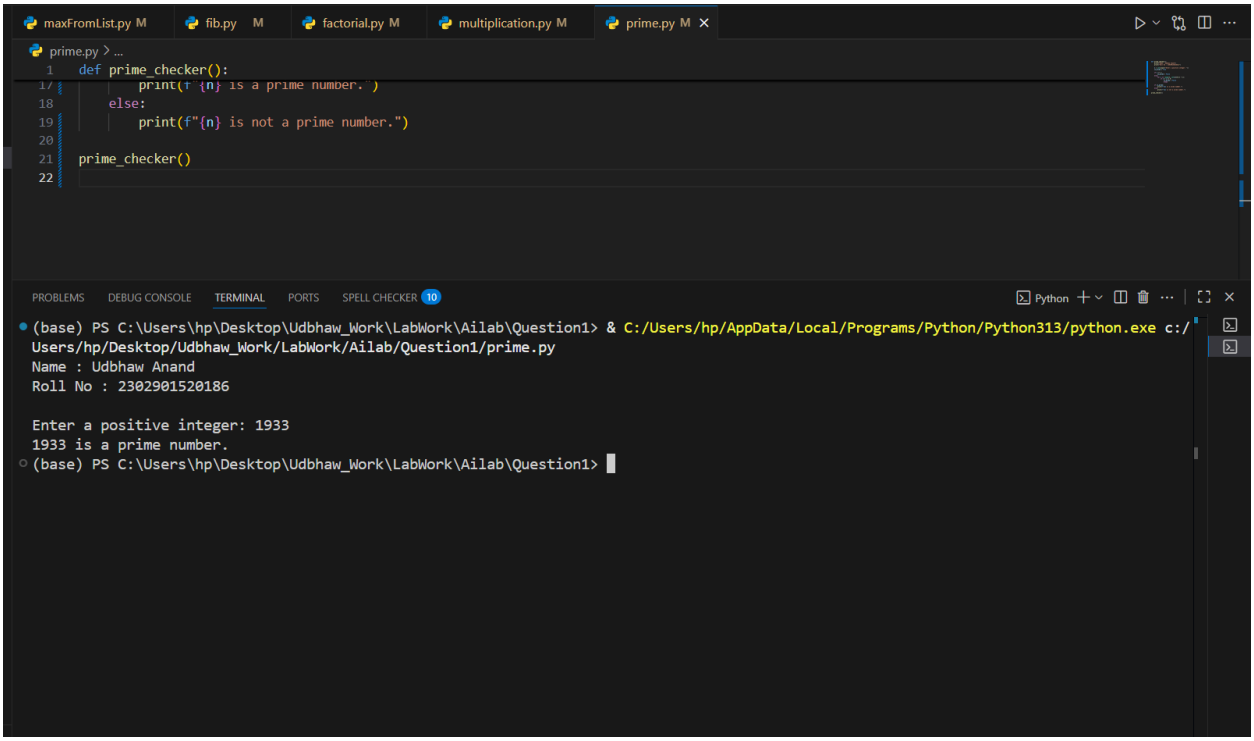
EXPERIMENT - 1

a) Prime Number Check

Program

```
def prime_checker():
    print("Name : Udbhaw Anand")
    print("Roll No : 2302901520186\n")
    n = int(input("Enter a positive integer: "))
    is_prime = True
    if n <= 1:
        is_prime = False
    else:
        for i in range(2, int(n**0.5) + 1):
            if n % i == 0:
                is_prime = False
                break
    if is_prime:
        print(f"{n} is a prime number.")
    else:
        print(f"{n} is not a prime number.")
prime_checker()
```



