

AI Assisted Coding

Assignment - 3

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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:

```
27 # Generate python code for palindrome verification in zero shot prompting
28 def is_palindrome(s):
29     s = s.replace(" ", "").lower() # Remove spaces and convert to lowercase
30     return s == s[::-1] # Check if the string is equal to its reverse
31 if __name__ == "__main__":
32     user_input = input("Enter a string: ")
33     if is_palindrome(user_input):
34         print(f"'{user_input}' is a palindrome.")
35     else:
36         print(f"'{user_input}' is not a palindrome.)
```

PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS POSTMAN CONSOLE

```
● PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant & "C:/Users/NITHIN REDDY/AppData/Desktop/All courses/AI assistant/lab2.py"
Enter a string: 12321
"12321" is a palindrome.
○ PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant
```

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:

```
38 # Generate a python program for factorial calculation using one shot prompting
39 #Example: Input: 5 Output: 120
40 def factorial(n):
41     if n == 0 or n == 1:
42         return 1
43     else:
44         return n * factorial(n - 1)
45 if __name__ == "__main__":
46     num = int(input("Enter a number to calculate its factorial: "))
47     result = factorial(num)
48     print(f"The factorial of {num} is {result}.")
49
```

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- PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/Desktop/All courses/AI assistant/lab2.py"
Enter a number to calculate its factorial: 6
The factorial of 6 is 720.
- PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> █

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:

```

50 # write a python program to generate Armstrong numbers using few shot prompting
51 #Example: Input: 153 Output: True
52 #Example: Input: 123 Output: False
53 #Example: Input: 370 Output: True
54 def is_armstrong(number):
55     num_str = str(number)
56     num_digits = len(num_str)
57     sum_of_powers = sum(int(digit) ** num_digits for digit in num_str)
58     return sum_of_powers == number
59 if __name__ == "__main__":
60     num = int(input("Enter a number to check if it's an Armstrong number: "))
61     if is_armstrong(num):
62         print(f"{num} is an Armstrong number.")
63     else:
64         print(f"{num} is not an Armstrong number.")

```

PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS POSTMAN CONSOLE

- PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/Desktop/All courses/AI assistant/lab2.py"

Enter a number to check if it's an Armstrong number: 153

153 is an Armstrong number.
- PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/Desktop/All courses/AI assistant/lab2.py"

Enter a number to check if it's an Armstrong number: 123

123 is not an Armstrong number.
- PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant>

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:

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

PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS POSTMAN CONSOLE

- PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/Desktop/All courses/AI assistant/lab2.py"
Enter a number to check if it's a perfect number: 12
12 is not a perfect number.
- PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/Desktop/All courses/AI assistant/lab2.py"
Enter a number to check if it's a perfect number: 6
6 is a perfect number.
- PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> █

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:

```
77 # Generate python program to check Even or Odd Classification with Validation using few shot prompting
78 #Example: Input: 4 Output: Even
79 #Example: Input: 7 Output: Odd
80 #Example: Input: -2 Output: Even
81 def check_even_odd(num):
82     if not isinstance(num, int):
83         return "Invalid input. Please enter an integer."
84     return "Even" if num % 2 == 0 else "Odd"
85 if __name__ == "__main__":
86     try:
87         user_input = int(input("Enter an integer to check if it's Even or Odd: "))
88         result = check_even_odd(user_input)
89         print(f"{user_input} is {result}.")
90     except ValueError:
91         print("Invalid input. Please enter a valid integer.")
```

PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS POSTMAN CONSOLE

```
PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/AppData/Local/Programs/Python/Desktop/All courses/AI assistant/lab2.py"
Enter an integer to check if it's Even or Odd: 12
12 is Even.
PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/AppData/Local/Programs/Python/Desktop/All courses/AI assistant/lab2.py"
Enter an integer to check if it's Even or Odd: 77
77 is Odd.
PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant> & "C:/Users/NITHIN REDDY/AppData/Local/Programs/Python/Desktop/All courses/AI assistant/lab2.py"
Enter an integer to check if it's Even or Odd: -55
-55 is Odd.
PS C:\Users\NITHIN REDDY\OneDrive\Desktop\All courses\AI assistant>
```