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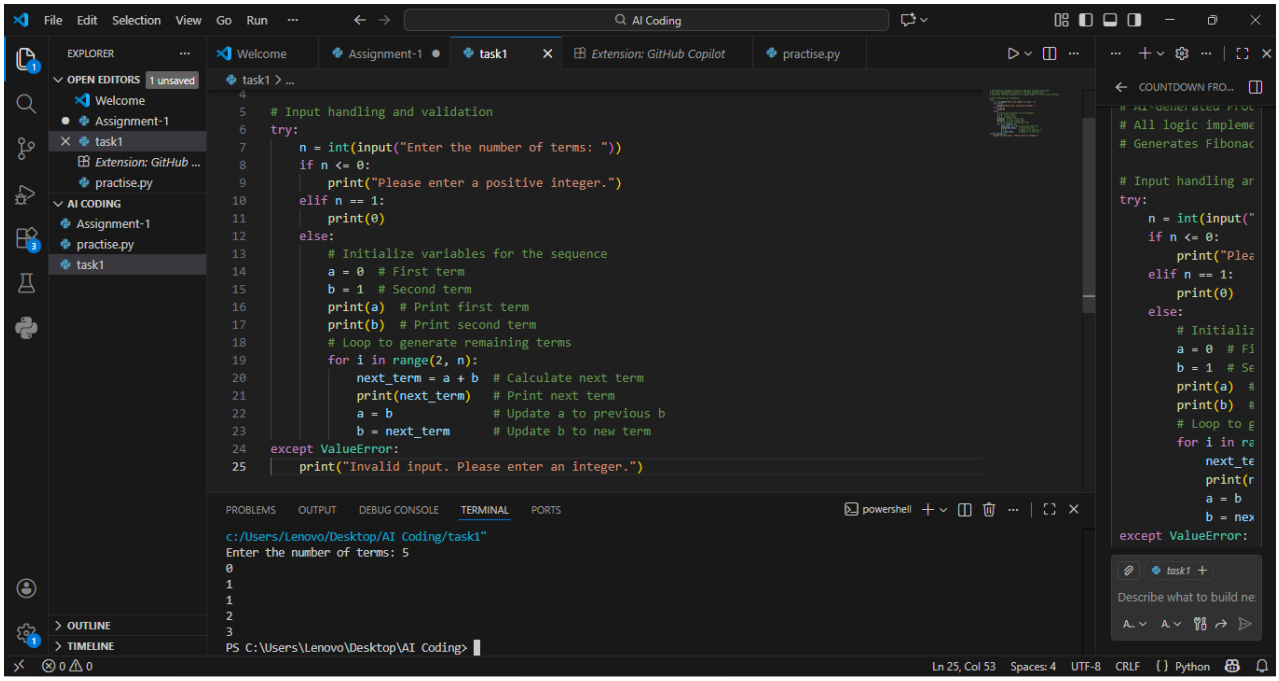
Lab1

