

**BATCH 29**

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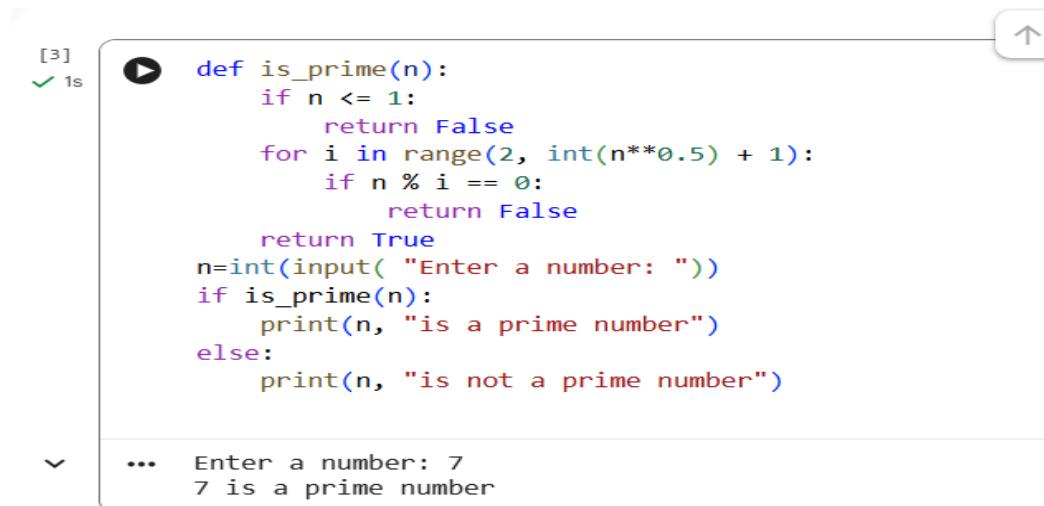
## **ASSIGNMENT 4.2**

### **Lab 4: Advanced Prompt Engineering – Zero-shot, One-shot, and Few-shot Techniques**

#### **Task Description-1**

- Zero-shot: Prompt AI with only the instruction. Write a Python function to determine whether a given number is prime

**Prompt: Write a Python function to check if a number is prime.**



The screenshot shows a code editor window with a Python script. The script defines a function `is_prime` that checks if a given number is prime. It includes a loop that iterates from 2 to the square root of the number plus one, checking for divisibility. If a divisor is found, it returns `False`. If no divisor is found, it returns `True`. The script then prompts the user to enter a number and prints whether it is a prime number or not. The output shows the user entering the number 7 and receiving the response "7 is a prime number".

```
[3] ✓ 1s
def is_prime(n):
    if n <= 1:
        return False
    for i in range(2, int(n**0.5) + 1):
        if n % i == 0:
            return False
    return True
n=int(input("Enter a number: "))
if is_prime(n):
    print(n, "is a prime number")
else:
    print(n, "is not a prime number")

...
Enter a number: 7
7 is a prime number
```

## Task Description–2: One-shot Prompting

Prompt: Generate a function that calculates the sum of elements in a list.

```
[5] ✓ Os
▶ def sum_of_list(lst):
    total = 0
    for num in lst:
        total += num
    return total
lst = [1, 2, 3, 4, 5]
print(sum_of_list(lst))
```

... 15

## Task Description–3: Few-shot Prompting

Prompt: Create a function that extracts digits from an alphanumeric string.

```
[13] ✓ 26s
▶ def extract_digits(s):
    result = ""
    for ch in s:
        if ch.isdigit():
            result += ch
    return result
s=input("enter number")
result = extract_digits(s)
print("extracted digits:",result)
```

... enter numbera1b2c3  
extracted digits: 123

1

## Task Description–4: Zero-shot vs Few-shot Comparison

Prompt: Generate a function to count vowels in a string.

```
[19]
▶ def count_vowels(s):
    count = 0
    for ch in s:
        if ch in "aeiouAEIOU":
            count += 1
    return count
s=input("enter the string")
print(count_vowels(s))
```

... enter the stringhello  
2

## Task Description–5: Few-shot Prompting

**Prompt:** Find the minimum of three numbers **without using min()**.

```
[21]  ✓ 7s
▶ def minimum_of_three(a, b, c):
    if a <= b and a <= c:
        return a
    elif b <= a and b <= c:
        return b
    else:
        return c
a=int(input())
b=int(input())
c=int(input())
print(minimum_of_three(a, b, c))

...
5
3
8
3
```