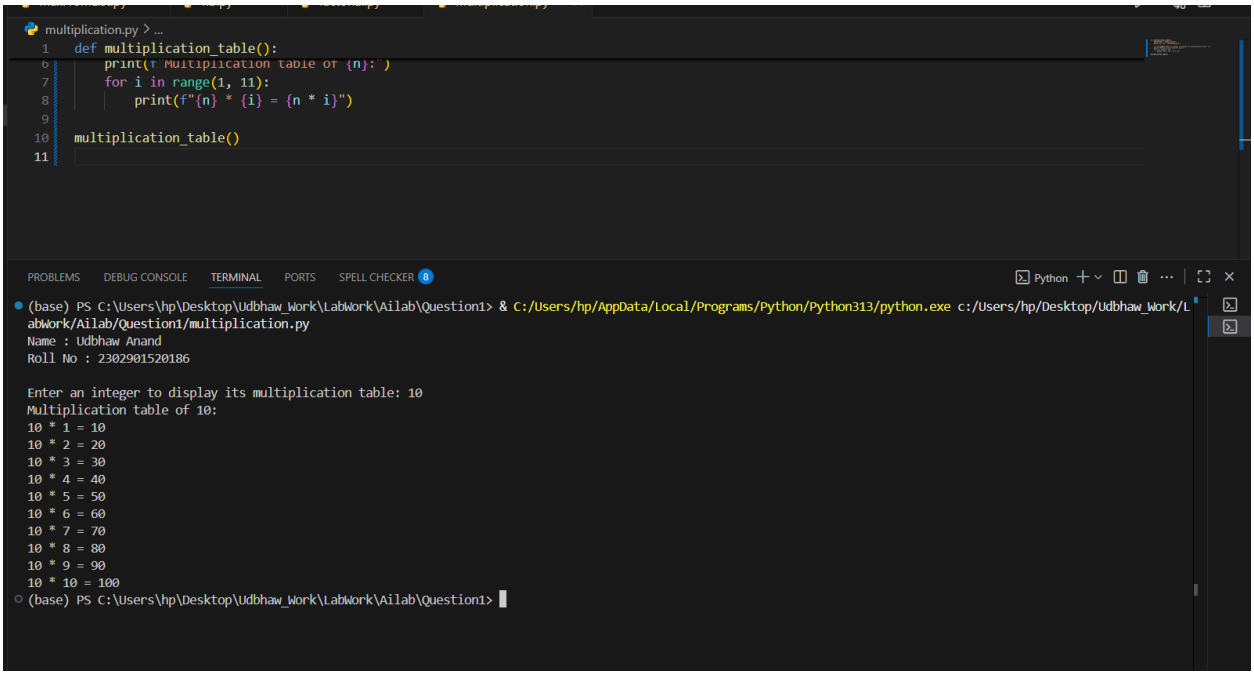
b) Multiplication Table

Program

```
def multiplication_table():
    print("Name : Udbhaw Anand")
    print("Roll No : 2302901520186\n")

    n = int(input("Enter an integer to display its multiplication table: "))
    print(f"Multiplication table of {n}:")
    for i in range(1, 11):
        print(f"{n} * {i} = {n * i}")

multiplication_table()
```



c) Factorial

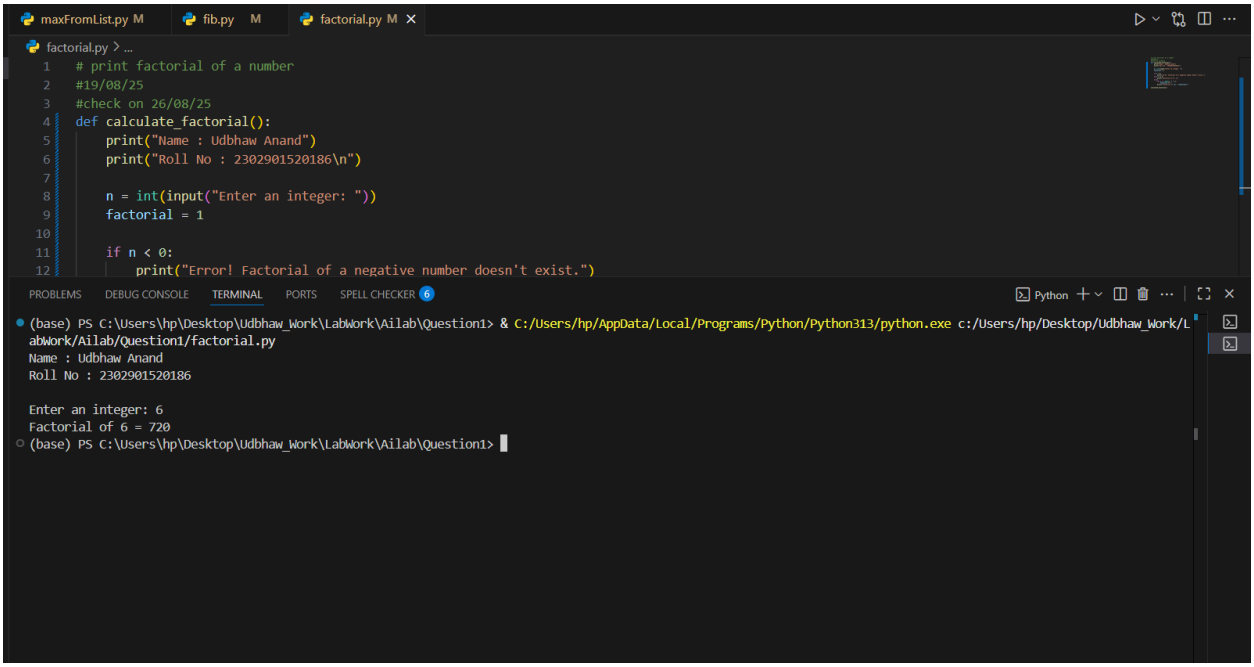
Program

```
def calculate_factorial():
    print("Name : Udbhaw Anand")
    print("Roll No : 2302901520186\n")

    n = int(input("Enter an integer: "))
    factorial = 1

    if n < 0:
        print("Error! Factorial of a negative number doesn't exist.")
    elif n == 0:
        print("Factorial of 0 = 1")
    else:
        for i in range(1, n + 1):
            factorial *= i
        print(f"Factorial of {n} = {factorial}")

calculate_factorial()
```



