AI ASSISTED CODING ASSIGNMENT – 3.5

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BATCH-03

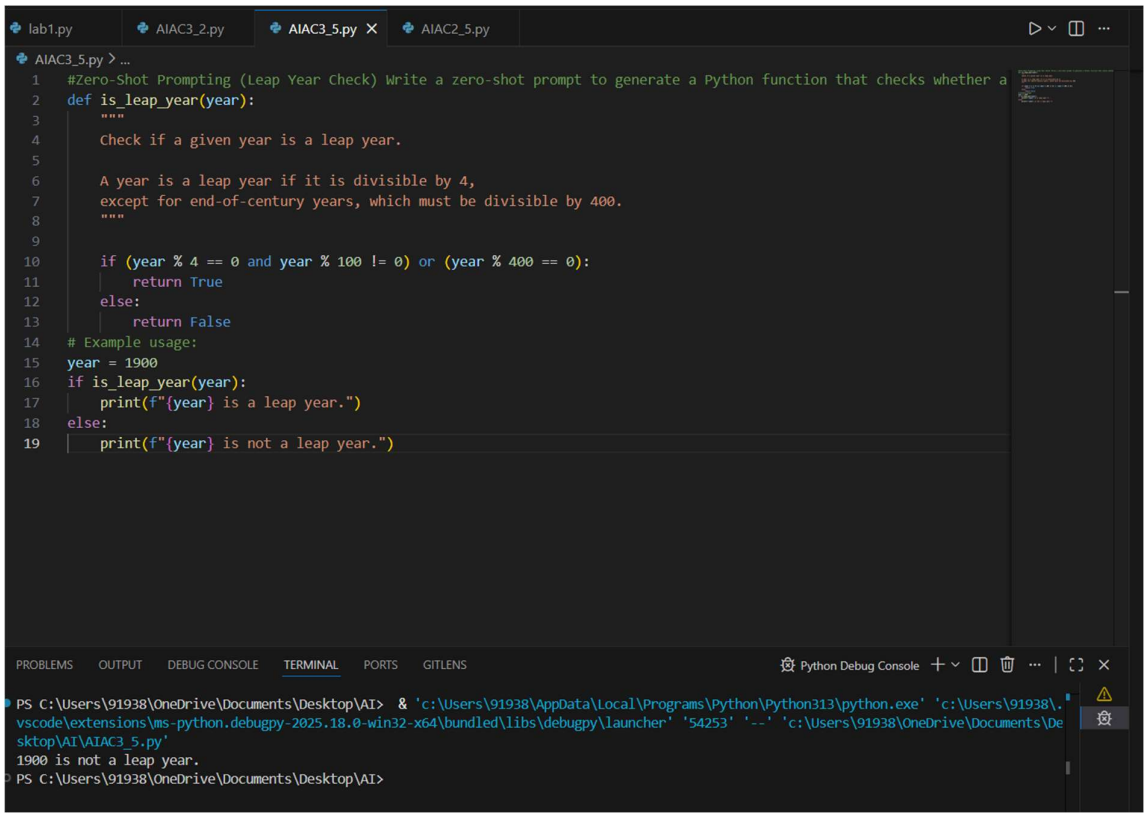
Question 1: Zero-Shot Prompting (Leap Year Check)

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)