AssignmentNumber1.3

TASK:1

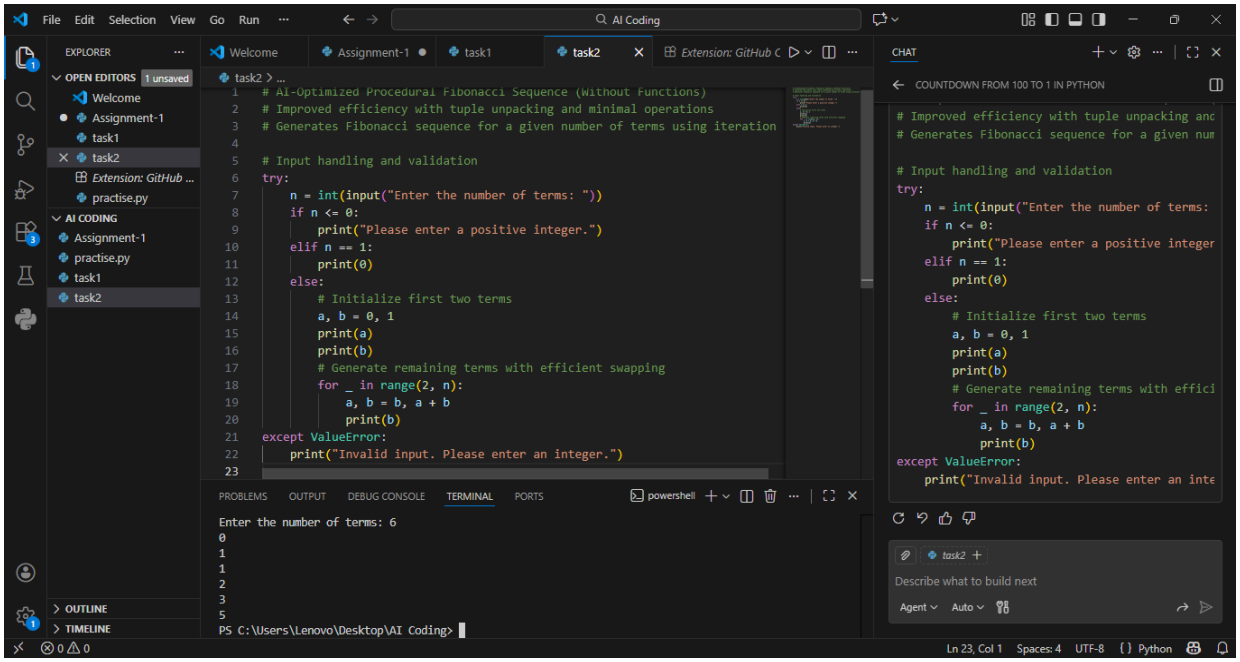
PROMPT:Write a Python program that asks the user for a number and prints the Fibonacci sequence up to that number, without using any functions



EXPLANATION: Using GitHub Copilot, I was able to generate a Python program that prints the Fibonacci sequence.
The program follows all the given rules and works correctly for any valid input.

TASK:2

PROMPT: AI Code Optimization & Cleanup (Improving Efficiency)



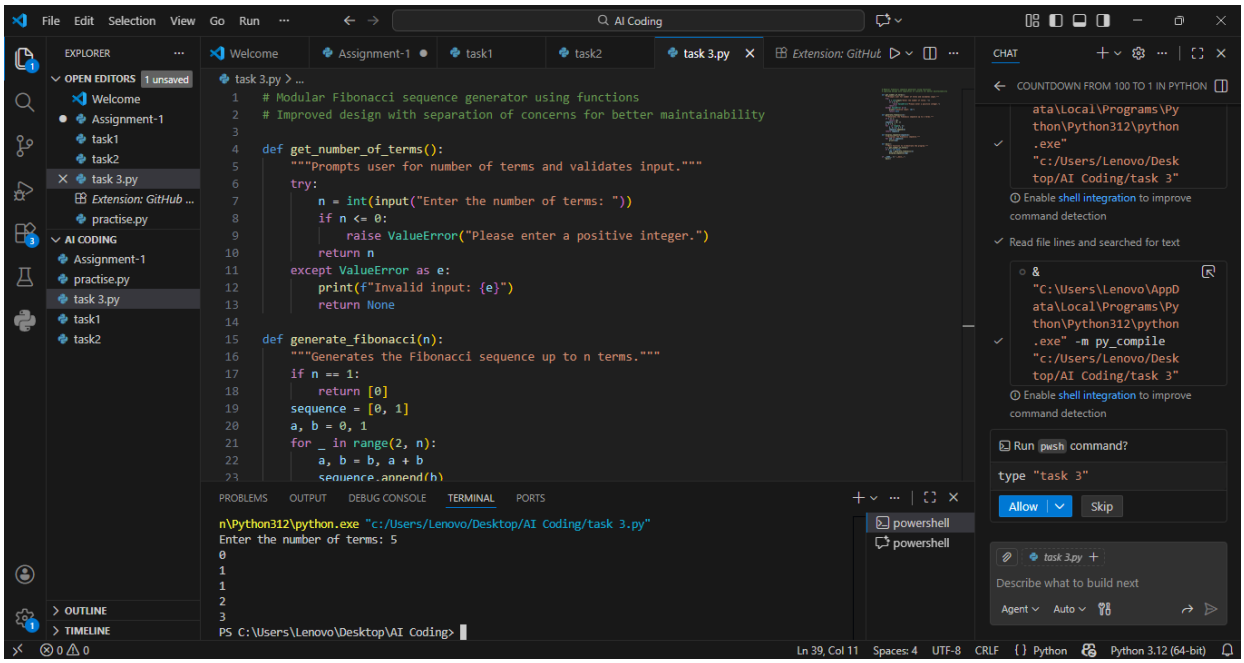
EXPLANATION: Using GitHub Copilot, the original Fibonacci code was improved by:

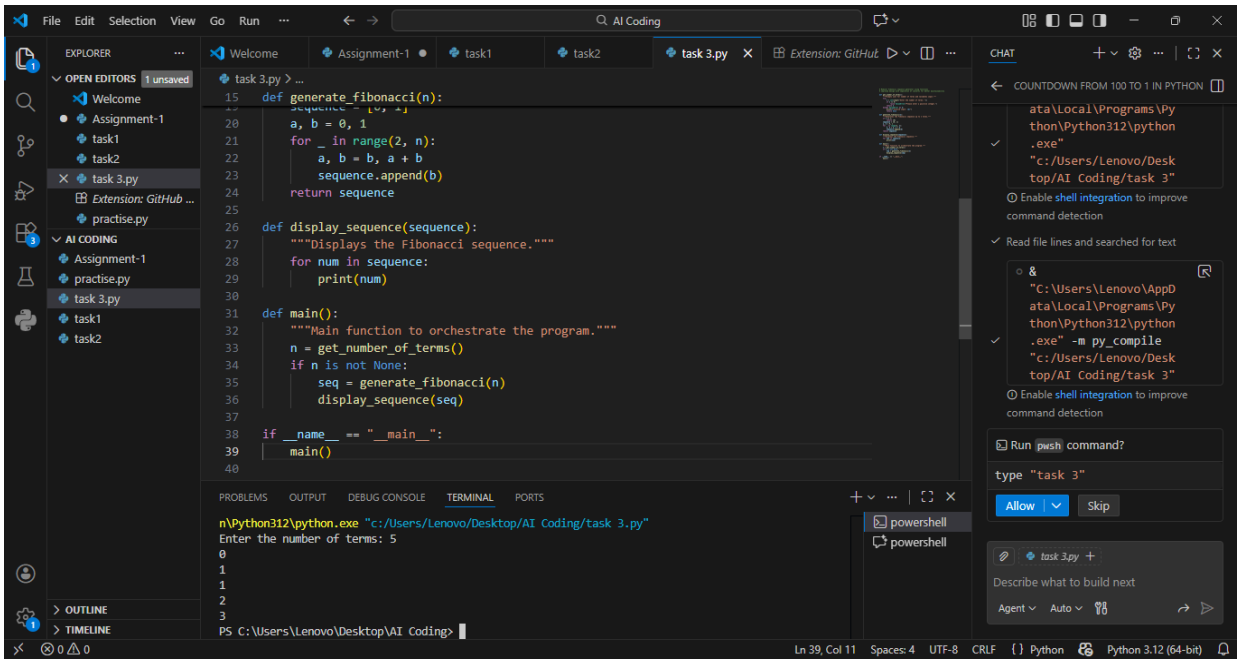
- Removing extra variables
- Simplifying logic
- Making the code more readable

This task shows how **AI can help not only write code but also improve and clean existing code**, which is very useful in real-world development.

TASK:3

PROMPT: Write a Python program that uses a function to print the Fibonacci sequence and asks the user for a number

