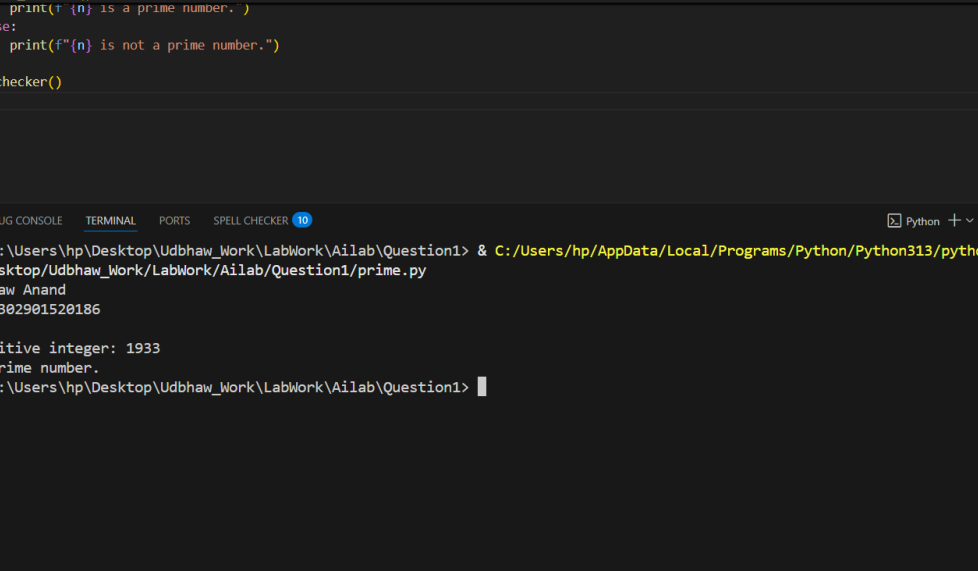


a) Prime Number Check

```
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()
```



The screenshot displays the Visual Studio Code (VS Code) interface. The top panel shows the file explorer with several Python files: `maxFromList.py`, `fib.py`, `factorial.py`, `multiplication.py`, and `prime.py`. The `prime.py` file is open in the editor, showing the following code:

```
1 def prime_checker():
17     print(f"{n} is a prime number.")
18 else:
19     print(f"{n} is not a prime number.")
20
21 prime_checker()
22
```

The bottom panel shows the TERMINAL view. The terminal output is as follows:

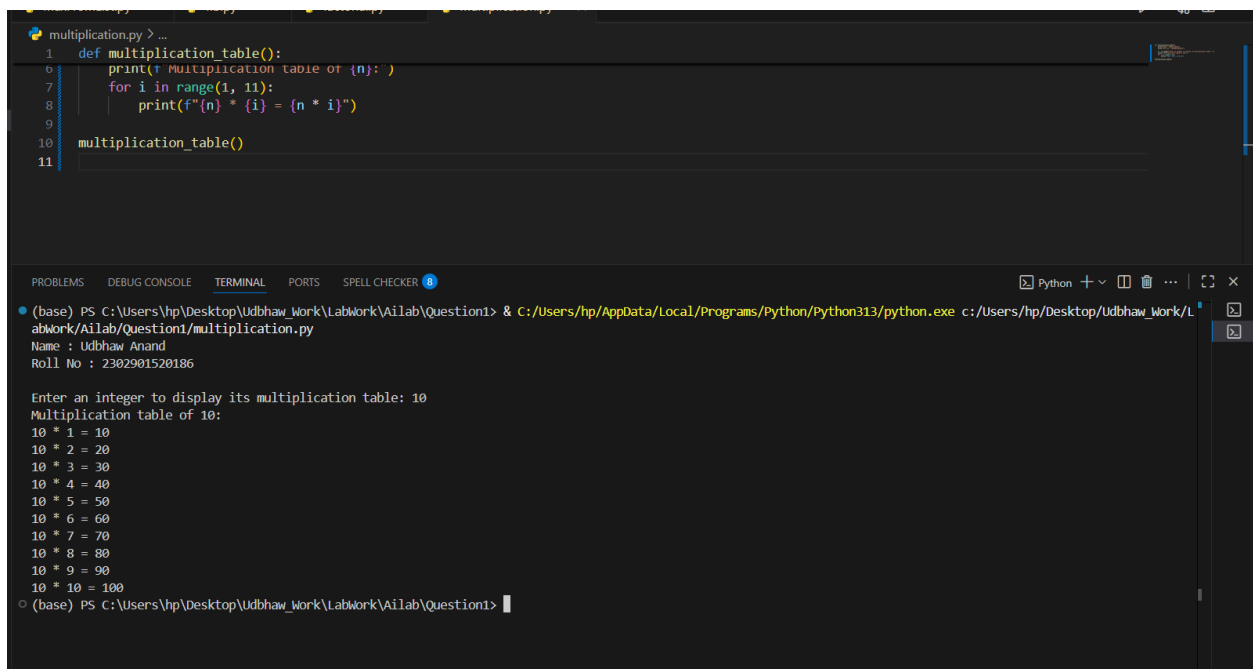
```
(base) PS C:\Users\hp\Desktop\Udbhaw_Work\LabWork\Ailab\Question1> & C:/Users/hp/AppData/Local/Programs/Python/Python313/python.exe c:/Users/hp/Desktop/Udbhaw_Work/LabWork/Ailab/Question1/prime.py
Name : Udbhaw Anand
Roll No : 2302901520186

Enter a positive integer: 1933
1933 is a prime number.
(base) PS C:\Users\hp\Desktop\Udbhaw_Work\LabWork\Ailab\Question1>
```

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()
```



The screenshot shows a Python IDE with a dark theme. The editor window displays the code for the multiplication table program. The terminal window shows the execution output, including the user's input and the resulting multiplication table for the number 10.

