AIAC LAB

LAB 3.1

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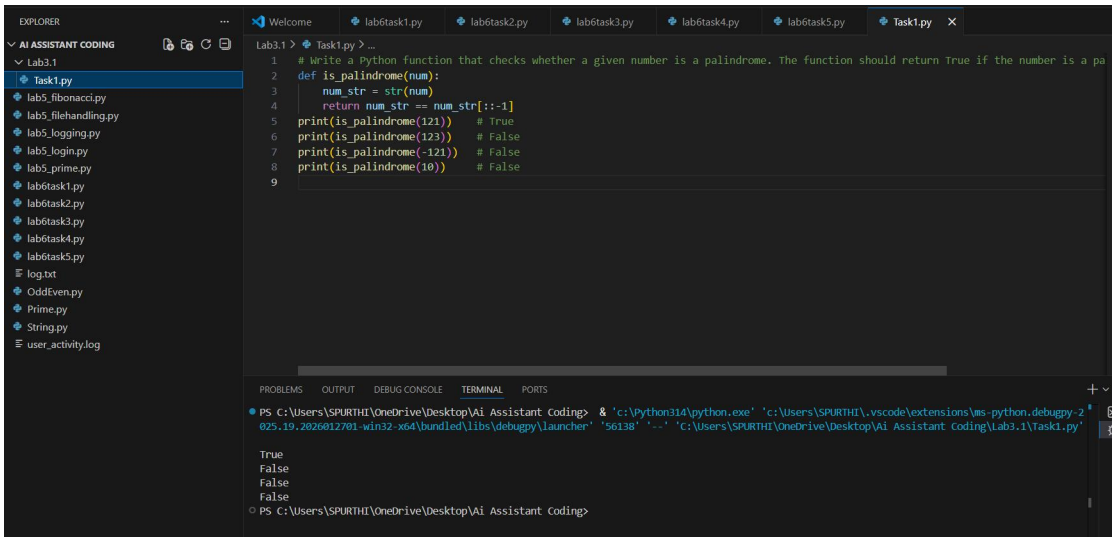
Batch 29

Task 1 Promt: Write a Python function that checks whether a given number is a palindrome. The function should return True if the number is a palindrome and False otherwise.



Observations:

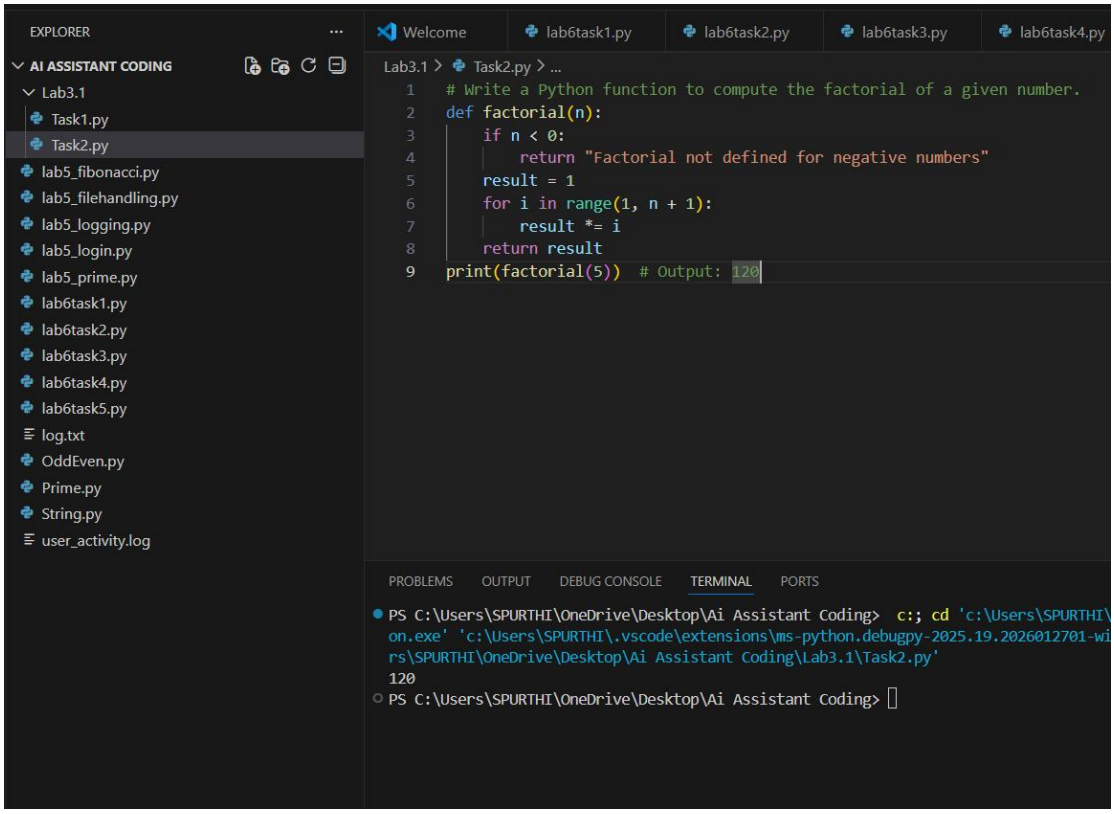
Works correctly for positive numbers.

