Hands-on Activity 2.1	
Data Types and Arithmetic Operations	
Course Code: CPE007	**Program:** Computer Engineering
Course Title: Programming Logic and Design	**Date Performed:** 8/4/25
Section: CPE11S1	**Date Submitted:** 8/4/25
Name(s): Paula Esguerra	**Instructor:** Engr. Jimlord Quejado

6. Output

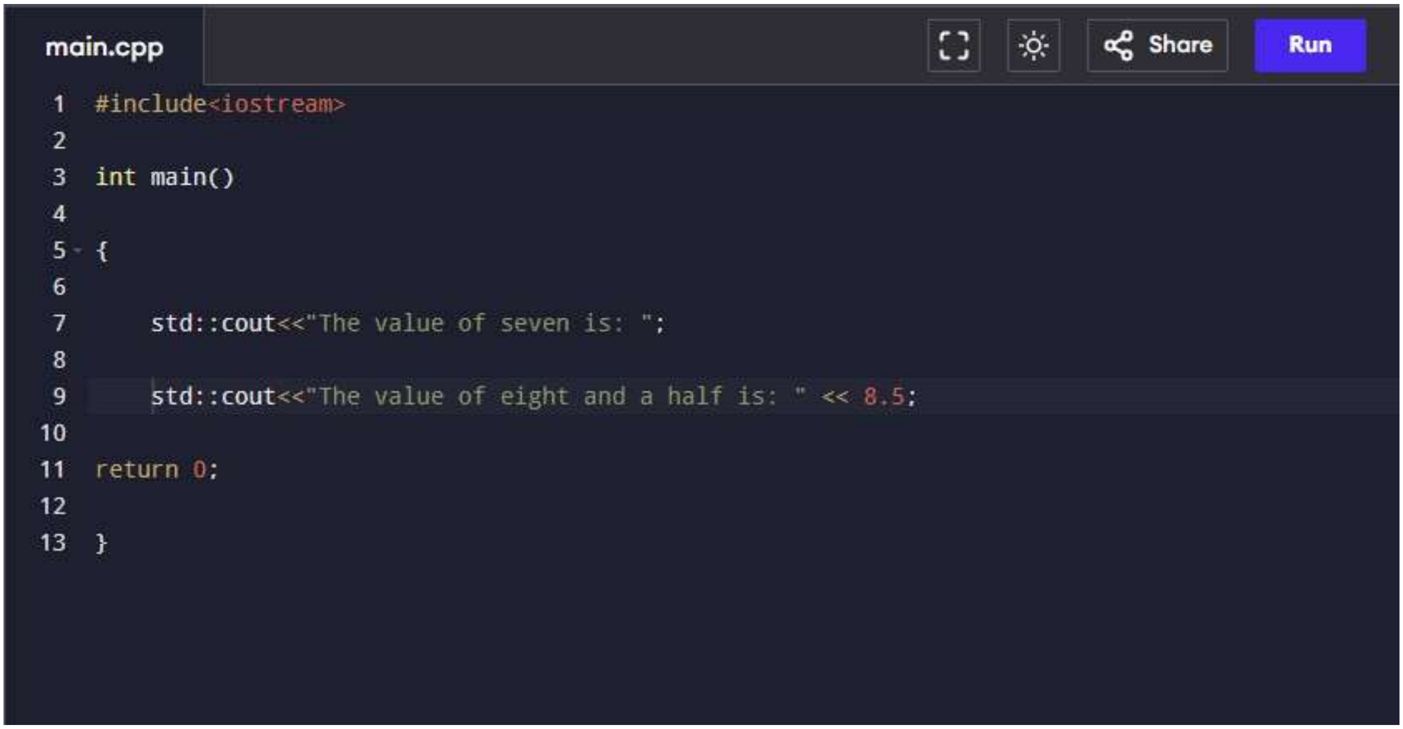
Example 1: The following program has an output of:

The value of seven is: 7.000000

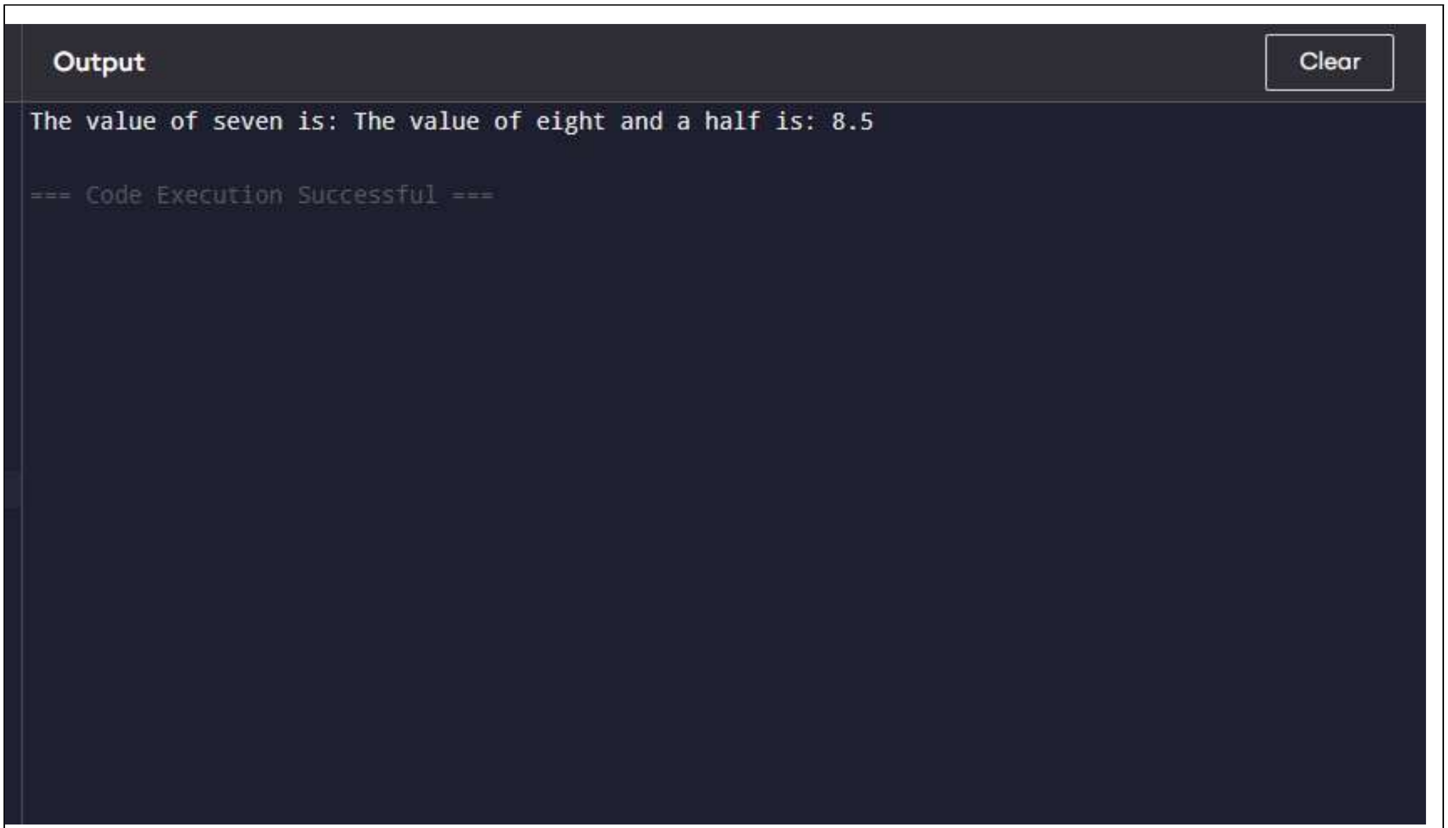
The value of eight and a half is: 8.500000

Can you find all possible compilation errors and logic errors? Can you fix them to print the same result as the expected output? Before you use your compiler, try to find the errors only by manual code analysis.

```
#include<iostream>
        using namespace std;
        int main()
{
        cout<<"The value of seven is: ";
        cout<<"The value of eight and a half is: ", <<8.5;
return 0;
}
```



```
#include<iostream>

int main()

{

    std::cout<<"The value of seven is: ";

    std::cout<<"The value of eight and a half is: " << 8.5;

return 0;

}
```

