AI Assisted Coding

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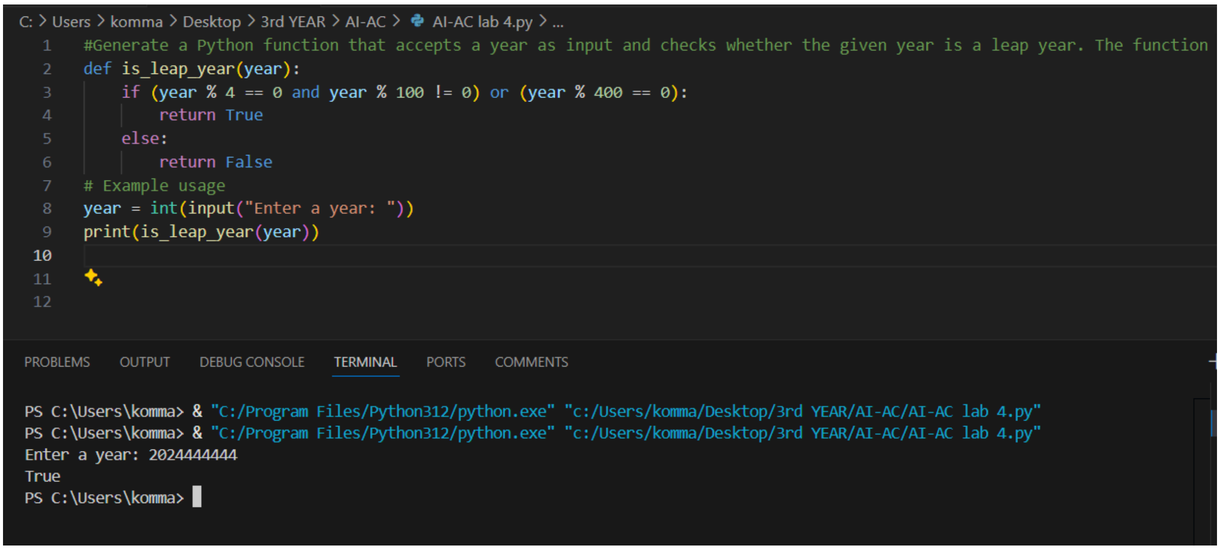
Task 1: Zero-Shot Prompting – Leap Year Check

Scenario

Zero-shot prompting involves giving instructions without providing examples.

Code:


C: > Users > komma > Desktop > 3rd YEAR > AI-AC > AI-AC lab 4.py > ...
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
COMMENTS

```python
#Generate a Python function that accepts a year as input and checks whether the given year is a leap year. The function
def is_leap_year(year):
    if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
        return True
    else:
        return False
# Example usage
year = int(input("Enter a year: "))
print(is_leap_year(year))
```

