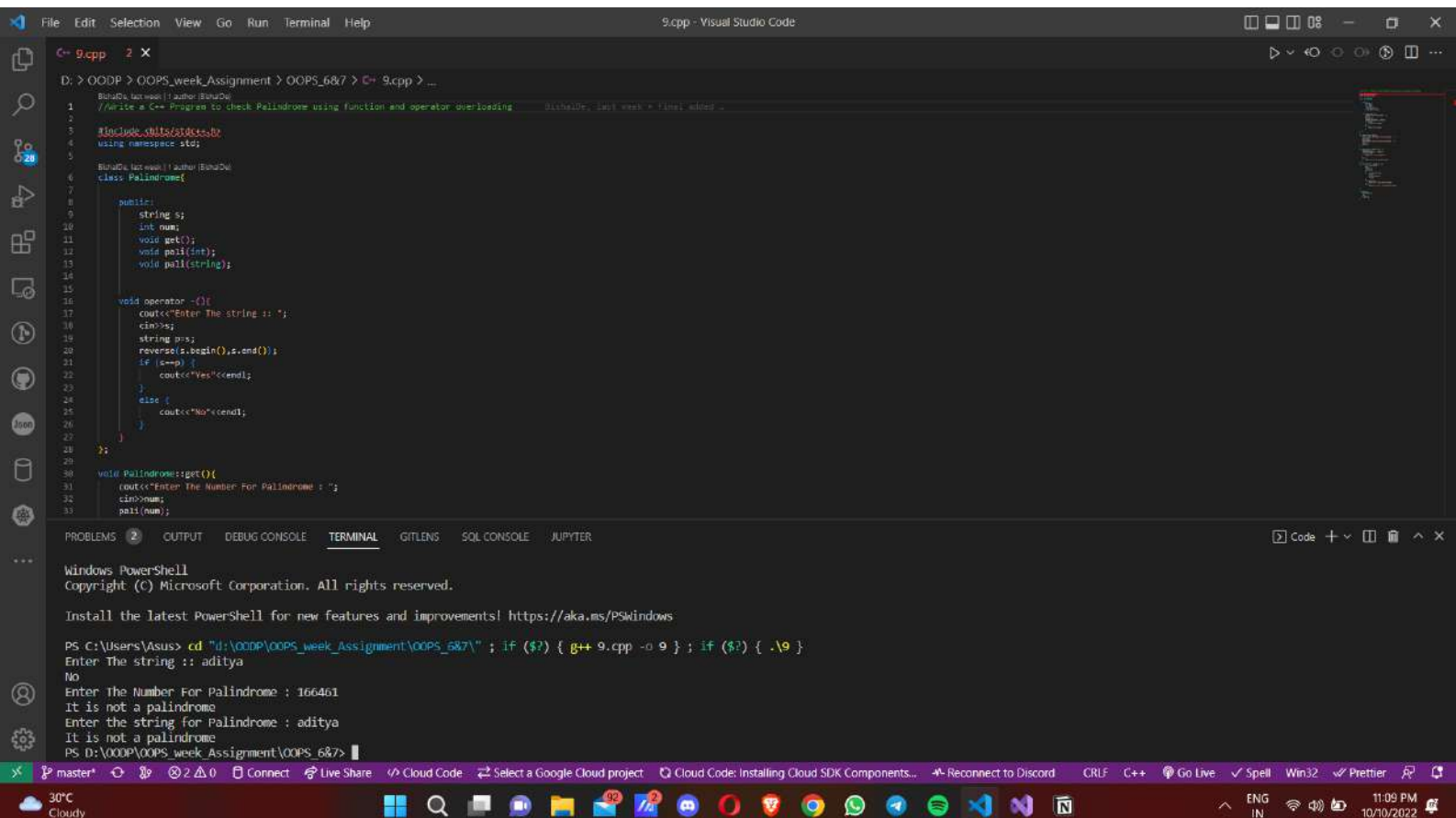
Terminal Output:

```
Windows PowerShell
Enter side of the square: 4
Area of square: 16

Enter radius of the circle: 8
Area of circle: 200.96

Enter base and height of the triangle:
4 7
Area of triangle: 14
PS D:\OOPS\OOPS_week_Assignment\OOPS_6&7>
```

Visual Studio Code status bar shows: master*, 0 errors, 0 warnings, 2 info, Connect, Live Share, Cloud Code, Select a Google Cloud project, Reconnect to Discord, Ln 1, Col 1, Spaces: 4, UTF-8, CRLF, C++, Go Live, 2 Spell, Win32, Prettier.



File Edit Selection View Go Run Terminal Help 10.cpp - Visual Studio Code

C++ 10.cpp X

D:\> OODP > OOPS_week_Assignment > OOPS_6&7 > C++ 10.cpp > ...

```
1 // 10. write a C++ program to find area of square, rectangle, circle and triangle using operator overloading.
2
3 #include <iostream>
4 using namespace std;
5 #include <iomanip> // auto <iomanip>
6 class Area
7 {
8     int a, l, b;
9     float base, height;
10     float r;
11 public:
12     void InputRect()
13     {
14         cout << "Enter length and breadth of the rectangle: " << endl;
15         cin >> l;
16         cin >> b;
17     }
18     void InputSq()
19     {
20         cout << "Enter side of the square: ";
21         cin >> s;
22     }
23     void InputCir()
24     {
25         cout << "Enter radius of the circle: ";
26         cin >> r;
27     }
28     void InputTriangle()
29     {
30         cout << "Enter base and height of the triangle: " << endl;
31         cin >> base;
32         cin >> height;
33     }
34     Area operator+(Area obj)
35     {
36         Area aj;
```

PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL GITLENS SQL CONSOLE JUPYTER

Code + -

Install the latest PowerShell for new features and improvements! <https://aka.ms/PSWindows>

2 5
Area of rectangle: 10

Enter side of the square: 4
Area of square: 16

Enter radius of the circle: 5
Area of circle: 78.5

Enter base and height of the triangle:
2 6
Area of triangle: 6
PS D:\OODP\OOPS_week_Assignment\OOPS_6&7>

master* 0 0 0 2 Connect Live Share Cloud Code Select a Google Cloud project Cloud Code: Installing Cloud SDK Components... Reconnect to Discord C++ Go Live 2 Spell Win32 Prettier

30°C Cloudy ENG IN 11:10 PM 10/10/2022

