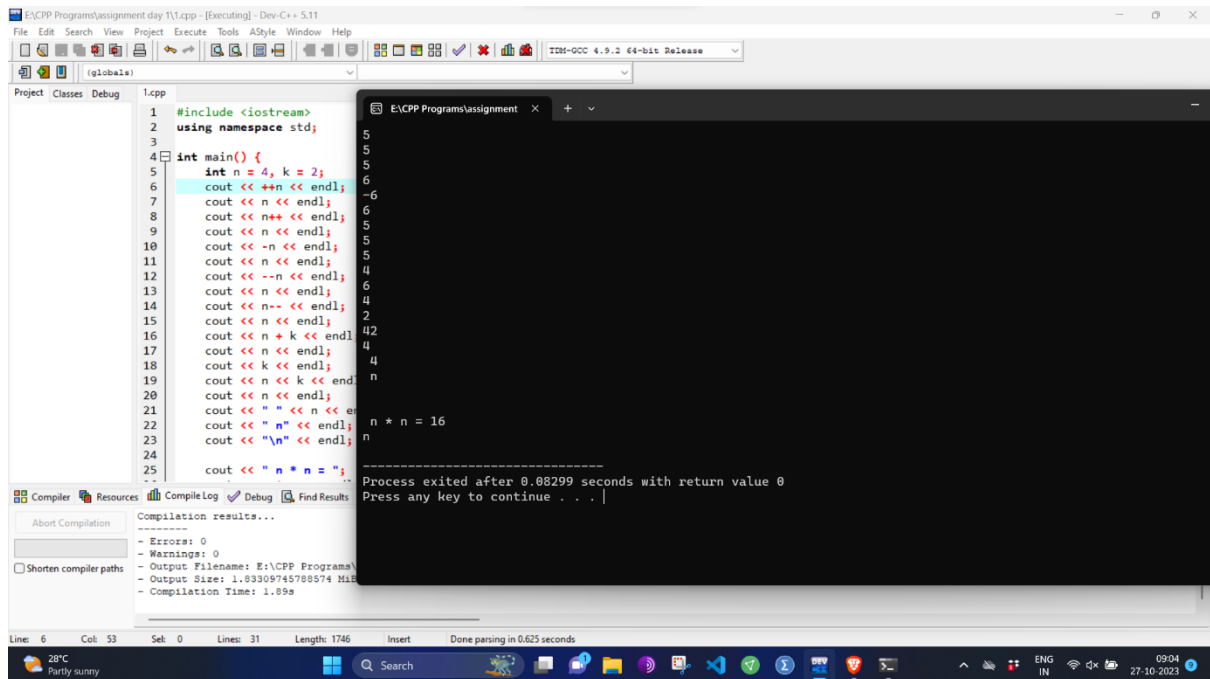


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1. What is the exact output of the program below?