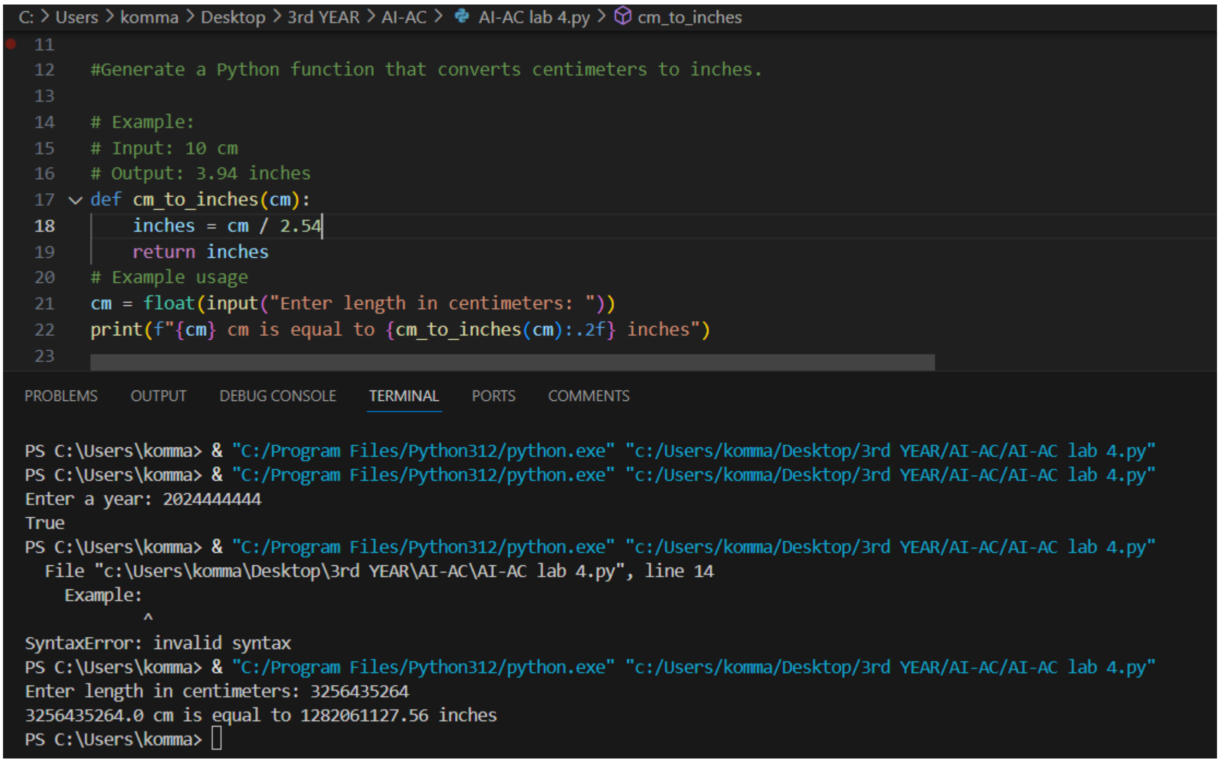
```
PS C:\Users\komma> & "C:/Program Files/Python312/python.exe" "c:/Users/komma/Desktop/3rd YEAR/AI-AC/AI-AC lab 4.py"
PS C:\Users\komma> & "C:/Program Files/Python312/python.exe" "c:/Users/komma/Desktop/3rd YEAR/AI-AC/AI-AC lab 4.py"
Enter a year: 2024444444
True
PS C:\Users\komma> 
```

Task 2: One-Shot Prompting – Centimeters to Inches Conversion

Scenario

One-shot prompting guides AI using a single example.

Code:


C: > Users > komma > Desktop > 3rd YEAR > AI-AC > AI-AC lab 4.py > cm_to_inches
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
COMMENTS

```python

#Generate a Python function that converts centimeters to inches.

# Example:
# Input: 10 cm
# Output: 3.94 inches
def cm_to_inches(cm):
    inches = cm / 2.54
    return inches
# Example usage
cm = float(input("Enter length in centimeters: "))
print(f"{cm} cm is equal to {cm_to_inches(cm):.2f} inches")