Negative numbers are not handled explicitly.

No input validation for non-integer values.

Converts number to string (not purely mathematical approach).

TASK 2 Prompt: Write a Python function to compute the factorial of a given number.



Comparison with Zero-Shot:

Zero-Shot version usually:

Might not include negative number check.

Might not include input validation.

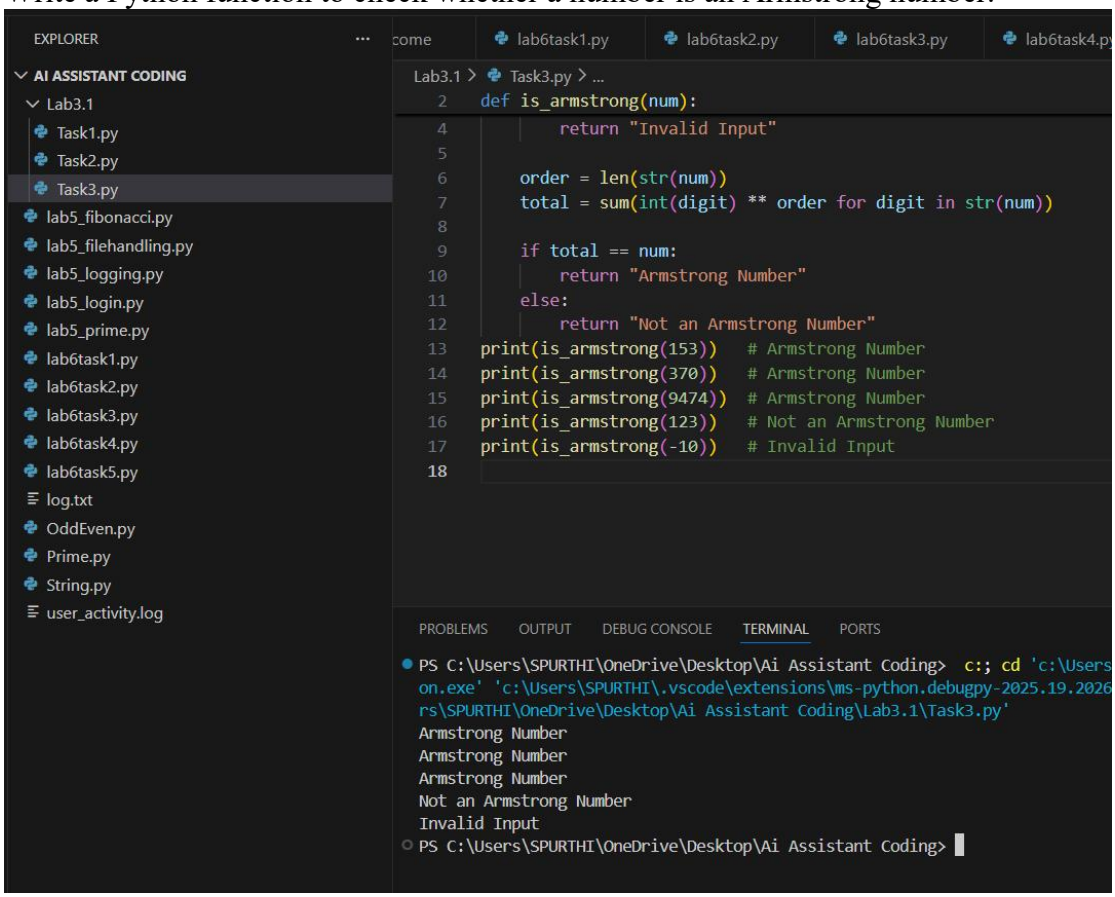
One-Shot improvements:

Includes edge case handling (negative numbers).

Clear loop structure.

More structured output.

TASK 3 Prompt:
Write a Python function to check whether a number is an Armstrong number.



