AI ASSISTED CODING ASSIGNMENT – 3.5

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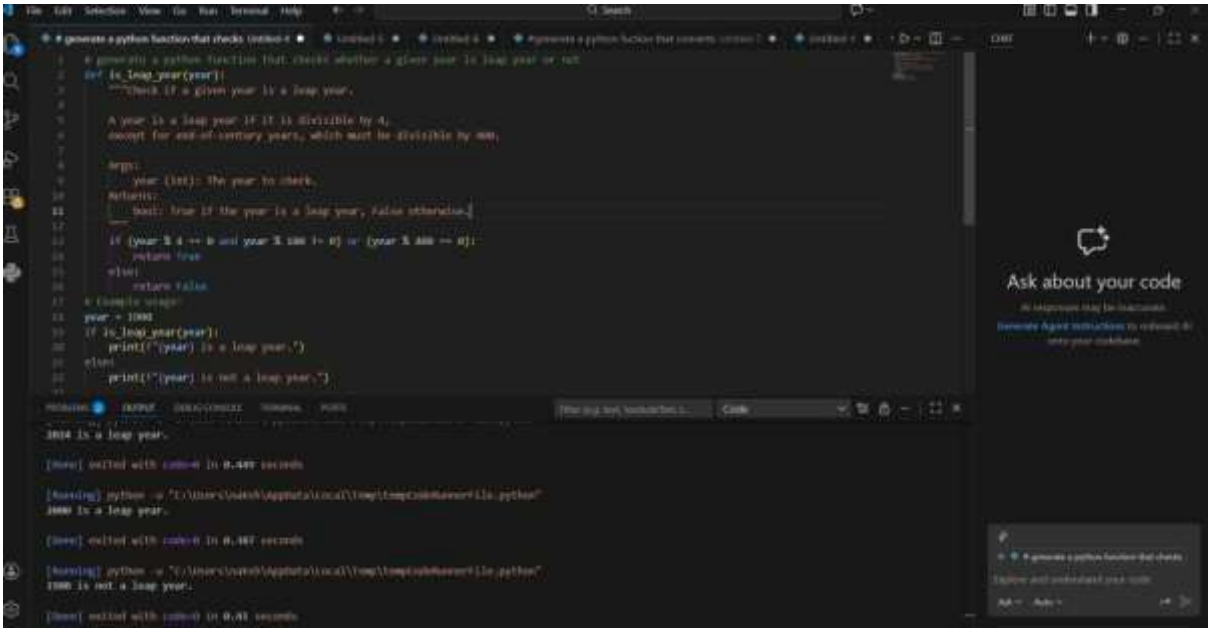
BATCH-04

Question 1: Zero-Shot Prompting (Leap Year Check)

Write a zero-shot prompt to generate a Python function that checks whether a given year is a leap year.

Week2 - Task:

- **Record the AI-generated code.**
- **Test with years like 1900, 2000, 2024.**
- **Identify logical flaws or missing conditions.**

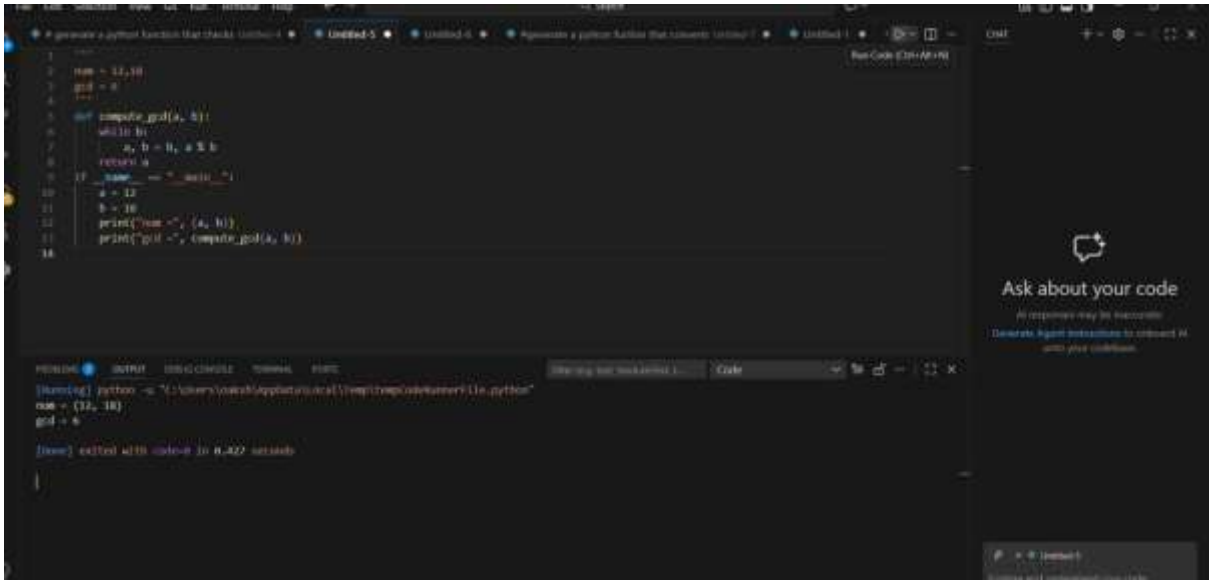


Question 2: One-Shot Prompting (GCD of Two Numbers) Write a one-shot prompt with one example to generate a Python function that finds the Greatest Common Divisor (GCD) of two numbers.

