Task(9.4)

Modify a Variable Captured by Lambda Expression

Objective: Understand variable capturing in lambda expressions and how to modify captured variables.

Instructions:

1. **Create a Lambda Expression:**
   - **Define a variable num in the main function and initialize it with a value.**
   - **Create a lambda expression that captures this variable by value.**
2. **Attempt to Modify the Captured Variable:**
   - **Inside the lambda expression, add a line that attempts to change the value of the captured variable.**
3. **Observe the Compilation Error:**
   - **Compile and run your code. You should see a compilation error indicating that you are trying to assign a value to a read-only variable.**
4. **Fix the Compilation Error:**
   - **Modify the lambda expression to capture the variable by reference instead of by value.**
   - **Ensure that the lambda can now modify the captured variable.**
5. **Verify the Changes:**
   - **Print the value of the variable inside and outside the lambda to confirm that the modification is successful.**

Explanation:

- Behavior: When a variable is captured by value, it is essentially a copy of the original variable. Inside the lambda, this copy is treated as a constant in terms of modification. You are only modifying the copy, not the original variable.
- Error Cause: If you try to modify this copy, the lambda's internal representation treats the copy as const to prevent modification. This is why you get a compilation error: assignment of read-only variable.

Thank You