1



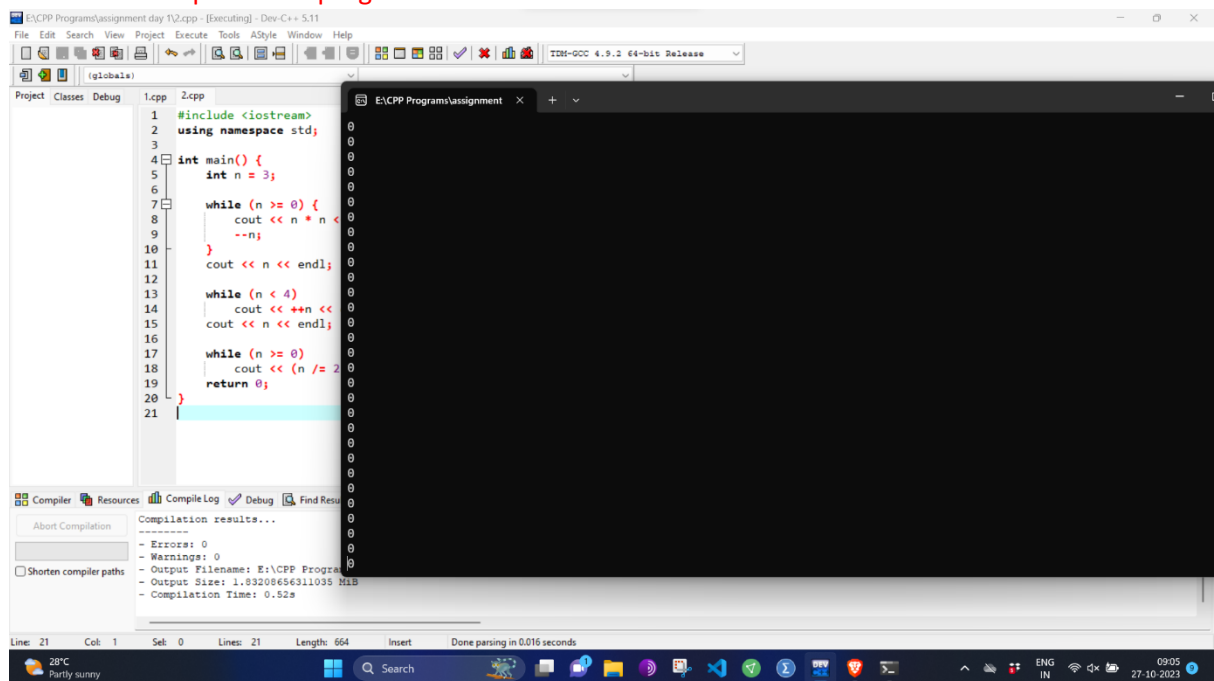
The screenshot shows a C++ program being executed in Dev-C++. The program defines variables `n = 4` and `k = 2`, and performs various arithmetic and string operations using `cout`. The output window displays the results of these operations.

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

int main() {
    int n = 4, k = 2;
    cout << ++n << endl;
    cout << n << endl;
    cout << n++ << endl;
    cout << n << endl;
    cout << --n << endl;
    cout << --n << endl;
    cout << n << endl;
    cout << n-- << endl;
    cout << n << endl;
    cout << n + k << endl;
    cout << n << endl;
    cout << k << endl;
    cout << n << k << endl;
    cout << n << endl;
    cout << "n" << n << endl;
    cout << "n" << endl;
    cout << "n * n = " << n * n << endl;
    cout << "n" << endl;
    cout << "n * n = " << n * n << endl;
    cout << "n" << endl;
}
```

Process exited after 0.08299 seconds with return value 0
Press any key to continue . . .

2. What is the output of the program below?



The screenshot shows a C++ program being executed in Dev-C++. The program defines a variable `n = 3` and uses `while` loops to perform arithmetic operations and print results. The output window displays the results of these operations.

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

int main() {
    int n = 3;
    while (n >= 0) {
        cout << n * n << endl;
        --n;
    }
    cout << n << endl;
    while (n < 4) {
        cout << ++n << endl;
        cout << n << endl;
    }
    while (n >= 0) {
        cout << (n /= 7) << endl;
    }
    return 0;
}
```

3. What is the output of the program below?

The screenshot shows the Dev-C++ IDE with a C++ program in the editor and its output in the console. The program defines a variable `n` and performs several logical operations using `cout` to display the results. The console output shows the sequence of these operations and their results.

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

int main() {
    int n;

    cout << (n = 4) << endl; // Assign 4 to n and then print
    cout << (n == 4) << endl; // Check if n is equal to 4
    cout << (n > 3) << endl; // Check if n is greater than 3
    cout << (n < 4) << endl; // Check if n is less than 4
    cout << (n = 0) << endl; // Assign 0 to n and then print
    cout << (n == 0) << endl; // Check if n is equal to 0
    cout << (n > 0) << endl; // Check if n is greater than 0
    cout << (n & 4) << endl; // Perform the Logical AND operation
    cout << (n || 4) << endl; // Perform the Logical OR operation
    cout << (!n) << endl; // Perform the Logical NOT operation