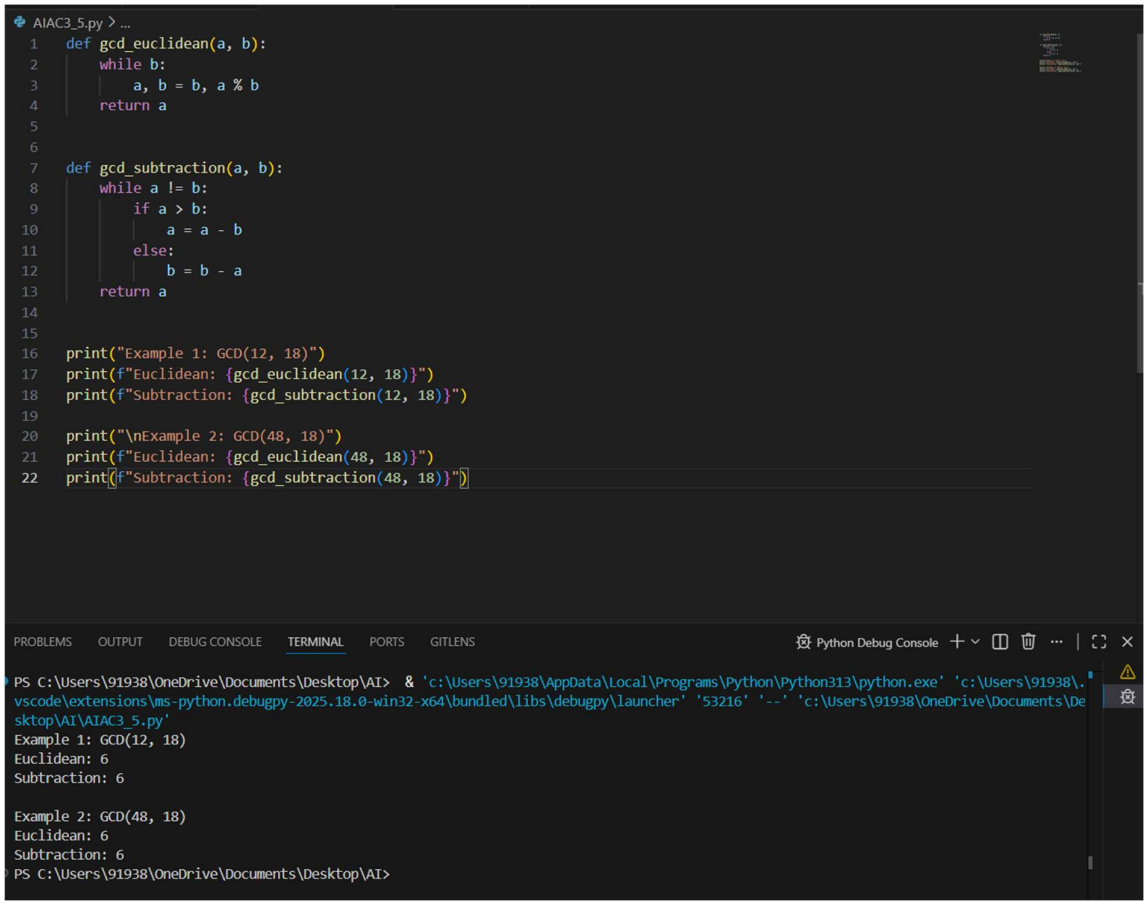
Write a one-shot prompt with one example to generate a Python function that finds the Greatest Common Divisor (GCD) of two numbers.

Example:

Input: 12, 18 → Output: 6

Task:

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



Question 3: Few-Shot Prompting (LCM Calculation)