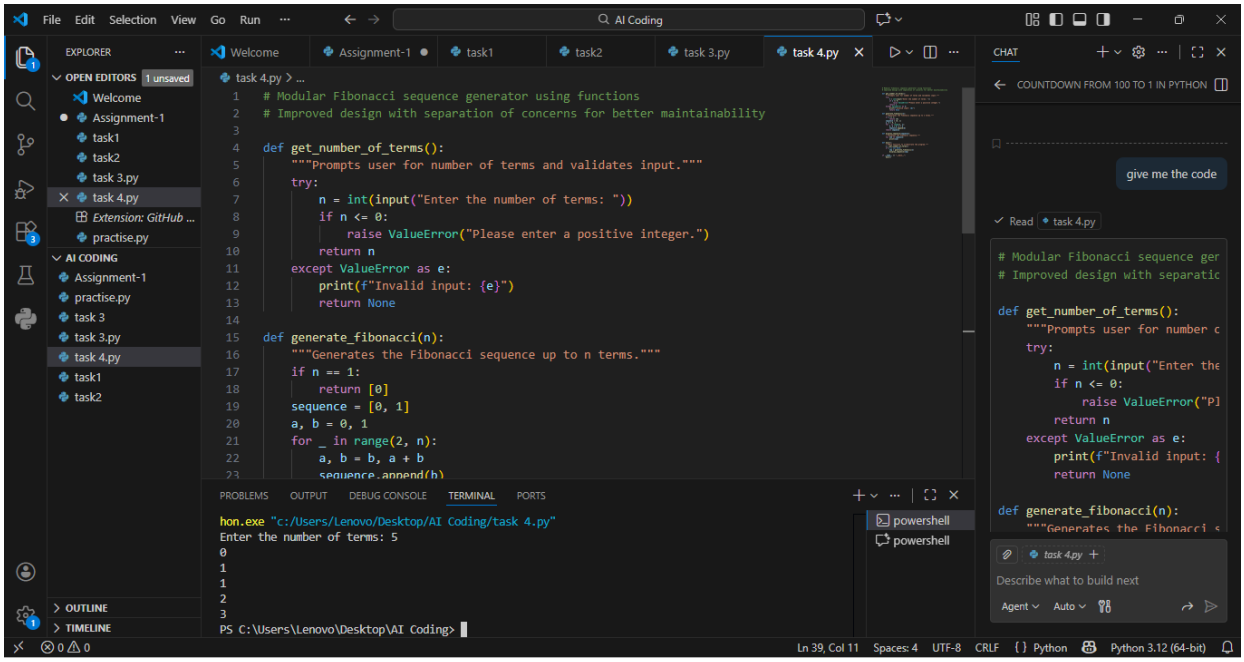


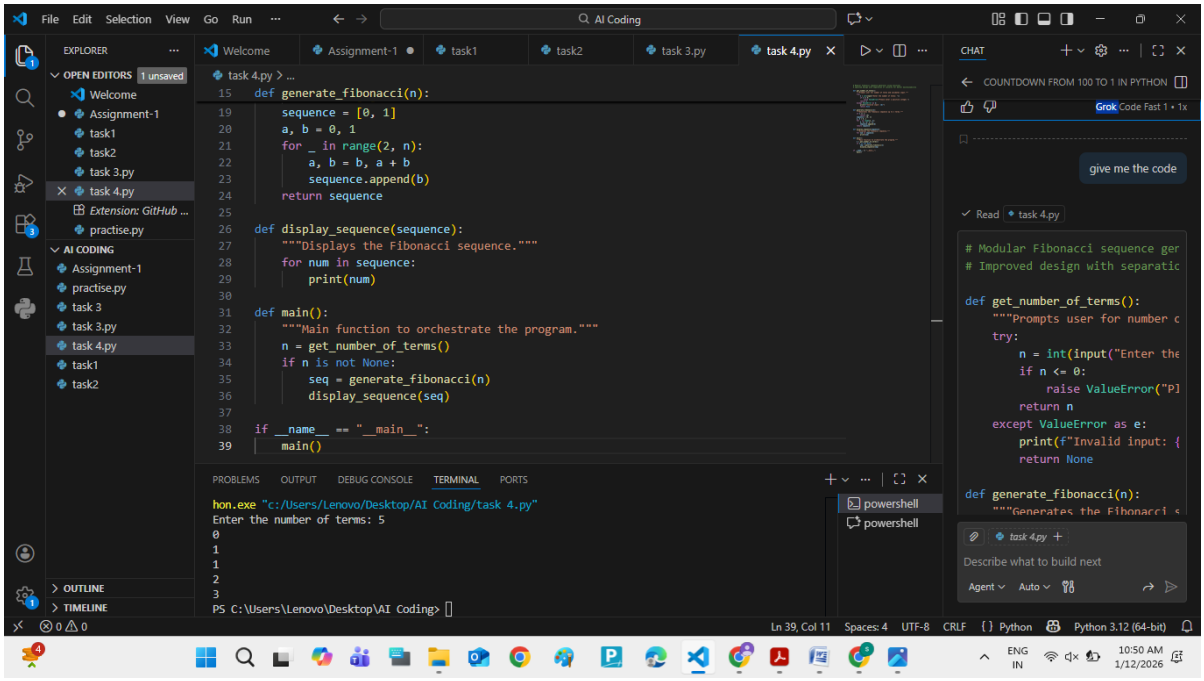


EXPLANATION: Using GitHub Copilot, a function-based Fibonacci program was generated. This task shows how AI helps in writing **modular, reusable, and well-commented code**, which is important for large applications.