d) Fibonacci Series

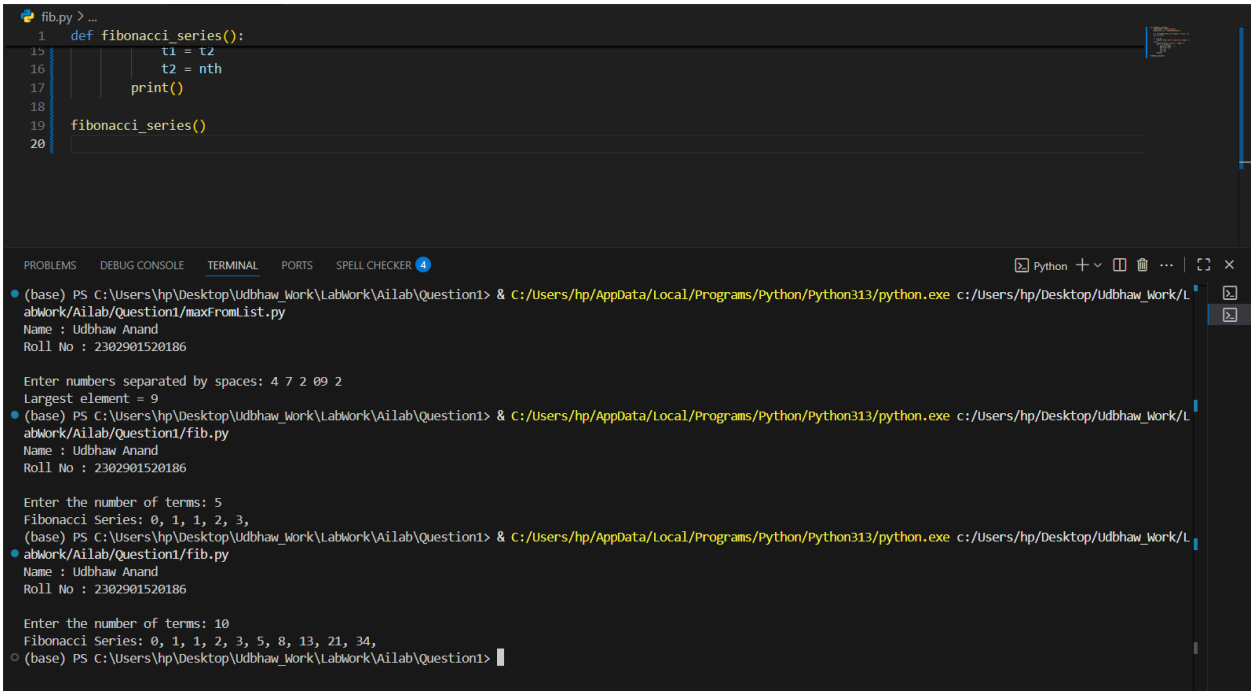
Program

```
def fibonacci_series():
    print("Name : Udbhaw Anand")
    print("Roll No : 2302901520186\n")

    n = int(input("Enter the number of terms: "))
    t1, t2 = 0, 1

    if n <= 0:
        print("Please enter a positive integer.")
    else:
        print("Fibonacci Series:", end=" ")
        for i in range(n):
            print(t1, end=", ")
            nth = t1 + t2
            t1 = t2
            t2 = nth
        print()

fibonacci_series()
```