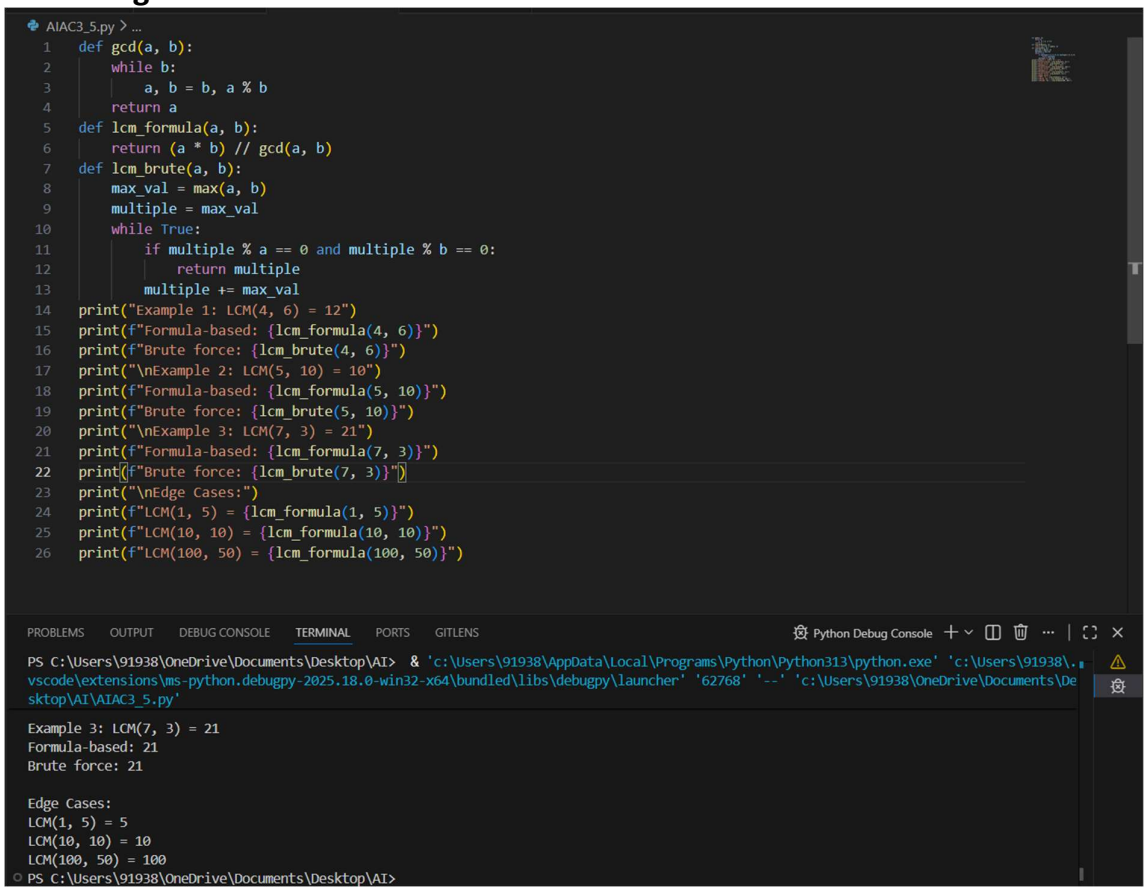
Write a few-shot prompt with multiple examples to generate a Python function that computes the Least Common Multiple (LCM).