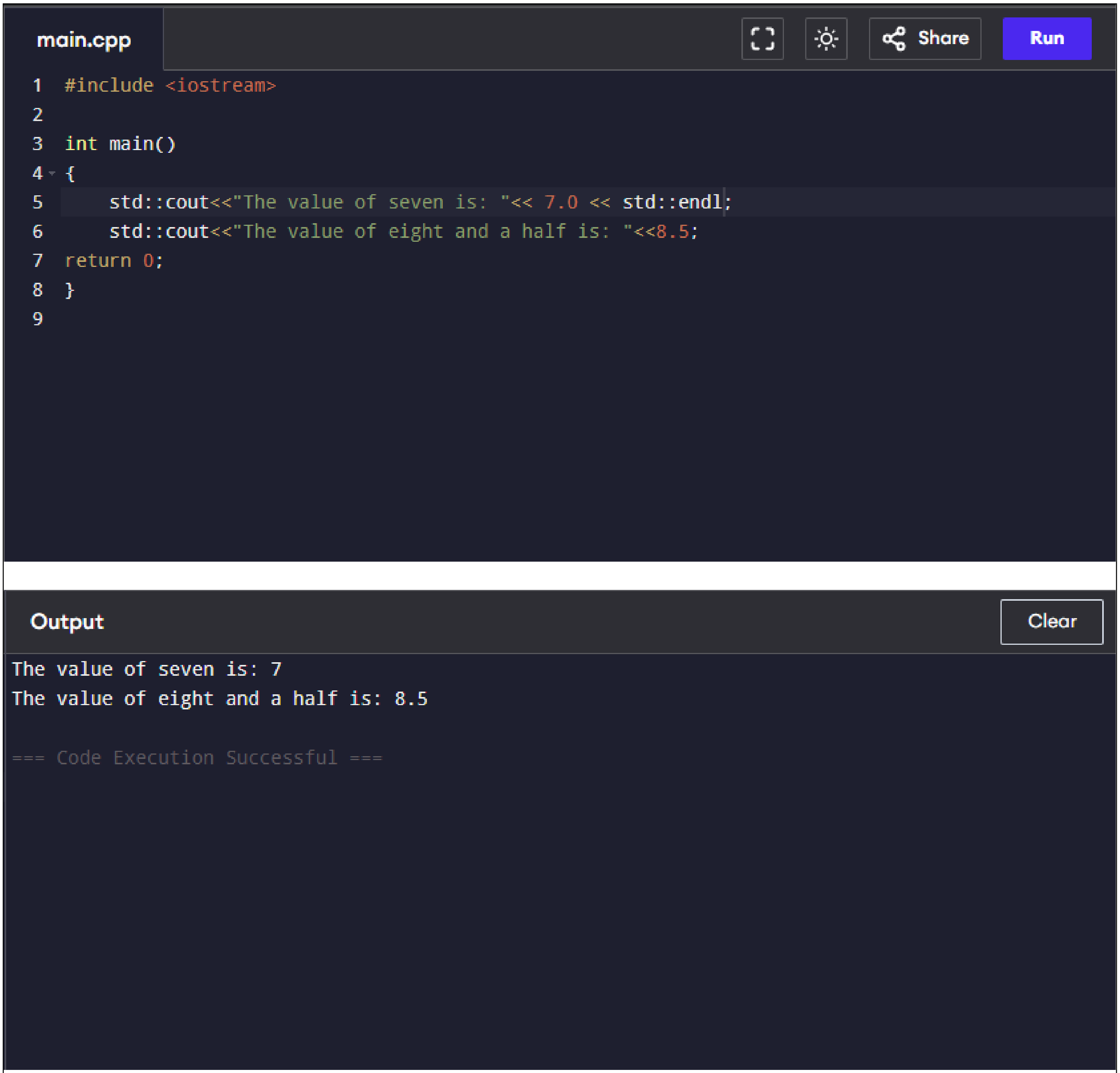


```
The value of seven is: The value of eight and a half is: 8.5

=== Code Execution Successful ===
```

The logic error was (,) then adding << std::endl; to have enter and space the output

Example 2: The following program has an output of:
The value of seven is: 7.000000
The value of eight and a half is: 8.500000
Can you find all possible compilation errors and logic errors? Can you fix them to print the same result as the expected output? Before you use your compiler, try to find the errors only by manual code analysis.

```
#include <iostream>
        using namespace std;
        int main()
        {
        cout<<"The value of seven is: "<< 7 0;
        cout<<"The value of eight and a half is: "<<8.5;
return 0;
}
```



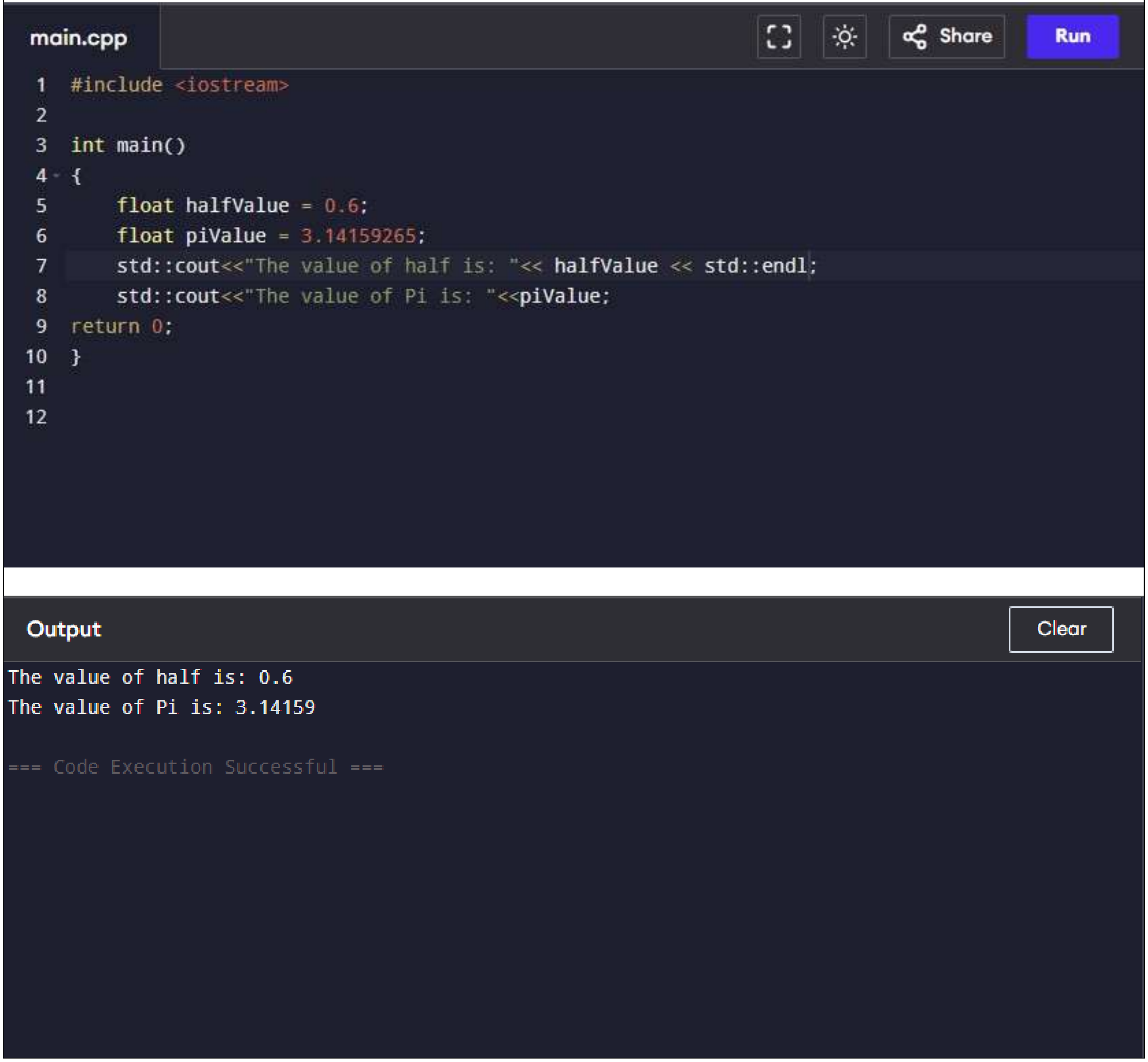
```cpp
#include <iostream>

int main()
{
    std::cout<<"The value of seven is: "<< 7.0 << std::endl;
    std::cout<<"The value of eight and a half is: "<<8.5;
return 0;
}

