

BATCH 29

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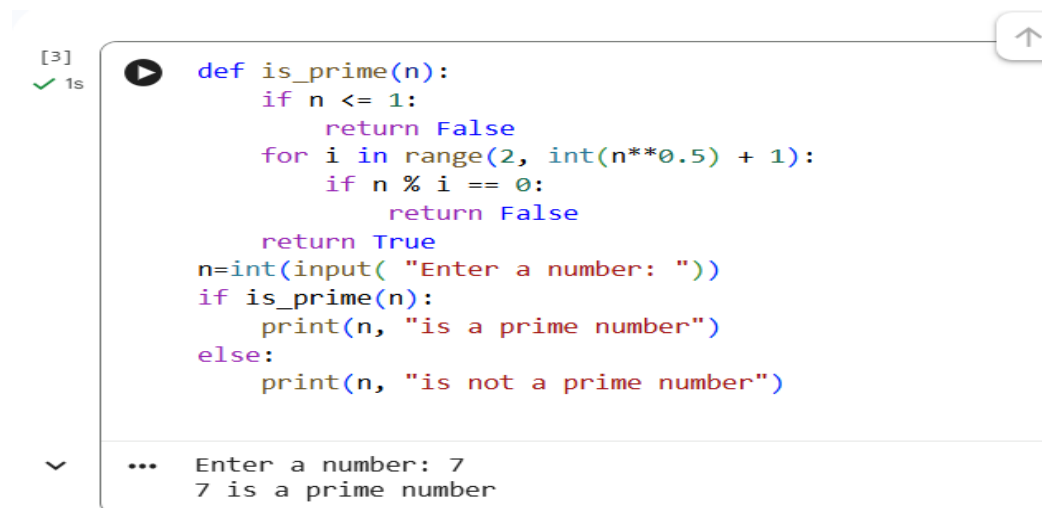
## ASSIGNMENT 4.2

### 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 Jupyter Notebook interface. On the left, there is a status bar with a green checkmark, the text "[3]", and "1s". The main area contains a code cell with a play button icon. The code defines a function `is_prime(n)` that returns `False` for `n <= 1` and iterates from 2 to  $\sqrt{n} + 1$  to check for divisibility. Below the code, the function is called with `n=7`, and the output shows that 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]
✓ 0s
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
```

## 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
```