    return 0;
}
```

Process exited after 0.1101 seconds with return value 0
Press any key to continue . . .

4. What is the output of the following program?

The screenshot shows the Dev-C++ IDE with a C++ program in the editor and its output in the console. The program defines an enum `color_type` and declares two variables, `shirt` and `pants`, of type `color_type`. It assigns values to these variables and prints them using `cout`. The console output shows the values of `shirt` and `pants`.

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

int main() {
    enum color_type {red, orange, yellow, green, blue, violet};

    color_type shirt, pants; // Declare two variables of type color_type

    shirt = red; // Assign the value red from the enum to the variable shirt
    pants = blue; // Assign the value blue from the enum to the variable pants

    cout << shirt << " " << pants << endl; // Print the values of shirt and pants

    return 0;
}
```

Process exited after 0.1111 seconds with return value 0
Press any key to continue . . .

5. What is the output when the following code fragment is executed?

```

1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int i = 5, j = 6, k = 7, n = 3;
6     cout << i + j * k - k % n << endl;
7     cout << i / n << endl;
8     return 0;
9 }
10

```

```

46
1
-----
Process exited after 0.1085 seconds with return value 0
Press any key to continue . . .

```

6. What is the output when the following code fragment is executed?

```

1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int found = 0, count = 5;
6     if (!found || --count == 0)
7     {
8         cout << "danger" << endl;
9         cout << "count = " << count << endl;
10        return 0;
11    }
12