```

```
The value of seven is: 7
The value of eight and a half is: 8.5

=== Code Execution Successful ===
```

The logic error was the number was lacking a decimal point to continue, then adding << std::endl; to enter / space the output.

Example 3: The following program has an output of:
The value of half is: 0.500000
The value of Pi is: 3.141593
Can you find all possible compilation errors and logic errors? Can you fix them to print the same result as the expected output? Before you use your compiler, try to find the errors only by manual code analysis.

```
int main()
{
        float halfValue = 0.6;
        float piValue = 3.141 592 65;
        cout<<"The value of half is: "<< half Value;
        cout<<"The value of Pi is: "<<pi_Value;
return 0;
}
```



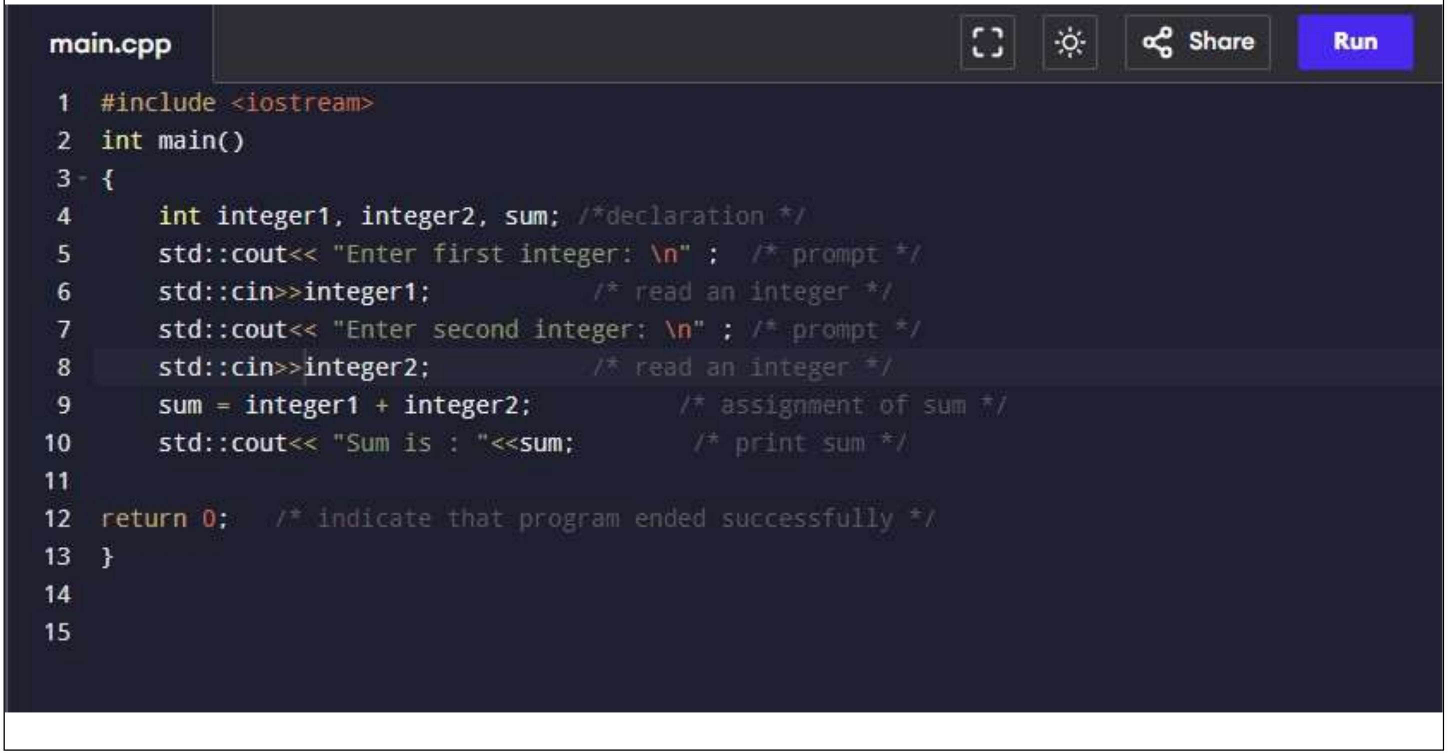
```
#include <iostream>

int main()
{
    float halfValue = 0.6;
    float piValue = 3.14159265;
    std::cout<<"The value of half is: "<< halfValue << std::endl;
    std::cout<<"The value of Pi is: "<<piValue;
return 0;
}
```

```
The value of half is: 0.6
The value of Pi is: 3.14159


=== Code Execution Successful ===
```