e) Find Maximum from a List

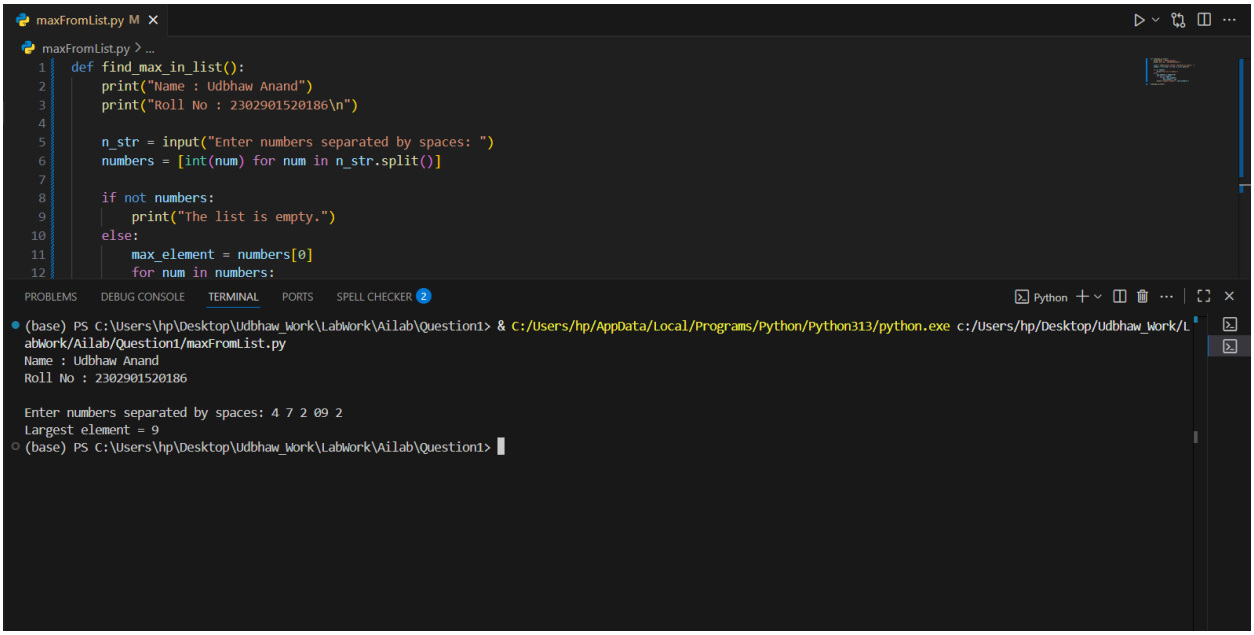
Program

```
def find_max_in_list():
    print("Name : Udbhaw Anand")
    print("Roll No : 2302901520186\n")

    n_str = input("Enter numbers separated by spaces: ")
    numbers = [int(num) for num in n_str.split()]

    if not numbers:
        print("The list is empty.")
    else:
        max_element = numbers[0]
        for num in numbers:
            if num > max_element:
                max_element = num
        print(f"Largest element = {max_element}")

find_max_in_list()
```



EXPERIMENT - 2

Interactive Chatbot

Program

```
def chatbot():
    print("Chatbot: Hello! I am a simple Python chatbot. What is your name?")
    name = input("You: ")
    print(f"Chatbot: Nice to meet you, {name}! How can I help you today?")
    while True:
        user_input = input(f"{name}: ").lower()

        if "bye" in user_input:
            print(f"Chatbot: Goodbye, {name}! Have a great day.")
            break
        elif "hello" in user_input or "hi" in user_input:
            print(f"Chatbot: Hello there, {name}!")
        elif "how are you" in user_input:
            print("Chatbot: I'm just a program, but I'm doing great! Thanks for asking.")
        elif "your name" in user_input:
            print("Chatbot: You can call me PyBot.")
        elif "weather" in user_input:
            print("Chatbot: I can't check the weather, but I hope it's nice where you are!")
        else:
            print("Chatbot: I'm not sure how to respond. You can ask me my name or how I am.")
chatbot()
```