```

```

cpp
#include <iostream>
using namespace std;

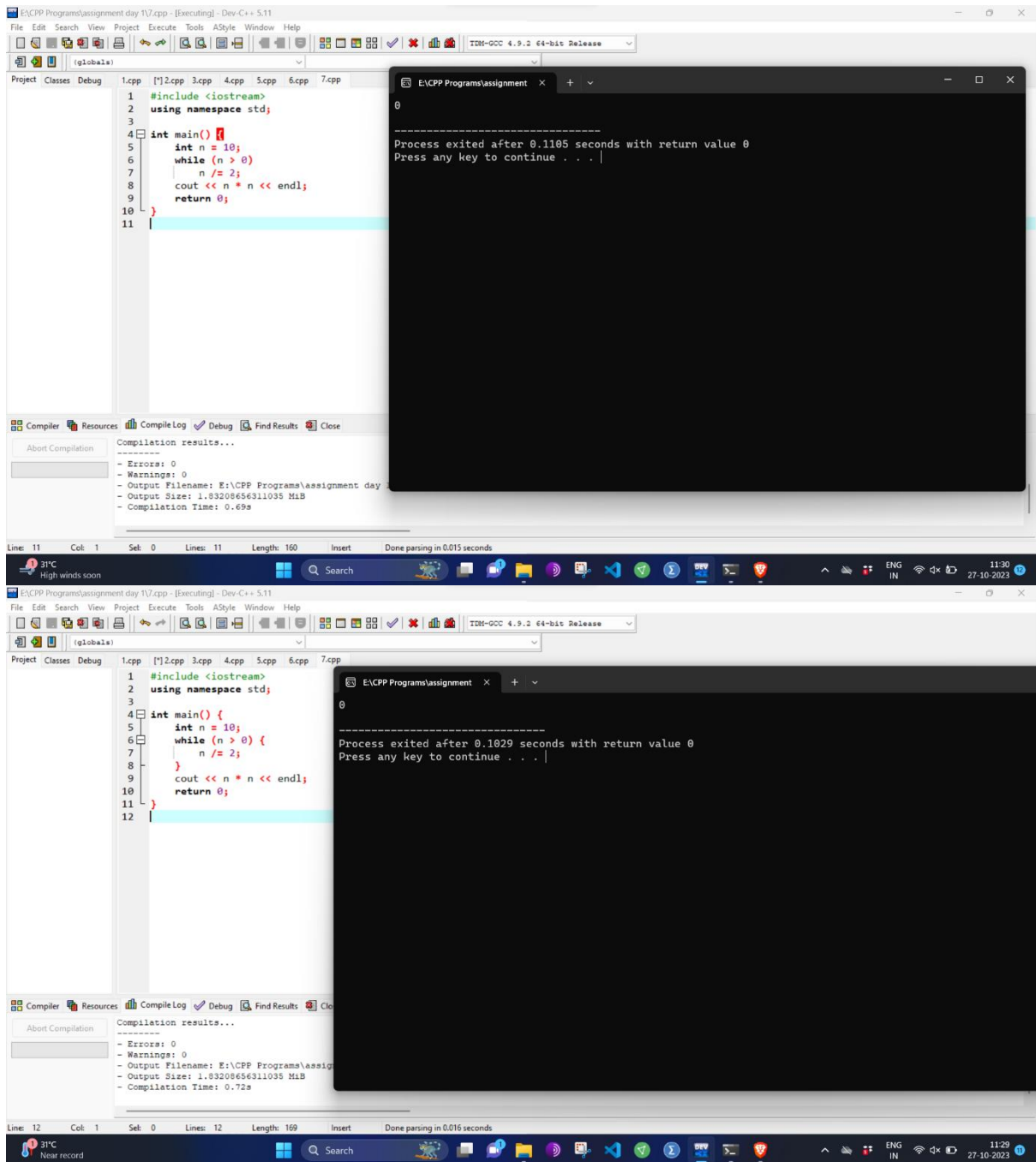
int main() {
    int found = 0, count = 5;
    if (!found || --count == 0)
        cout << "danger" << endl;
    cout << "count = " << count << endl;
    return 0;
}

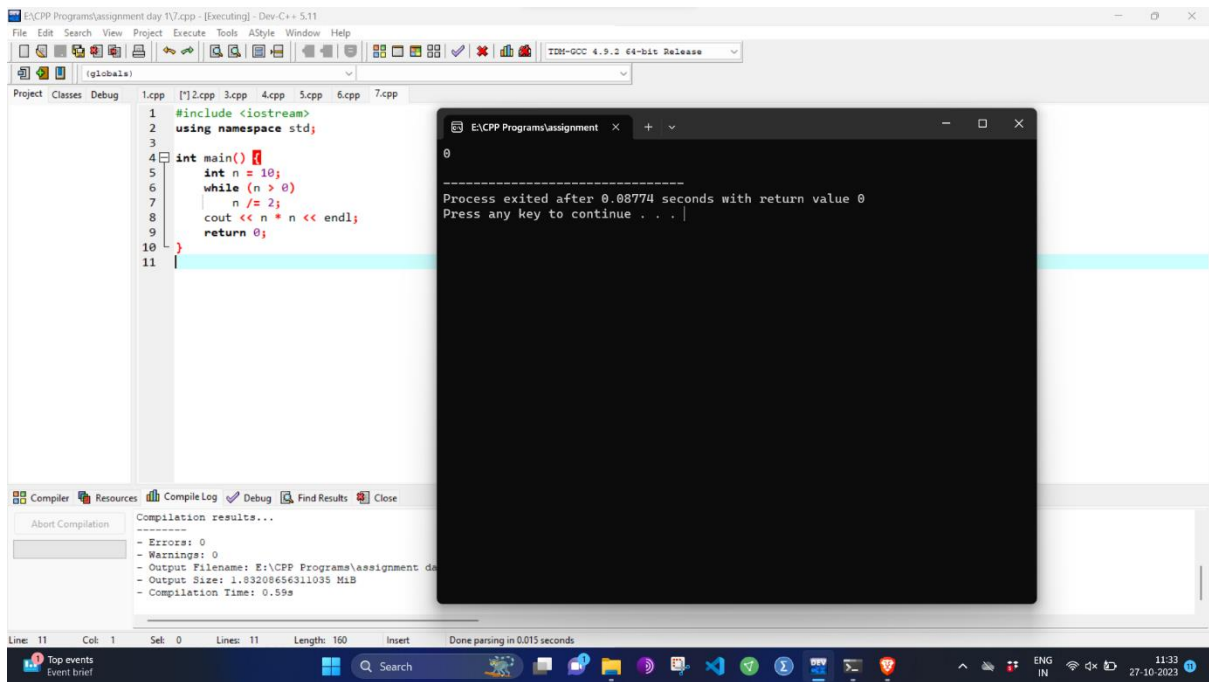
```

7. The loop shown below has been written by an inexperienced C++ programmer. The behavior of the loop is not correctly represented by the formatting.