Example:

Input: 12, 18 → Output: 6 Task:

- **Compare with a zero-shot solution.**
- **Analyze algorithm efficiency**.

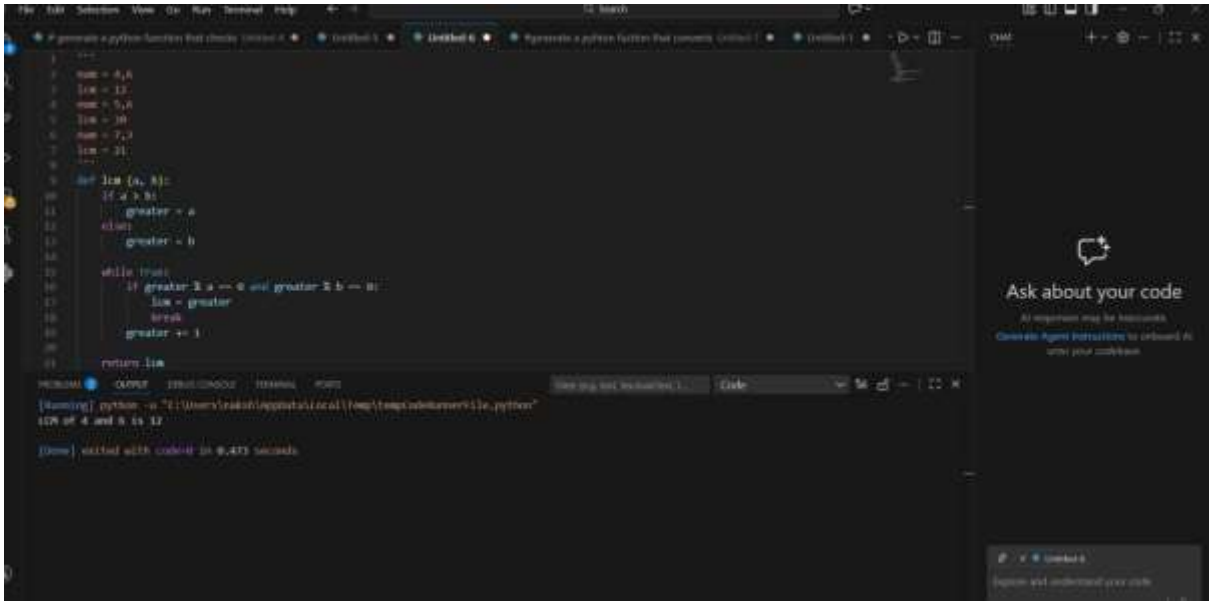


Question 3: Few-Shot Prompting (LCM Calculation)

Write a few-shot prompt with multiple examples to generate a Python function that computes the Least Common Multiple (LCM).

Examples:

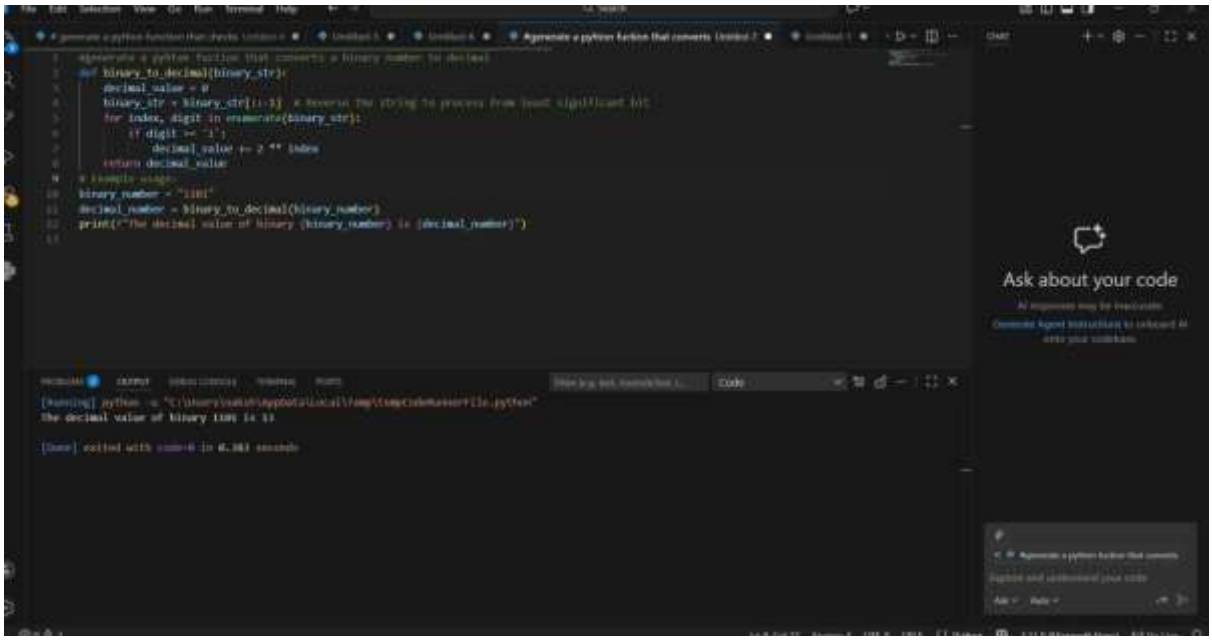
- **Input: 4, 6 → Output: 12**
- **Input: 5, 10 → Output: 10**
- **Input: 7, 3 → Output: 21 Task:**
- **Examine how examples guide formula selection.**
- **Test edge cases.**