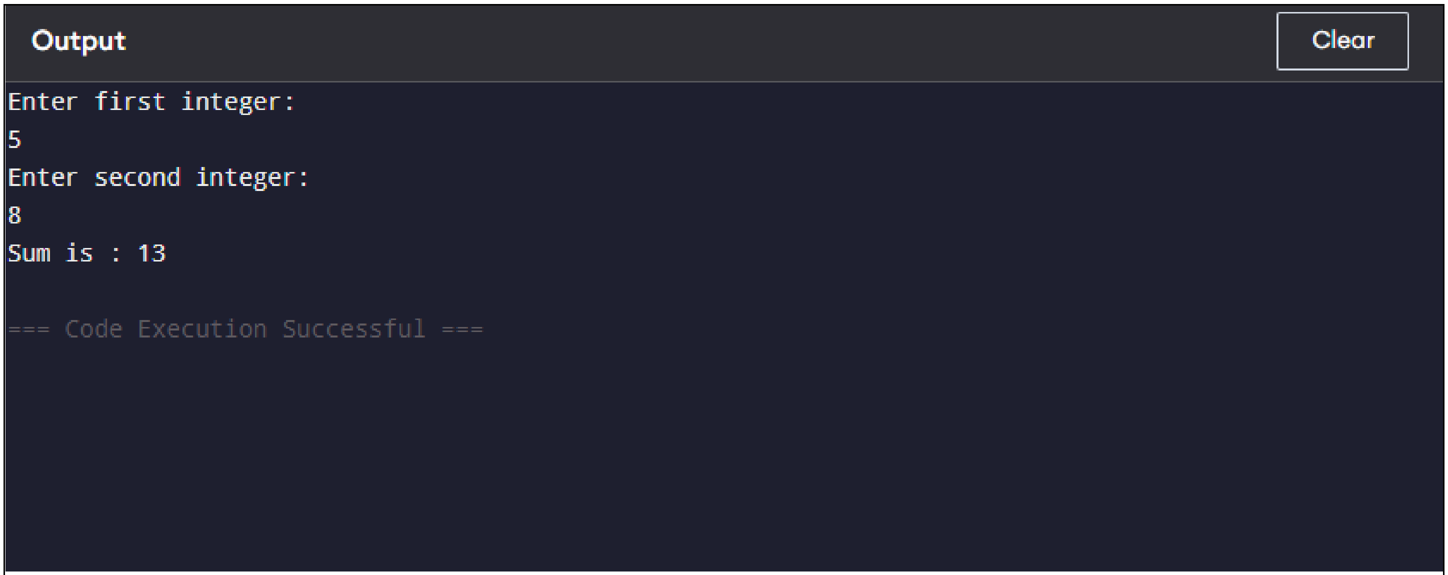
The logic error was the number of pi has space that made the error visible, error in case sensitive titles then adding << std::endl.

Example 4: Sample program for Adding Two Integers

```
#include <iostream>
int main()
{
        int integer1, integer2, sum; /*declaration */
        cout<<“Enter first integer: \n” ;  /* prompt */
        cin>>integer1 ;          /* read an integer */
        cout<<“Enter second integer: \n” ; /* prompt */
        cin<<integer2;           /* read an integer */
        sum = integer1 + integer2;          /* assignment of sum */
        cout<<“Sum is : "<<sum;        /* print sum */

return 0;   /* indicate that program ended successfully */
}
```



```
#include <iostream>
int main()
{
    int integer1, integer2, sum; /*declaration */
    std::cout<< "Enter first integer: \n" ;  /* prompt */
    std::cin>>integer1;           /* read an integer */
    std::cout<< "Enter second integer: \n" ; /* prompt */
    std::cin>>integer2;           /* read an integer */
    sum = integer1 + integer2;          /* assignment of sum */
    std::cout<< "Sum is : "<<sum;        /* print sum */

return 0;   /* indicate that program ended successfully */
}
```