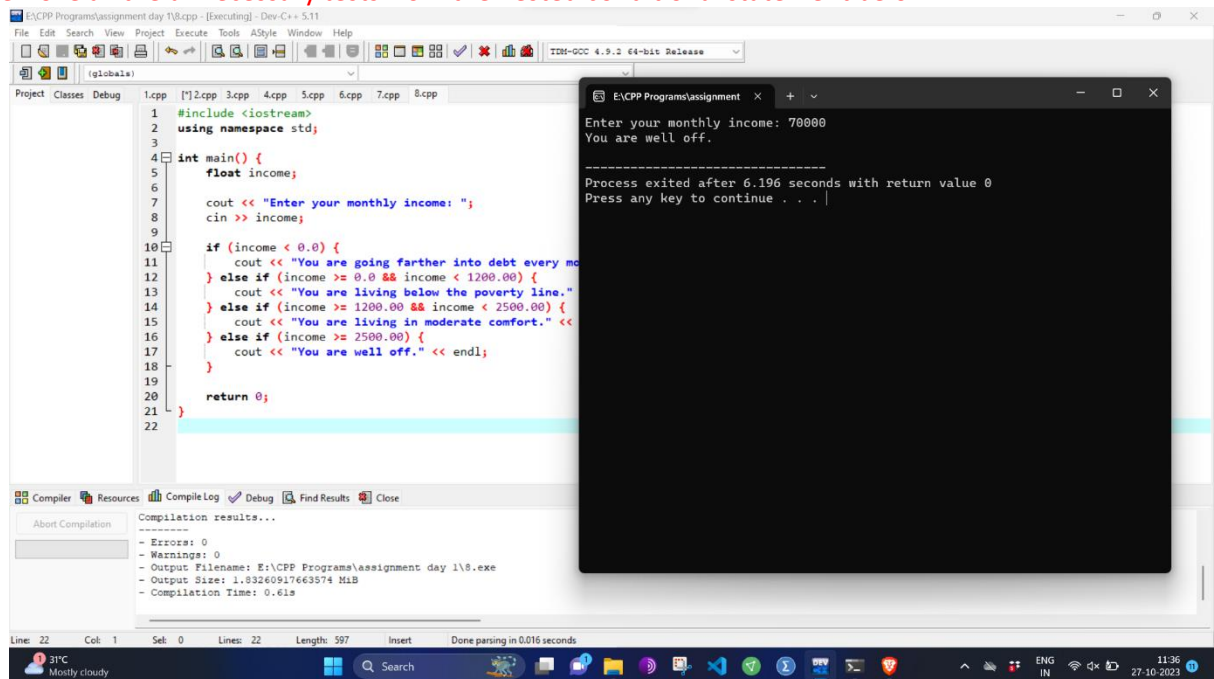
- What is the output of the loop as it is written?
- Correct the syntax of the loop so that the logic of the corrected loop corresponds to the formatting of the original loop. What is the output of the corrected loop?
- Correct the formatting of the (original) loop so that the new format reflects the logical behavior of the original loop.

a)