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.**

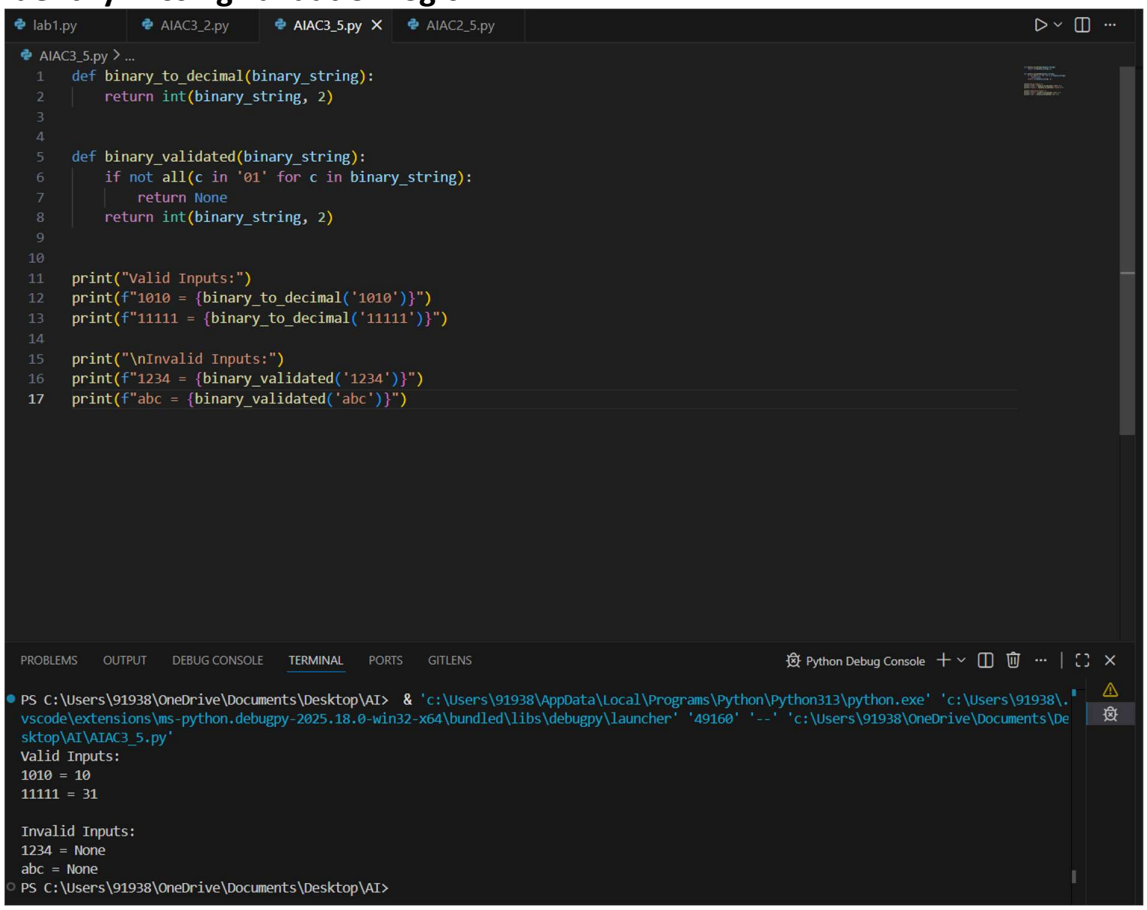


Question 4: Zero-Shot Prompting (Binary to Decimal Conversion)

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)

