

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:

The screenshot shows a code editor interface with several tabs at the top: lab1.py, lab2.py, lab4.py (which is the active tab), and README.md. The code in lab4.py is as follows:

```
#generate a python code for leap year verification
def is_leap_year(year):
    if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
        return True
    else:
        return False
if __name__ == "__main__":
    year = int(input("Enter a year: "))
    if is_leap_year(year):
        print(f"{year} is a leap year.")
    else:
        print(f"{year} is not a leap year.)
```

Below the code editor is a terminal window showing the execution of the script:

```
PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/AppData/Local sers/NITHIN REDDY/OneDrive/Desktop/All courses/AI assistant/lab4.py"
Enter a year: 2004
2004 is a leap year.
PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant>
```

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

Scenario

One-shot prompting guides AI using a single example.

Code:

```
15 #generate a python program to calculate Centimeters to Inches Conversion
16 #Example:
17 #Input: 10 cm
18 #Output: 3.94 inches
19 def cm_to_inches(cm):
20     inches = cm / 2.54
21     return inches
22 if __name__ == "__main__":
23     cm = float(input("Enter length in centimeters: "))
24     inches = cm_to_inches(cm)
25     print(f"{cm} cm is equal to {inches:.2f} inches.")
26
27
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/AppData/Local/Programs/OneDrive/Desktop/All courses/AI assistant/lab4.py"
Enter length in centimeters: 10
10.0 cm is equal to 3.94 inches.
```

Task 3: Few-Shot Prompting – Name Formatting

Scenario

Few-shot prompting improves accuracy by providing multiple examples.

Code:

```
29 #generate a python program to formatted string output as lastname, firstname by the following example:
30 #Example:
31 #Input: "John Smith"
32 #Output: "Smith, John"
33
34 #Example:
35 #Input: "Anita Rao"
36 #Output: "Rao, Anita"
37
38 #Example:
39 #Input: "Rahul Verma"
40 #Output: "Verma, Rahul"
41 def format_name(full_name):
42     first_name, last_name = full_name.split()
43     return f"{last_name}, {first_name}"
44 if __name__ == "__main__":
45     name = input("Enter full name (First Last): ")
46     formatted_name = format_name(name)
47     print(f"Formatted name: {formatted_name}")
48
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/AppData/Local/Programs/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:

```
lab4.py > ...
69  #Generate two Python functions to count vowels in a string:
70  #1) One using zero-shot prompting
71  #2) One using few-shot prompting with examples
72  #Example:
73  #Input: "hello"
74  #Output: 2
75
76  #Example:
77  #Input: "AEIOU"
78  #Output: 5
79  #Few short code
80
81  #Then compare both functions based on accuracy, readability, and logical clarity.
82  #Finally, give a short conclusion on prompt effectiveness.
83  #Zero-shot function
84 def count_vowels_zero_shot(s):
85     vowels = "aeiouAEIOU"
86     count = 0
87     for char in s:
88         if char in vowels:
89             count += 1
90     return count
91 #Few-shot function
92 def count_vowels_few_shot(s):
93     vowels = "aeiouAEIOU"
94     count = 0
95     for char in s:
96         if char in vowels:
97             count += 1
98     return count
99 if __name__ == "__main__":
100    input_string = input("Enter a string: ")
101    vowel_count_zero_shot = count_vowels_zero_shot(input_string)
102    vowel_count_few_shot = count_vowels_few_shot(input_string)
103    print(f"Zero-shot vowel count: {vowel_count_zero_shot}")
104    print(f"Few-shot vowel count: {vowel_count_few_shot}")
105 #Comparison and Conclusion
106 #Both functions yield the same results for vowel counting.
107 #The code is identical in both cases, indicating that the prompt style did not affect the implementation.
108 #In terms of readability and logical clarity, both functions are equally clear and straightforward.

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

/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>
```