TASK:4

PROMPT:Print Fibonacci code with functions and without functions



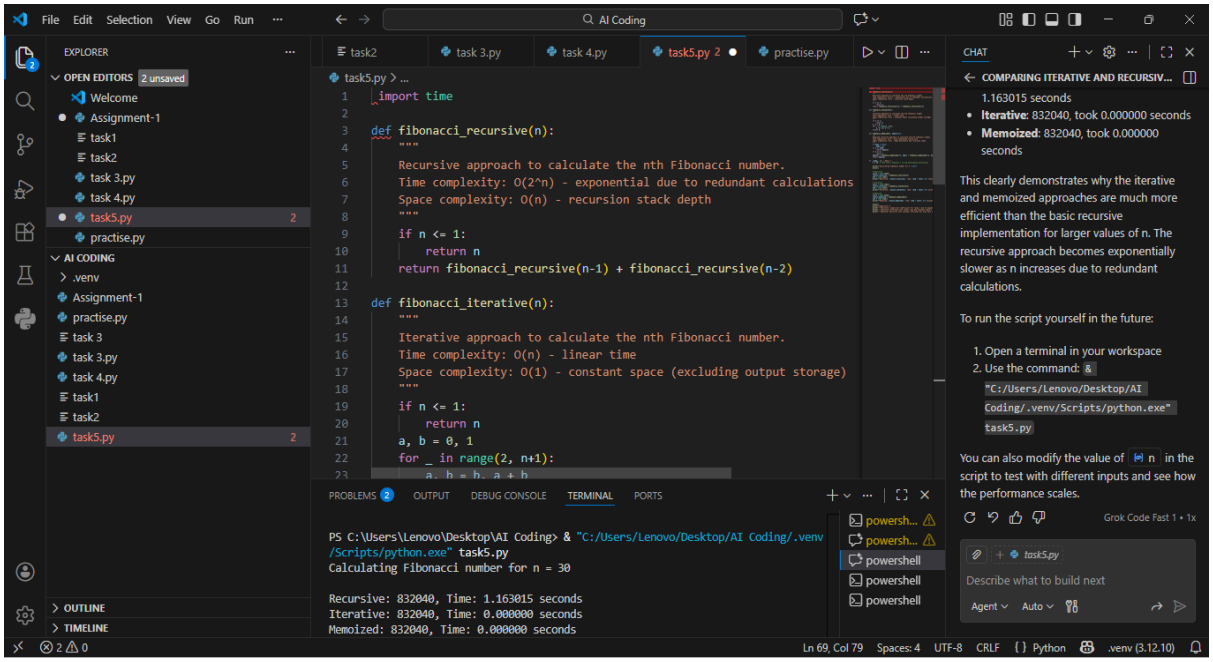


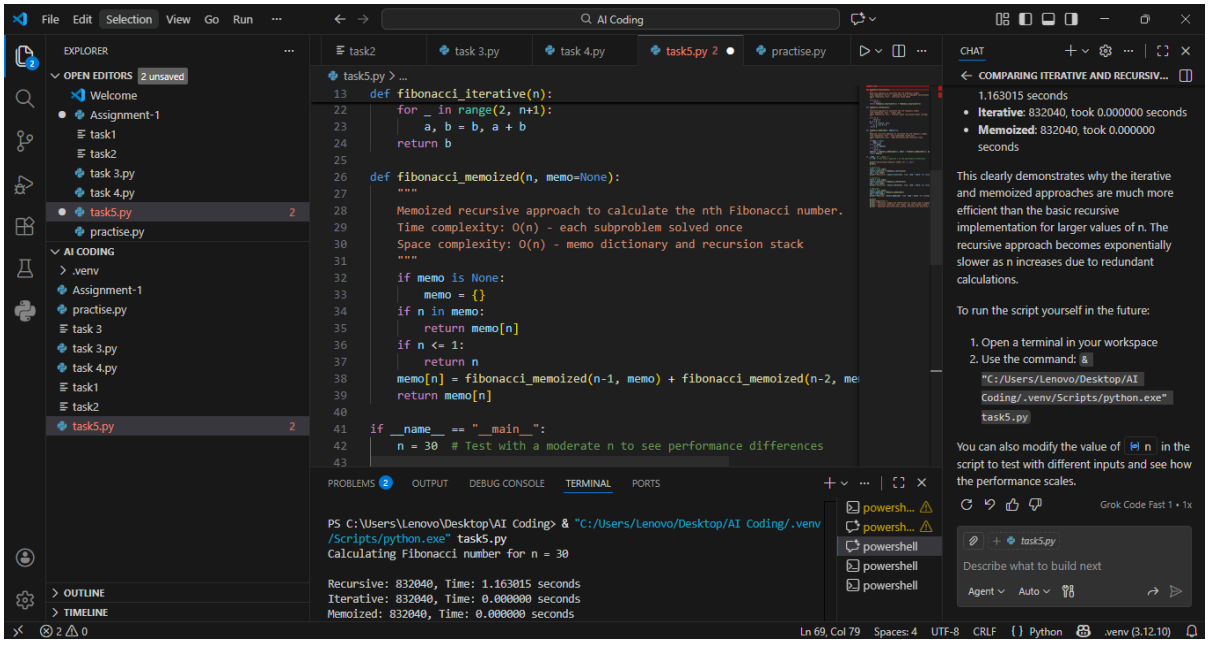
- EXPLANATION: **Procedural Fibonacci code** is good for learning basics and small programs.