```

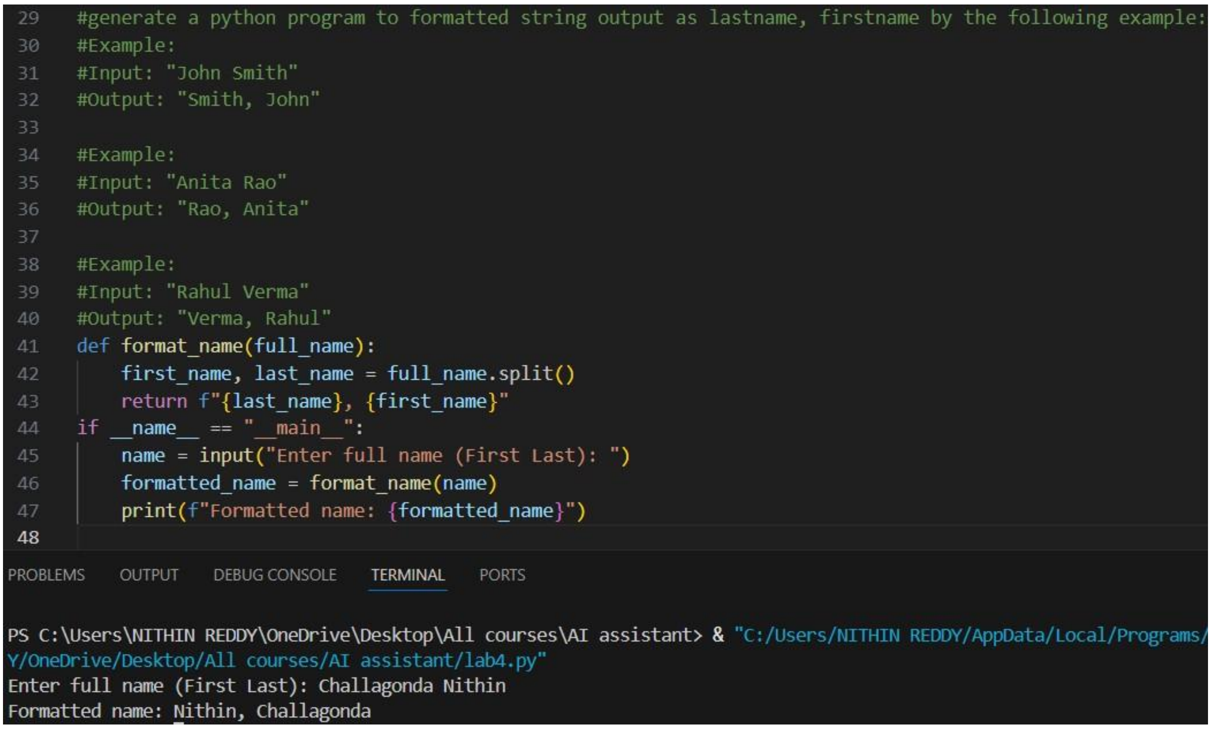
```
PS C:\Users\komma> & "C:/Program Files/Python312/python.exe" "c:/Users/komma/Desktop/3rd YEAR/AI-AC/AI-AC lab 4.py"
PS C:\Users\komma> & "C:/Program Files/Python312/python.exe" "c:/Users/komma/Desktop/3rd YEAR/AI-AC/AI-AC lab 4.py"
Enter a year: 2024444444
True
PS C:\Users\komma> & "C:/Program Files/Python312/python.exe" "c:/Users/komma/Desktop/3rd YEAR/AI-AC/AI-AC lab 4.py"
  File "c:\Users\komma\Desktop\3rd YEAR\AI-AC\AI-AC lab 4.py", line 14
    Example:
            ^
SyntaxError: invalid syntax
PS C:\Users\komma> & "C:/Program Files/Python312/python.exe" "c:/Users/komma/Desktop/3rd YEAR/AI-AC/AI-AC lab 4.py"
Enter length in centimeters: 3256435264
3256435264.0 cm is equal to 1282061127.56 inches
PS C:\Users\komma> 
```

Task 3: Few-Shot Prompting – Name Formatting

Scenario

Few-shot prompting improves accuracy by providing multiple examples.

Code:



```python
#generate a python program to formatted string output as lastname, firstname by the following example:
#Example:
#Input: "John Smith"
#Output: "Smith, John"

#Example:
#Input: "Anita Rao"
#Output: "Rao, Anita"

#Example:
#Input: "Rahul Verma"
#Output: "Verma, Rahul"
def format_name(full_name):
    first_name, last_name = full_name.split()
    return f"{last_name}, {first_name}"
if __name__ == "__main__":
    name = input("Enter full name (First Last): ")
    formatted_name = format_name(name)
    print(f"Formatted name: {formatted_name}")
```