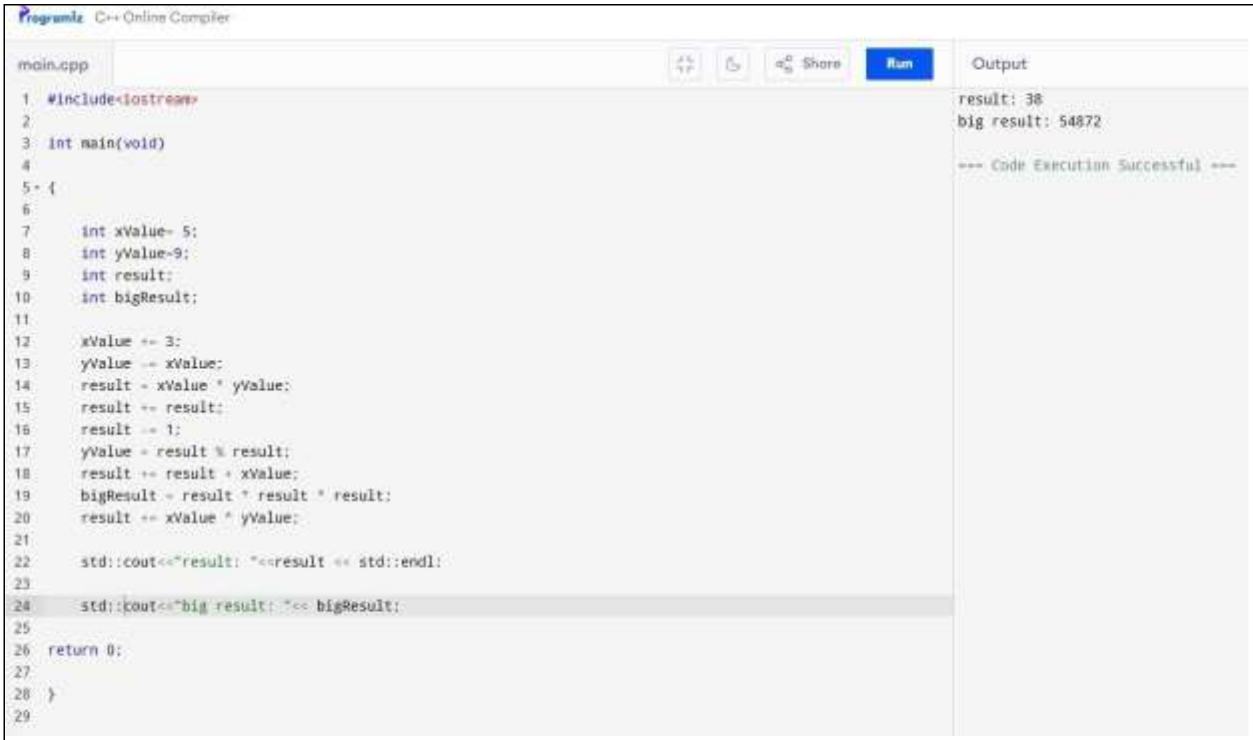


```
Enter first integer:
5
Enter second integer:
8
Sum is : 13

=== Code Execution Successful ===
```

The logic error was the lack of std::, ang change 8’s “<< “to “>>” and wrong quotation.