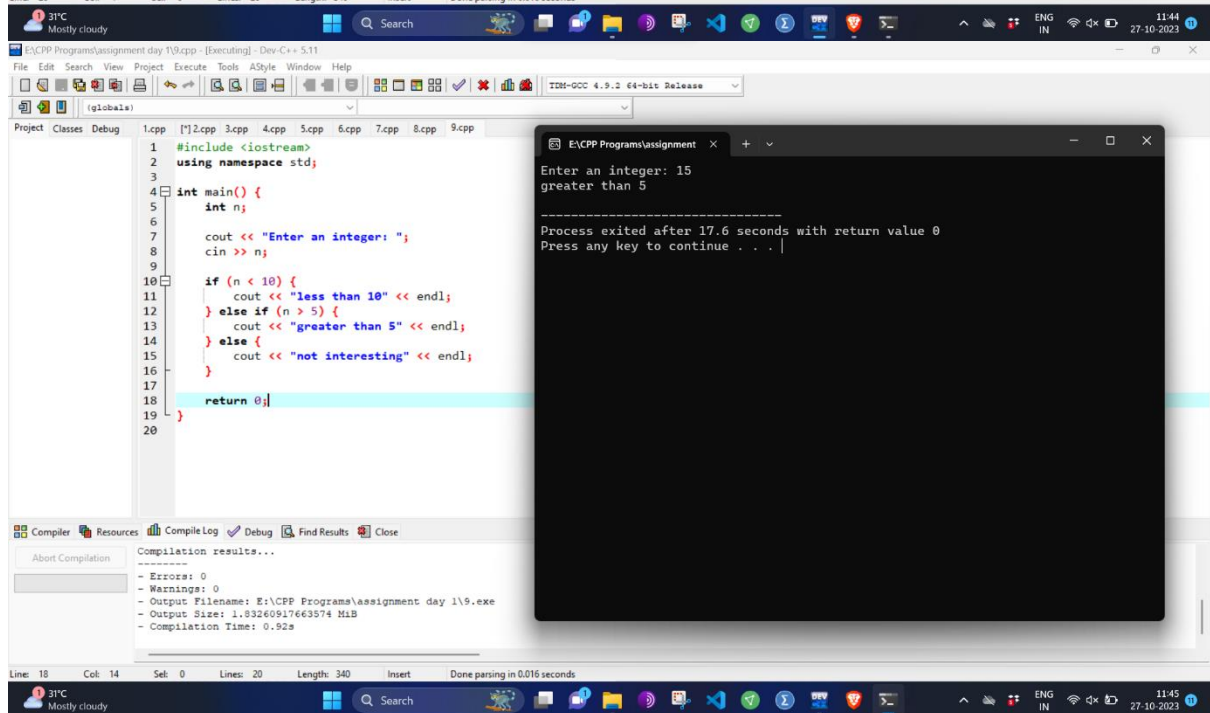
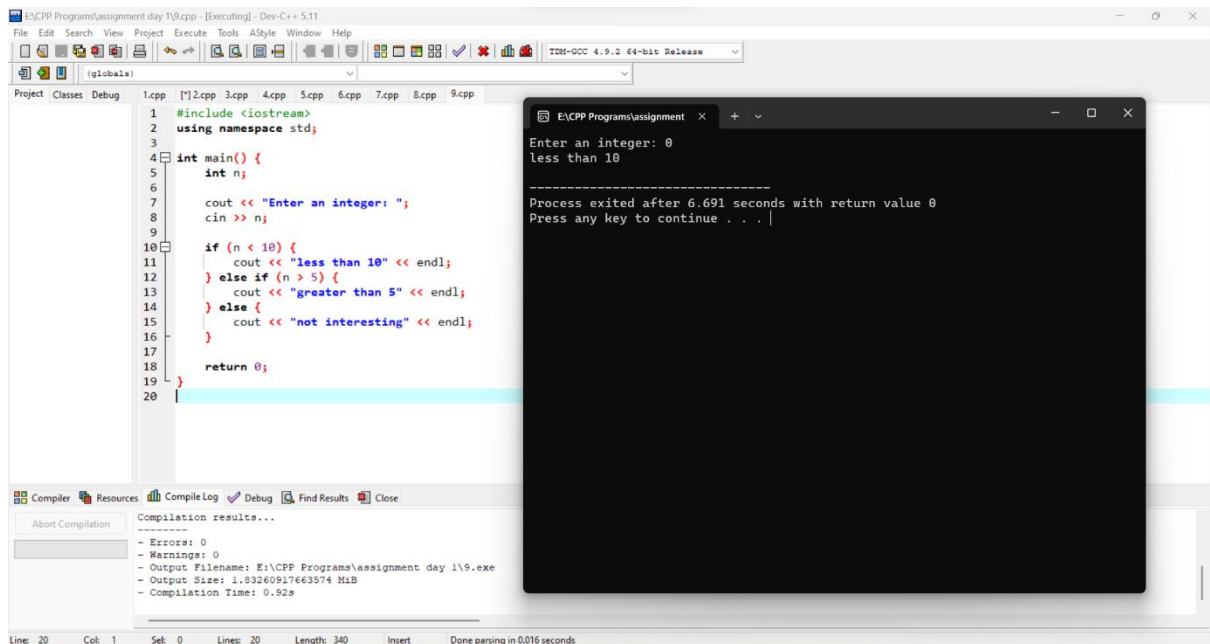