Analysis:

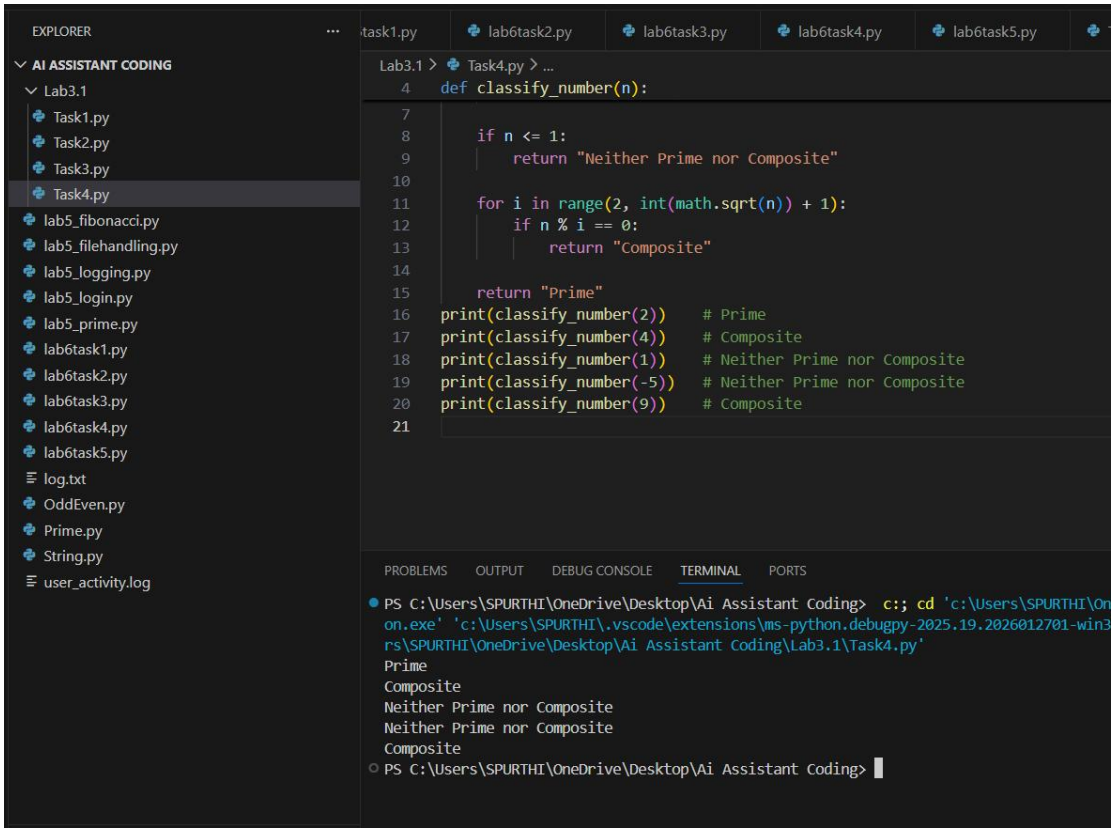
Multiple examples improved output formatting.

Clear return messages.

Handles invalid inputs.

More structured than zero-shot.

Task4 Prompt: Write an optimized Python function to classify a number as prime, composite, or neither.



Comparison:

More optimized (O(√n)).