7. Supplementary Activity

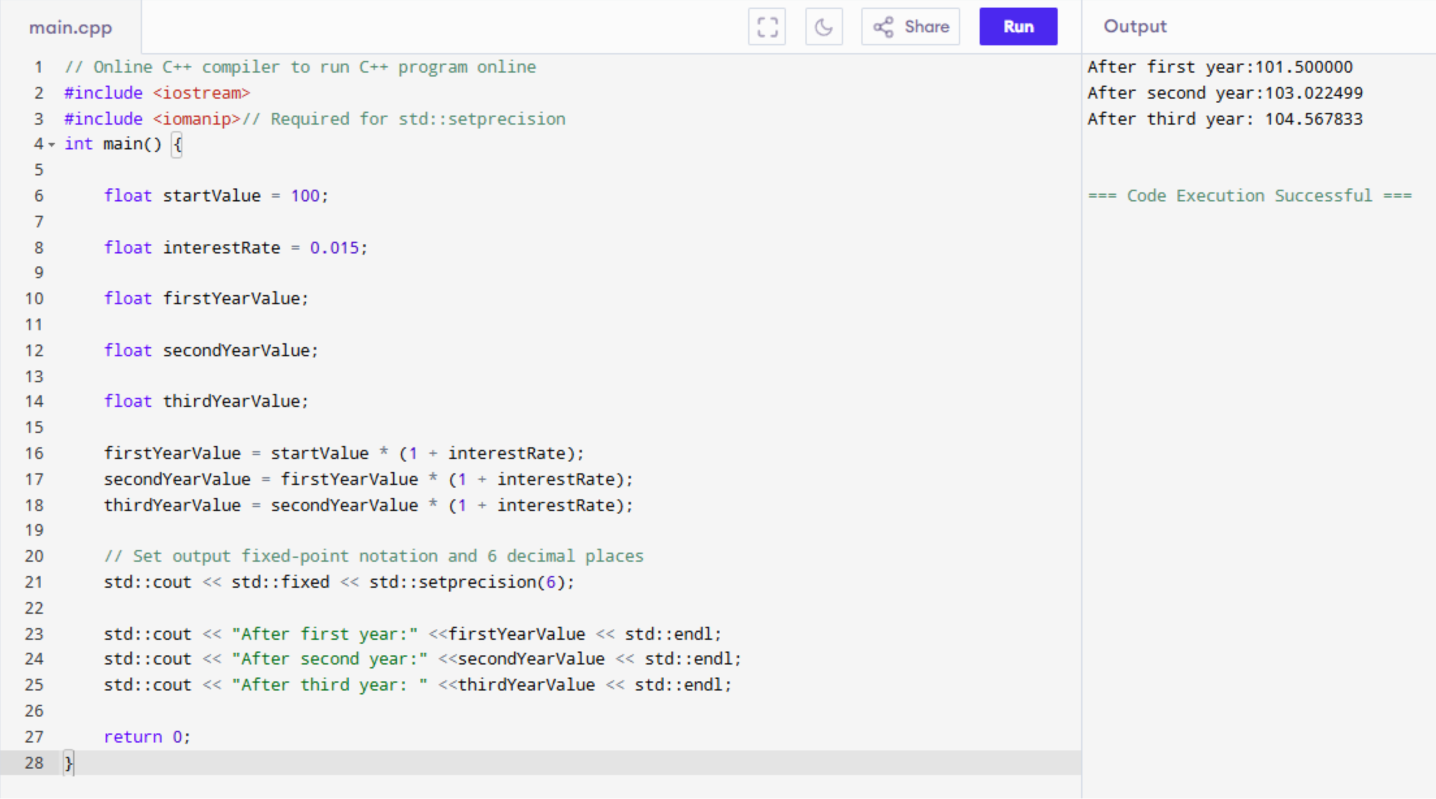
1. Take a look at the code below: it assigns two integer values, manipulates them and finally outputs the result and bigresult variables. The problem is that the manipulations have been described using natural language, so the code is completely useless now. Act as an intelligent (naturally!) compiler and translate the formula into a real "C" code notation. Test your code using the data provided.



```cpp
#include<iostream>

int main(void)

{

    int xValue= 5;
    int yValue=9;
    int result;
    int bigResult;

    xValue += 3;
    yValue -= xValue;
    result = xValue * yValue;
    result += result;
    result -= 1;
    yValue = result % result;
    result += result + xValue;
    bigResult = result * result * result;
    result += xValue * yValue;

    std::cout<<"result: "<<result << std::endl;

    std::cout<<"big result: "<< bigResult;

return 0;

}

```

```
result: 38
big result: 54872

=== Code Execution Successful ===
```

2. Complete the program below. Compute the accrued amount of money with a starting value of 100 and an annual interest rate of 1.5%. Compute and print the results for first three years. Your version of the program must print the same result as the expected output for every year. Compute each annual value on the basis of the previous year's value.



```cpp
// Online C++ compiler to run C++ program online
#include <iostream>
#include <iomanip>// Required for std::setprecision
int main() {

    float startValue = 100;

    float interestRate = 0.015;

    float firstYearValue;

    float secondYearValue;

    float thirdYearValue;

    firstYearValue = startValue * (1 + interestRate);
    secondYearValue = firstYearValue * (1 + interestRate);
    thirdYearValue = secondYearValue * (1 + interestRate);

    // Set output fixed-point notation and 6 decimal places
    std::cout << std::fixed << std::setprecision(6);

    std::cout << "After first year:" <<firstYearValue << std::endl;
    std::cout << "After second year:" <<secondYearValue << std::endl;
    std::cout << "After third year: " <<thirdYearValue << std::endl;

    return 0;
}
```