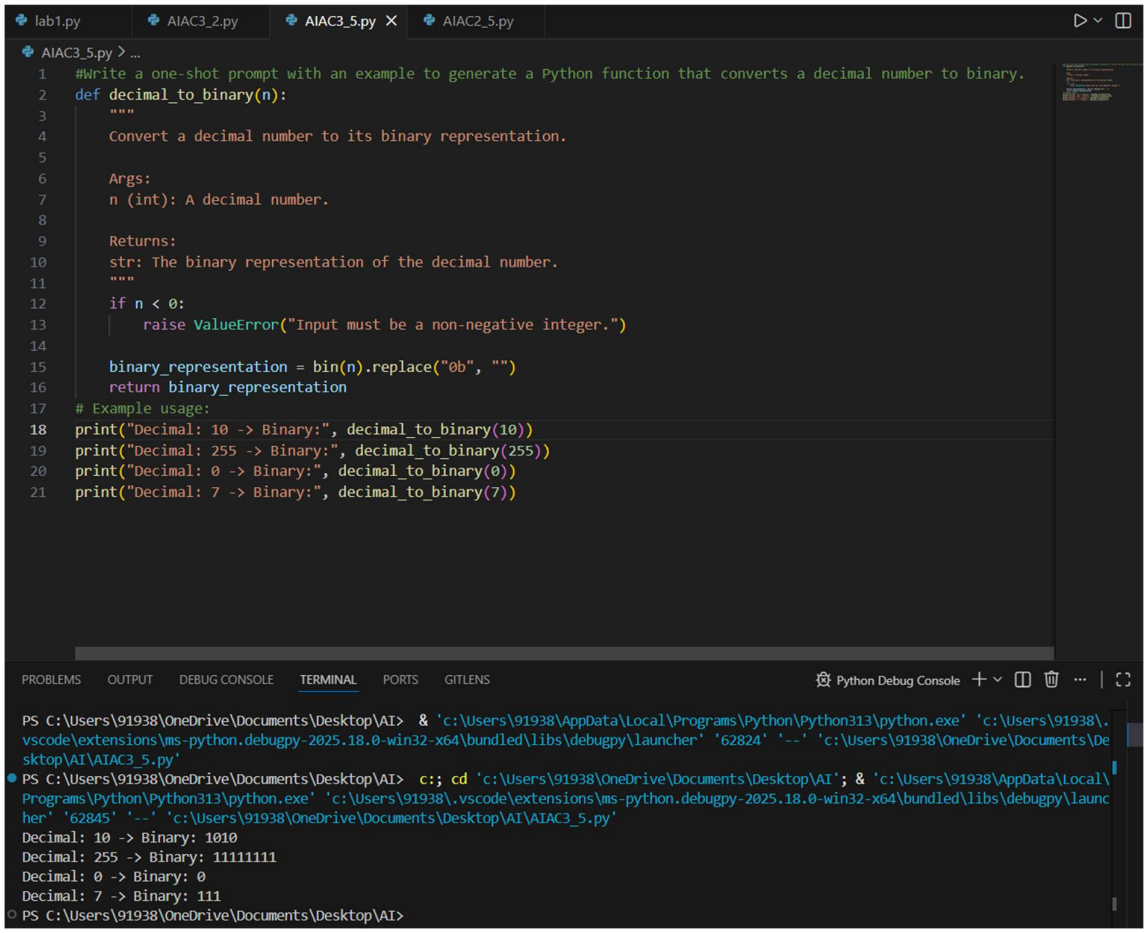
Write a one-shot prompt with an example to generate a Python function that converts a decimal number to binary.

Example:

Input: 10 → Output: 1010

Task:

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


lab1.py
AIAC3_2.py
AIAC3_5.py
AIAC2_5.py
AIAC3_5.py > ...
#Write a one-shot prompt with an example to generate a Python function that converts a decimal number to binary.
def decimal_to_binary(n):
"""
Convert a decimal number to its binary representation.
Args:
n (int): A decimal number.
Returns:
str: The binary representation of the decimal number.
"""
if n < 0:
raise ValueError("Input must be a non-negative integer.")
binary_representation = bin(n).replace("0b", "")
return binary_representation
# Example usage:
print("Decimal: 10 -> Binary:", decimal_to_binary(10))
print("Decimal: 255 -> Binary:", decimal_to_binary(255))
print("Decimal: 0 -> Binary:", decimal_to_binary(0))
print("Decimal: 7 -> Binary:", decimal_to_binary(7))
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
GITLENS
Python Debug Console
PS C:\Users\91938\OneDrive\Documents\Desktop\AI> & 'c:\Users\91938\AppData\Local\Programs\Python\Python313\python.exe' 'c:\Users\91938\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '62824' '--' 'c:\Users\91938\OneDrive\Documents\Desktop\AI\AIAC3_5.py'
PS C:\Users\91938\OneDrive\Documents\Desktop\AI> c:; cd 'c:\Users\91938\OneDrive\Documents\Desktop\AI'; & 'c:\Users\91938\AppData\Local\Programs\Python\Python313\python.exe' 'c:\Users\91938\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '62845' '--' 'c:\Users\91938\OneDrive\Documents\Desktop\AI\AIAC3_5.py'
Decimal: 10 -> Binary: 1010
Decimal: 255 -> Binary: 11111111
Decimal: 0 -> Binary: 0
Decimal: 7 -> Binary: 111
PS C:\Users\91938\OneDrive\Documents\Desktop\AI>

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**