AI Assisted Coding

Assignment - 03

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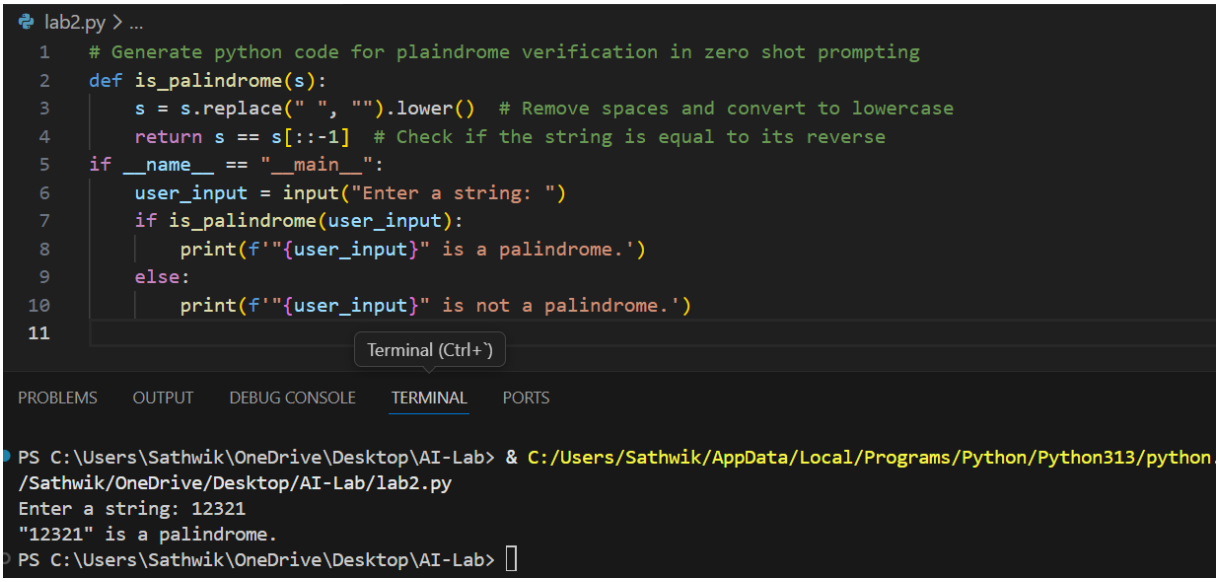
Question 1: Zero-Shot Prompting (Palindrome Number Program) Write a zero-shot prompt (without providing any examples) to generate a Python function that checks whether a given number is a palindrome

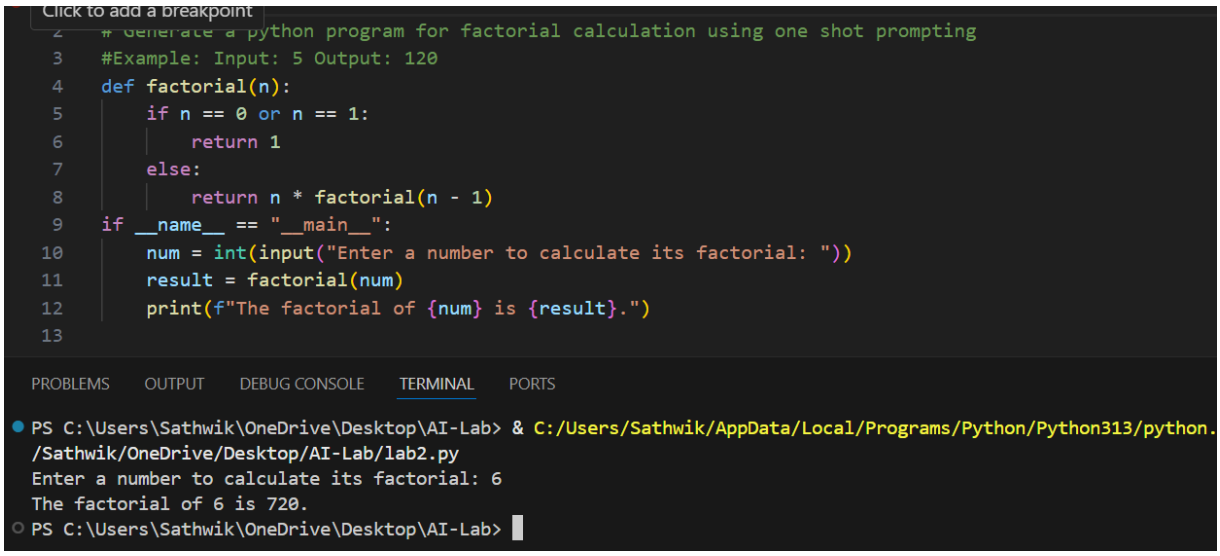
Code:



Question 2: One-Shot Prompting (Factorial Calculation)