- **Modular Fibonacci code** is better for real projects, teamwork, and large systems.
- Using functions improves **readability, reusability, and maintainability**.

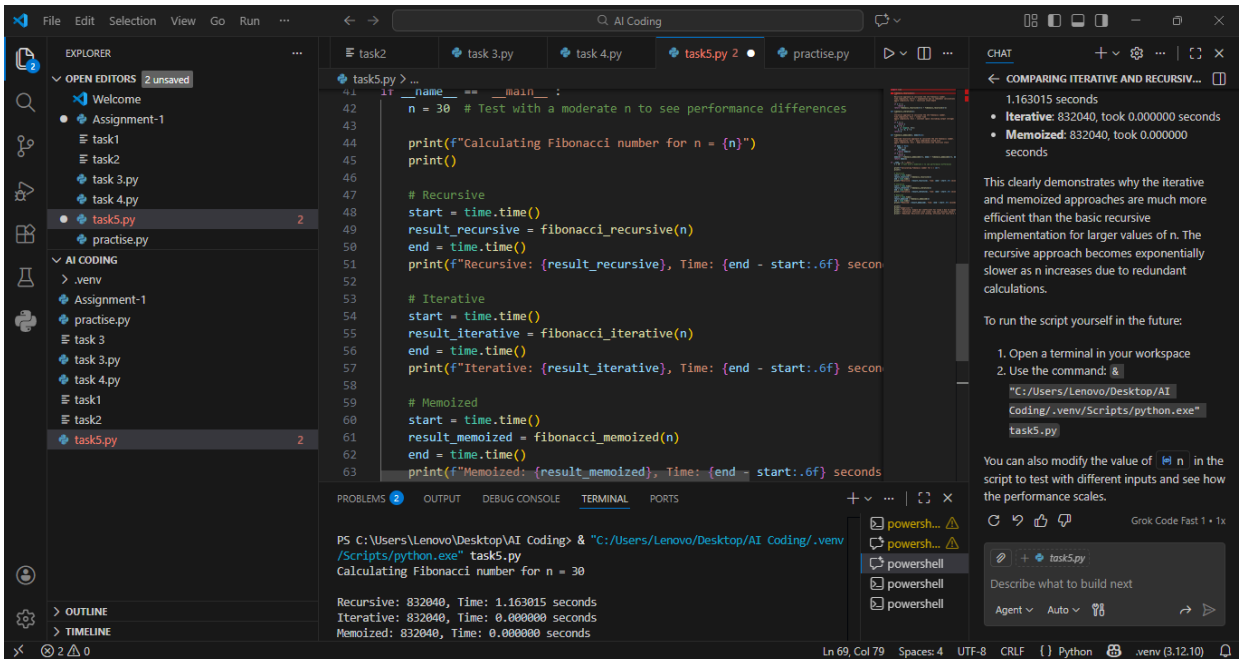
This comparison shows why **modular programming is preferred in professional software development**.