Question 4: Zero-Shot Prompting (Binary to Decimal Conversion) Write a zero-shot prompt to generate a Python function that converts a binary number to decimal.

Task:

- **Test with valid and invalid binary inputs.**
- **Identify missing validation logic.**



Question 5: One-Shot Prompting (Decimal to Binary Conversion)

Write a one-shot prompt with an example to generate a Python function that converts a decimal number to binary.

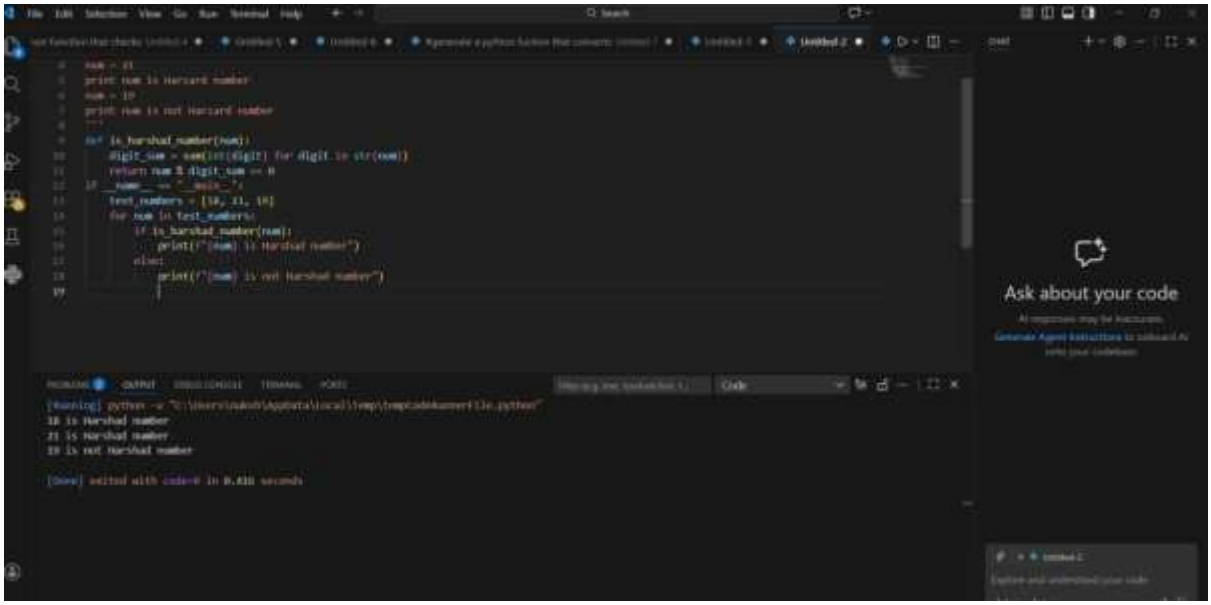
Example:

Input: 10 → Output: 1010 Task:

- **Compare clarity with zero-shot output.**
- **Analyze handling of zero and negative numbers.**

Question 6: Few-Shot Prompting (Harshad Number Check) Write a few-shot prompt to generate a Python function that checks whether a number is a Harshad (Niven) number. Examples:

- **Input: 18 → Output: Harshad Number**
- **Input: 21 → Output: Harshad Number • Input: 19 → Output: Not a Harshad Number Task:**
- **Test boundary conditions.**
- **Evaluate robustness**


num = 21
print num is Harsad number
num = 19
print num is not Harsad number
def is_harshad_number(num):
digit_sum = sum(int(digit) for digit in str(num))
return num % digit_sum == 0
if __name__ == "__main__":
test_numbers = [18, 21, 19]
for num in test_numbers:
if is_harshad_number(num):
print(f"{num} is Harshad number")
else:
print(f"{num} is not Harshad number")
18 is Harshad number
21 is Harshad number
19 is not Harshad number
Ask about your code