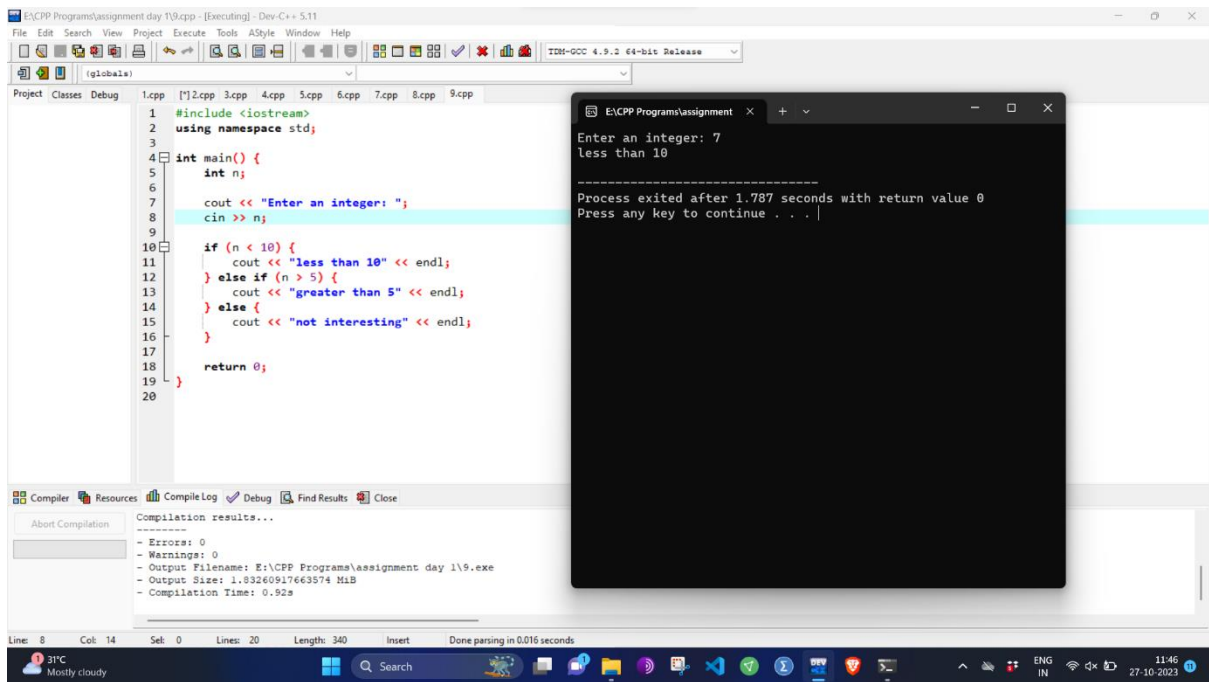
8. Remove all the unnecessary tests from the nested conditional statement below.



9. Answer the questions below concerning the following fragment of code.

- What will be the output of the fragment above if the interactive user enters the integer value 0 ?
- What will be the output of the fragment above if the interactive user enters the integer value 15 ?
- What will be the output of the fragment above if the interactive user enters the integer value 7 ?
- What values for n will cause the output of the fragment above to be "not interesting"?





10. Rewrite the following code fragment so that it uses a "do...while..." loop to accomplish the same task.