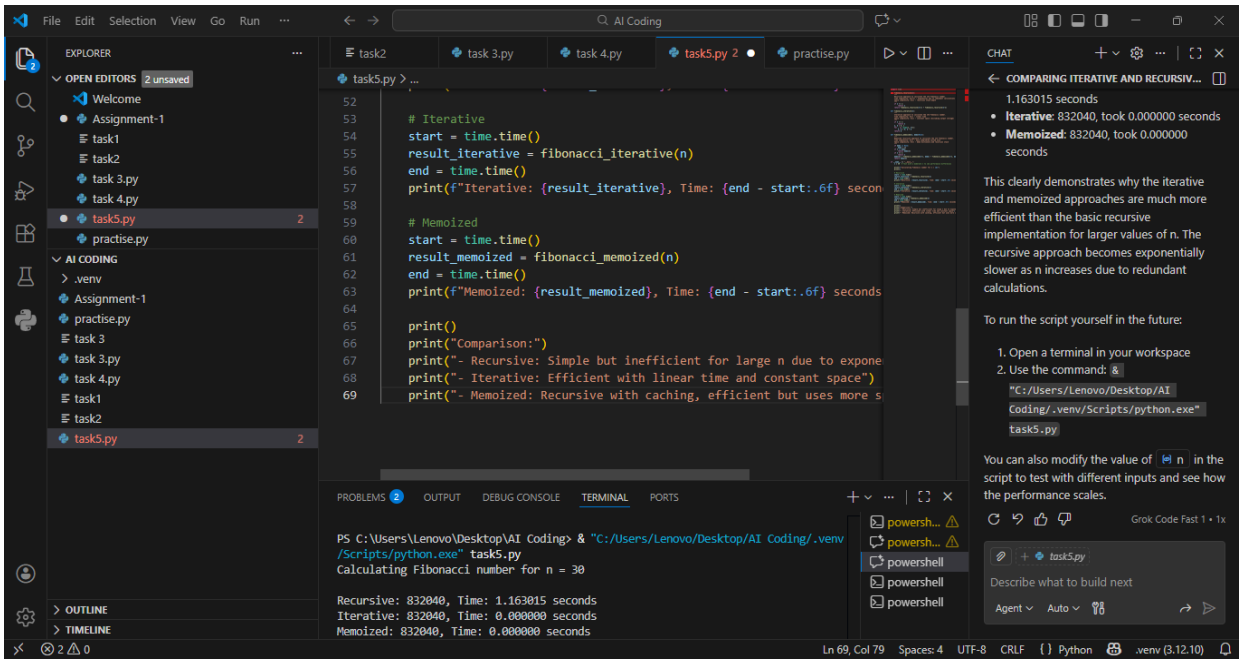
TASK:5

PROMPT: Generate an iterative Fibonacci implementation ,recursive Fibonacci implementation compare their time complexity, performance for large n









EXPLANATION : The iterative Fibonacci approach is efficient, scalable, and suitable for real-world applications. The recursive approach is mainly useful for learning and understanding recursion concepts but is not ideal for performance-critical systems.