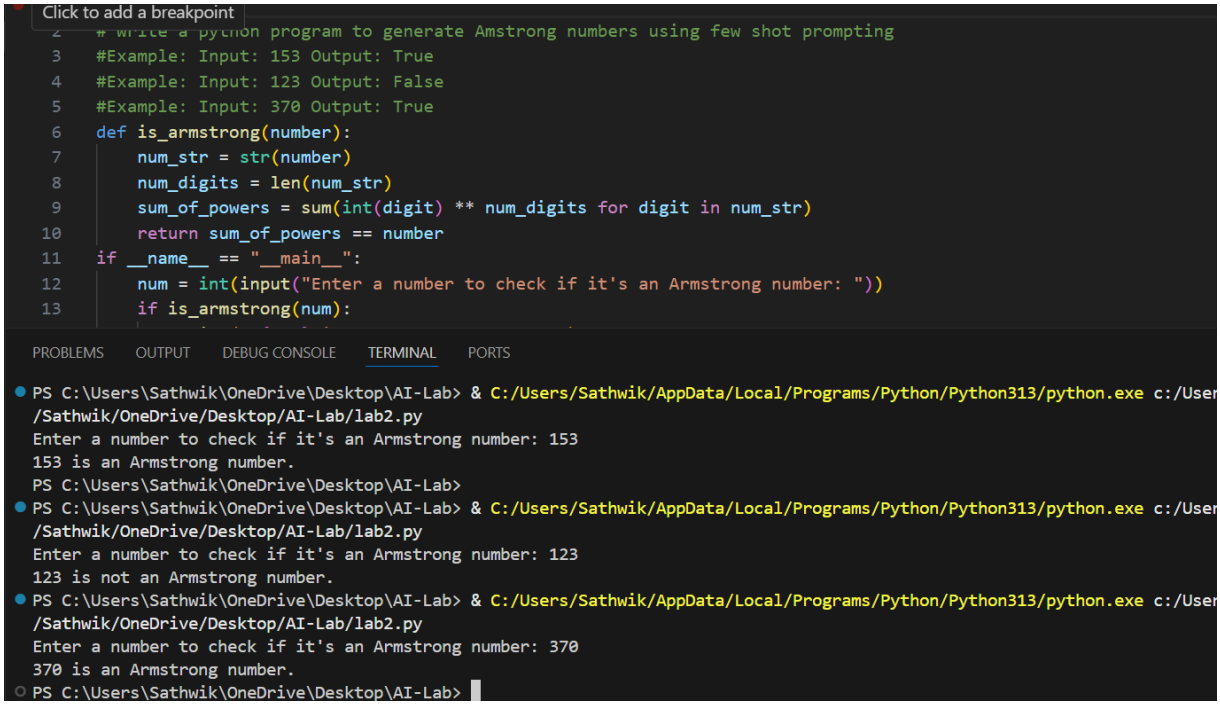
Write a one-shot prompt by providing one input-output example and ask the AI to generate a Python function to compute the factorial of a given number.

Code:



Question 3: Few -Shot Prompting (Armstrong Number Check) Write a few-shot prompt by providing multiple input-output examples to guide the AI in generating a Python function to check whether a given number is an Armstrong number.

Code:



Question 4: Zero-Shot Prompting (Perfect Number Check) Write a zero-shot prompt (without providing any examples) to generate a Python function that checks whether a given number is a perfect number.

Code:

```python
# Generate python Program to check perfect number using zero shot prompting
def is_perfect_number(n):
    sum_of_divisors = sum(i for i in range(1, n) if n % i == 0)
    return sum_of_divisors == n
if __name__ == "__main__":
    number = int(input("Enter a number to check if it's a perfect number: "))
    if is_perfect_number(number):
        print(f"{number} is a perfect number.")
    else:
        print(f"{number} is not a perfect number.")
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS C:\Users\Sathwik\OneDrive\Desktop\AI-Lab> & C:/Users/Sathwik/AppData/Local/Programs/Python/Pyth
/Sathwik/OneDrive/Desktop/AI-Lab/lab2.py
Enter a number to check if it's a perfect number: 12
12 is not a perfect number.
PS C:\Users\Sathwik\OneDrive\Desktop\AI-Lab> & C:/Users/Sathwik/AppData/Local/Programs/Python/Pyth
/Sathwik/OneDrive/Desktop/AI-Lab/lab2.py
Enter a number to check if it's a perfect number: 6
6 is a perfect number.
PS C:\Users\Sathwik\OneDrive\Desktop\AI-Lab>
```

Question 5: Few-Shot Prompting (Even or Odd Classification with Validation)

Write a few-shot prompt by providing multiple input-output examples to guide the AI in generating a Python program that determines whether a given number is even or odd, including proper input validation.

Code:

```python
# Generate python program to check Even or Odd classification with Validation using few shot prompting
#Example: Input: 4 Output: Even
#Example: Input: 7 Output: Odd
#Example: Input: -2 Output: Even
def check_even_odd(num):
    if not isinstance(num, int):
        return "Invalid input. Please enter an integer."
    return "Even" if num % 2 == 0 else "Odd"
if __name__ == "__main__":
    try:
        user_input = int(input("Enter an integer to check if it's Even or Odd: "))
        result = check_even_odd(user_input)
        print(f"{user_input} is {result}.")
    except ValueError:
        print("Invalid input. Please enter a valid integer.")

```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\Sathwik\OneDrive\Desktop\AI-Lab> & C:/Users/Sathwik/AppData/Local/Programs/Python/Python313/python.exe c:/Users
/Sathwik/OneDrive/Desktop/AI-Lab/lab2.py
Enter an integer to check if it's Even or Odd: 12
12 is Even.
PS C:\Users\Sathwik\OneDrive\Desktop\AI-Lab> & C:/Users/Sathwik/AppData/Local/Programs/Python/Python313/python.exe c:/Users
/Sathwik/OneDrive/Desktop/AI-Lab/lab2.py
Enter an integer to check if it's Even or Odd: 77
77 is Odd.
PS C:\Users\Sathwik\OneDrive\Desktop\AI-Lab> & C:/Users/Sathwik/AppData/Local/Programs/Python/Python313/python.exe c:/Users
/Sathwik/OneDrive/Desktop/AI-Lab/lab2.py
Enter an integer to check if it's Even or Odd: -55
-55 is Odd.
PS C:\Users\Sathwik\OneDrive\Desktop\AI-Lab>
```