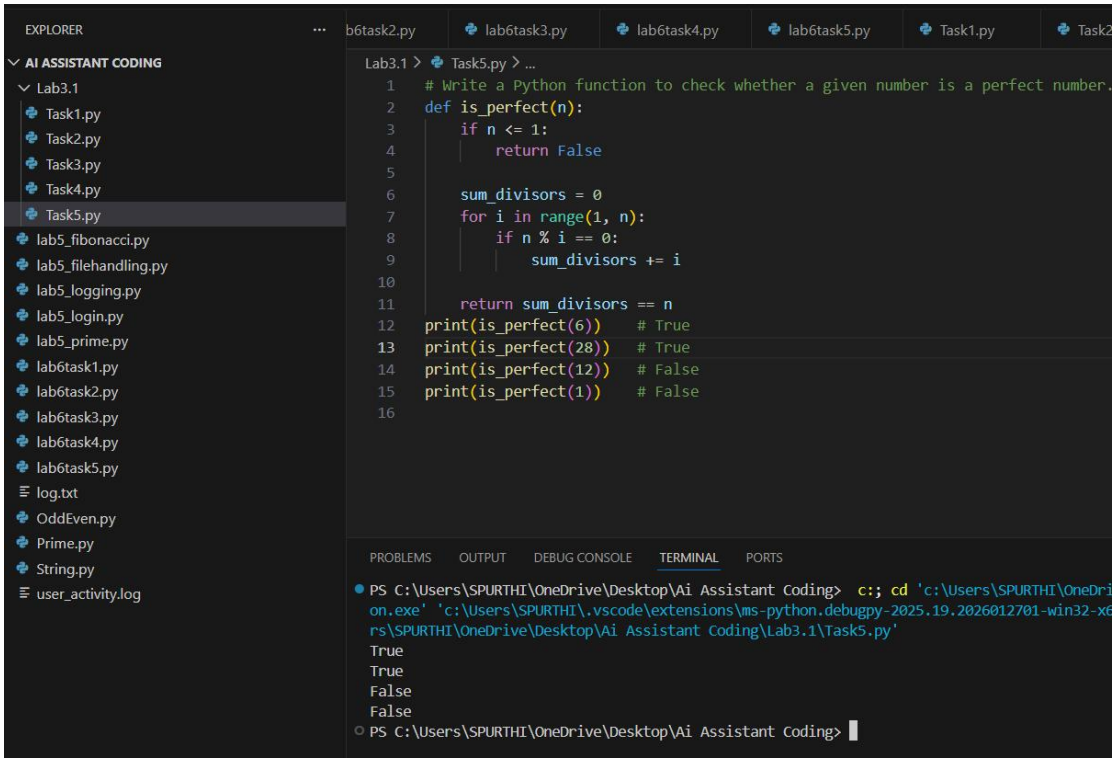
Proper validation.

Clearly structured logic.

Best performance among prompting strategies.

Task 5 Prompt:

Write a Python function to check whether a given number is a perfect number.



Observations:

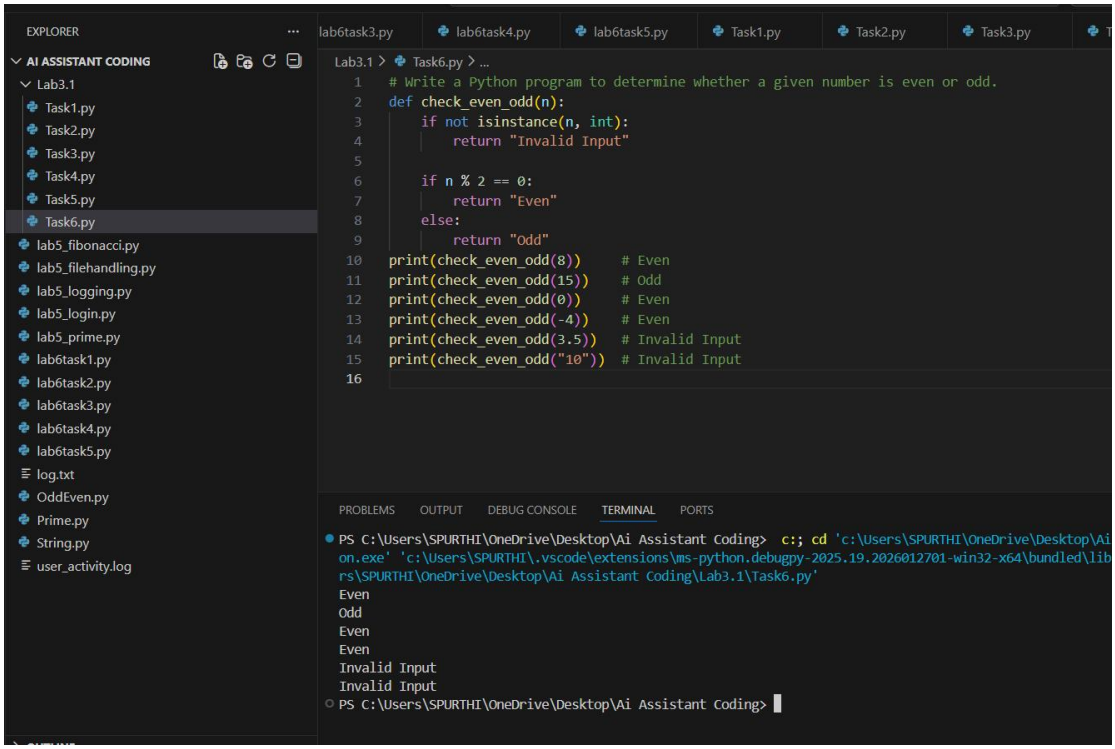
Works correctly.

Not optimized (loops till n-1).

Can be improved using square root method.

Task 6 Prompt: Write a Python program to determine whether a given number is

even or odd.



Analysis:

Examples improved output clarity.

Proper input validation included.

Handles negative numbers correctly.

Better structured than zero-shot.