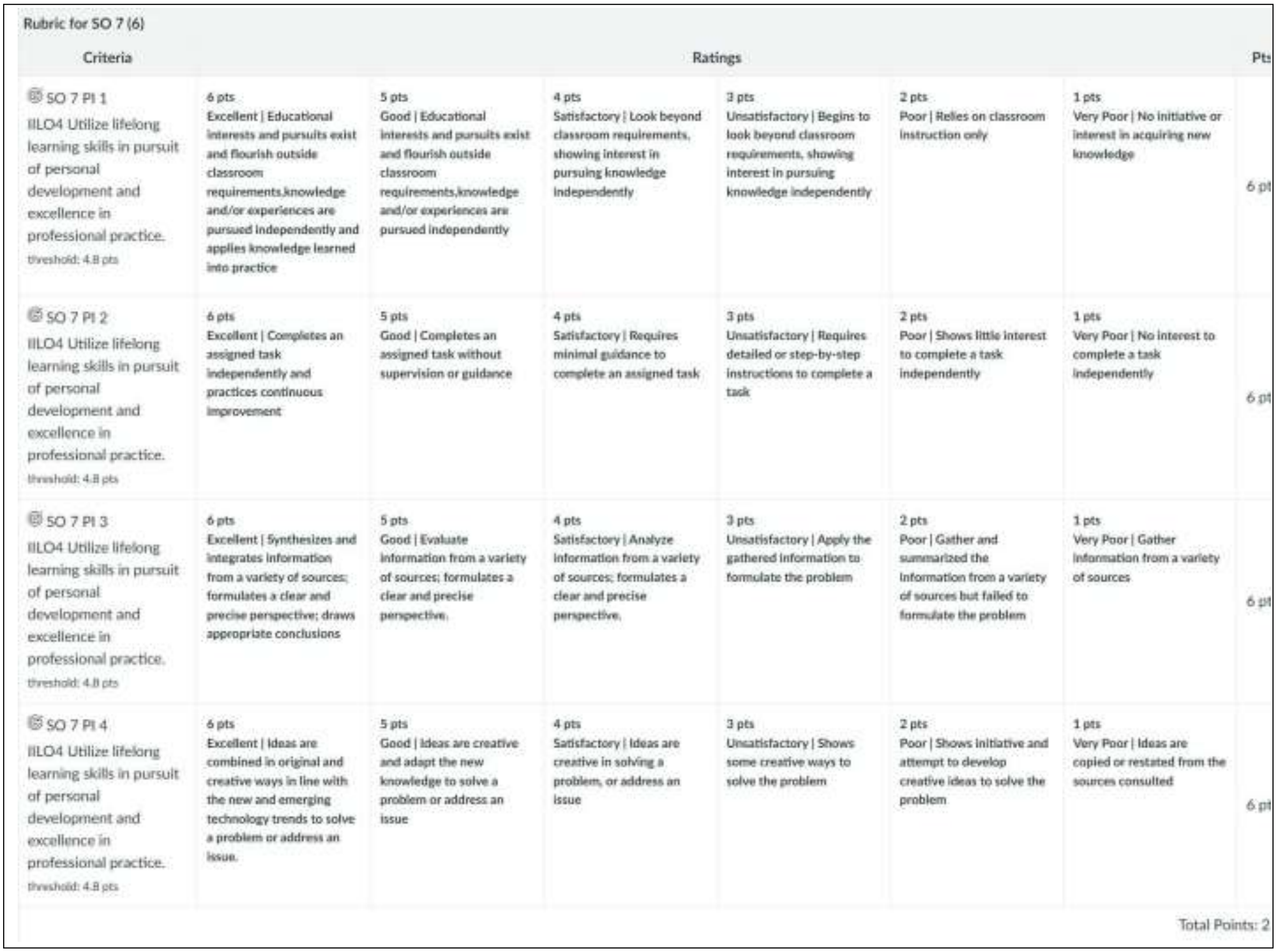
```
After first year:101.500000
After second year:103.022499
After third year: 104.567833


=== Code Execution Successful ===
```

8. Conclusion

Finding logic errors are a bit of hard to understand but when you think carefully about the symbols, you can change a bit in your coding, then the coding will be fixed. First you need to understand the error, if you don't understand then search in Google, the arrows show the error is, sometimes it can be the wrong signs or symbols. And then, though using

“using namespace std” is much easier, but I do most prefer not using “using namespace std”. it is important to always double check the coding before running through. I did learned something new, to acquire 6 decimal places, you have to add, <iomanip> and it’s relations.

9. Assessment Rubric



Rubric for SO 7 (6)

Criteria	Ratings						Pts
SO 7 PI 1 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently and applies knowledge learned into practice	5 pts Good | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently	4 pts Satisfactory | Look beyond classroom requirements, showing interest in pursuing knowledge independently	3 pts Unsatisfactory | Begins to look beyond classroom requirements, showing interest in pursuing knowledge independently	2 pts Poor | Relies on classroom instruction only	1 pts Very Poor | No initiative or interest in acquiring new knowledge	6 pt
SO 7 PI 2 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Completes an assigned task independently and practices continuous improvement	5 pts Good | Completes an assigned task without supervision or guidance	4 pts Satisfactory | Requires minimal guidance to complete an assigned task	3 pts Unsatisfactory | Requires detailed or step-by-step instructions to complete a task	2 pts Poor | Shows little interest to complete a task independently	1 pts Very Poor | No interest to complete a task independently	6 pt
SO 7 PI 3 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Synthesizes and integrates information from a variety of sources; formulates a clear and precise perspective; draws appropriate conclusions	5 pts Good | Evaluate information from a variety of sources; formulates a clear and precise perspective.	4 pts Satisfactory | Analyze information from a variety of sources; formulates a clear and precise perspective.	3 pts Unsatisfactory | Apply the gathered information to formulate the problem	2 pts Poor | Gather and summarized the information from a variety of sources but failed to formulate the problem	1 pts Very Poor | Gather information from a variety of sources	6 pt
SO 7 PI 4 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Ideas are combined in original and creative ways in line with the new and emerging technology trends to solve a problem or address an issue.	5 pts Good | Ideas are creative and adapt the new knowledge to solve a problem or address an issue	4 pts Satisfactory | Ideas are creative in solving a problem, or address an issue	3 pts Unsatisfactory | Shows some creative ways to solve the problem	2 pts Poor | Shows initiative and attempt to develop creative ideas to solve the problem	1 pts Very Poor | Ideas are copied or restated from the sources consulted	6 pt
							Total Points: 2