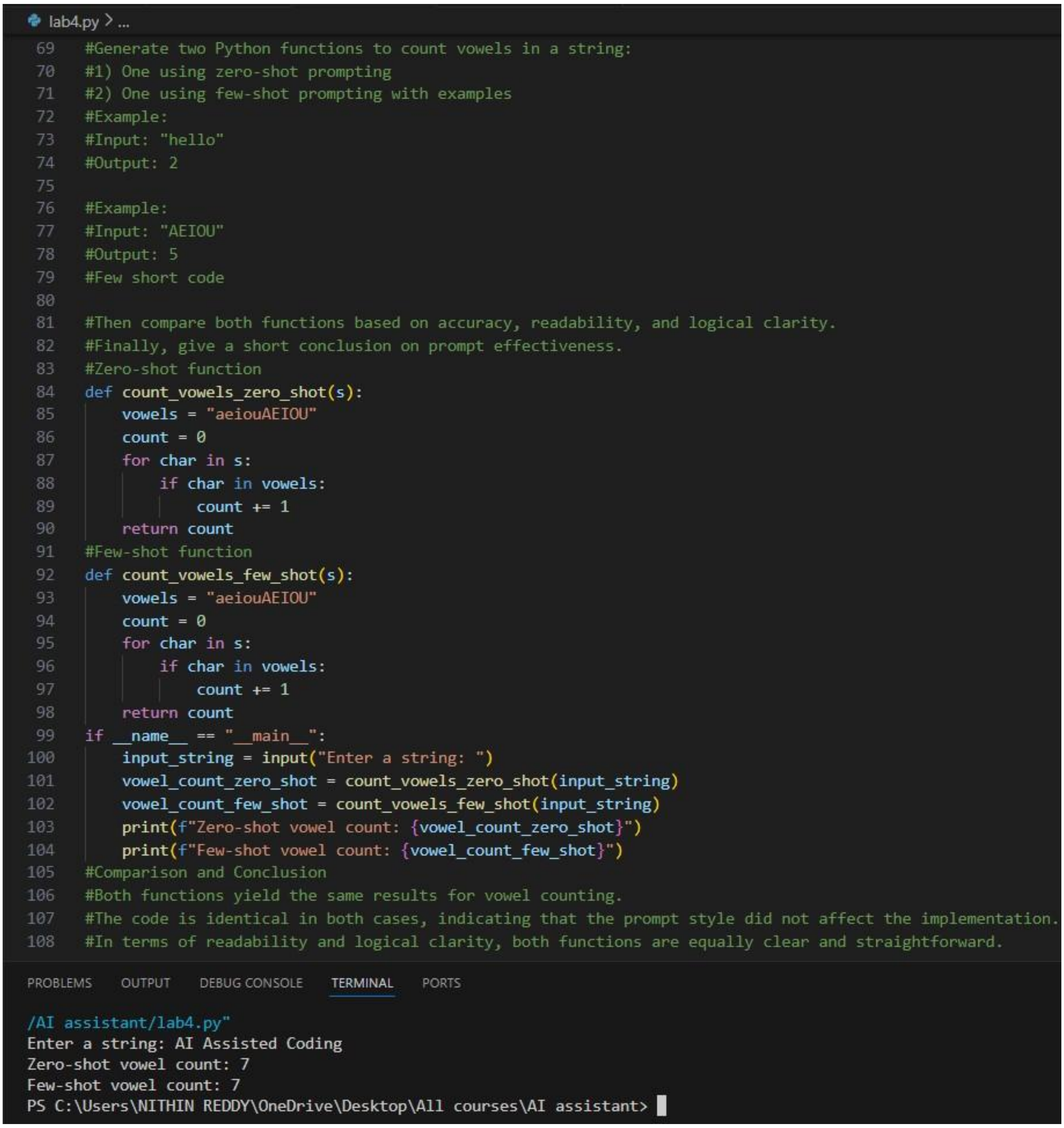
```
PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/AppData/Local/Programs/
Y/OneDrive/Desktop/All courses/AI assistant/lab4.py"
Enter full name (First Last): Challagonda Nithin
Formatted name: Nithin, Challagonda
```

Task 4: Comparative Analysis – Zero-Shot vs Few-Shot

Scenario

Different prompt strategies may produce different code quality.

Code:



```python
#Generate two Python functions to count vowels in a string:
#1) One using zero-shot prompting
#2) One using few-shot prompting with examples
#Example:
#Input: "hello"
#Output: 2

#Example:
#Input: "AEIOU"
#Output: 5
#Few short code

#Then compare both functions based on accuracy, readability, and logical clarity.
#Finally, give a short conclusion on prompt effectiveness.
#Zero-shot function
def count_vowels_zero_shot(s):
    vowels = "aeiouAEIOU"
    count = 0
    for char in s:
        if char in vowels:
            count += 1
    return count
#Few-shot function
def count_vowels_few_shot(s):
    vowels = "aeiouAEIOU"
    count = 0
    for char in s:
        if char in vowels:
            count += 1
    return count
if __name__ == "__main__":
    input_string = input("Enter a string: ")
    vowel_count_zero_shot = count_vowels_zero_shot(input_string)
    vowel_count_few_shot = count_vowels_few_shot(input_string)
    print(f"Zero-shot vowel count: {vowel_count_zero_shot}")
    print(f"Few-shot vowel count: {vowel_count_few_shot}")
#Comparison and Conclusion
#Both functions yield the same results for vowel counting.
#The code is identical in both cases, indicating that the prompt style did not affect the implementation.
#In terms of readability and logical clarity, both functions are equally clear and straightforward.
```

```
/AI assistant/lab4.py"
Enter a string: AI Assisted Coding
Zero-shot vowel count: 7
Few-shot vowel count: 7
PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant>
```