```
multiplication.py > ...  
1 def multiplication_table():  
6     print(f"Multiplication table of {n}:")  
7     for i in range(1, 11):  
8         print(f"{n} * {i} = {n * i}")  
9  
10 multiplication_table()  
11
```

PROBLEMS DEBUG CONSOLE TERMINAL PORTS SPELL CHECKER

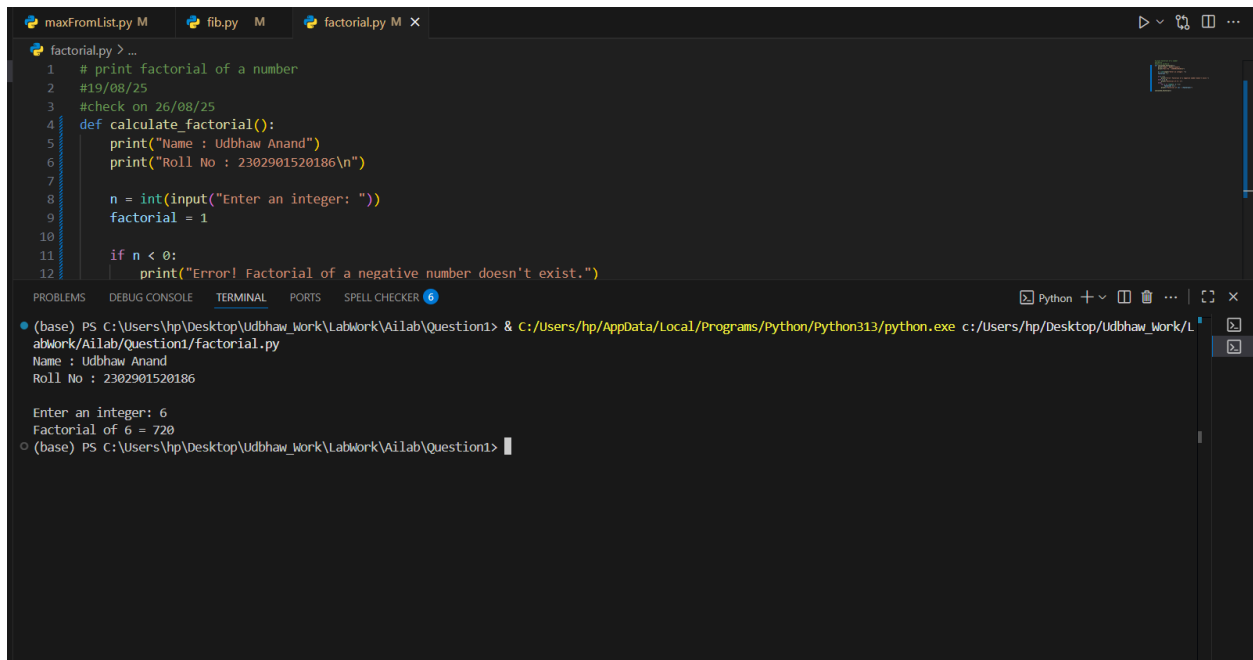
(base) PS C:\Users\hp\Desktop\Udbhaw_Work\LabWork\Ailab\Question1> & C:/Users/hp/AppData/Local/Programs/Python/Python313/python.exe c:/Users/hp/Desktop/Udbhaw_Work/LabWork/Ailab/Question1/multiplication.py
Name : Udbhaw Anand
Roll No : 2302901520186

Enter an integer to display its multiplication table: 10
Multiplication table of 10:
10 * 1 = 10
10 * 2 = 20
10 * 3 = 30
10 * 4 = 40
10 * 5 = 50
10 * 6 = 60
10 * 7 = 70
10 * 8 = 80
10 * 9 = 90
10 * 10 = 100
○ (base) PS C:\Users\hp\Desktop\Udbhaw_Work\LabWork\Ailab\Question1>

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()
```



The screenshot shows a Python IDE with three tabs: 'maxFromList.py M', 'fib.py M', and 'factorial.py M X'. The 'factorial.py' tab is active, displaying the following code:

```
1 # print factorial of a number  
2 #19/08/25  
3 #check on 26/08/25  
4 def calculate_factorial():  
5     print("Name : Udbhaw Anand")  
6     print("Roll No : 2302901520186\n")  
7  
8     n = int(input("Enter an integer: "))  
9     factorial = 1  
10  
11     if n < 0:  
12         print("Error! Factorial of a negative number doesn't exist.")
```

The bottom panel shows the terminal output for the program execution:

```
(base) PS C:\Users\hp\Desktop\Udbhaw_Work\LabWork\Ailab\Question1> & C:/Users/hp/AppData/Local/Programs/Python/Python313/python.exe c:/Users/hp/Desktop/Udbhaw_Work/L  
abWork/Ailab/Question1/factorial.py  
Name : Udbhaw Anand  
Roll No : 2302901520186  
  
Enter an integer: 6  
Factorial of 6 = 720  
(base) PS C:\Users\hp\Desktop\Udbhaw_Work\LabWork\Ailab\Question1>
```

d) Fibonacci Series

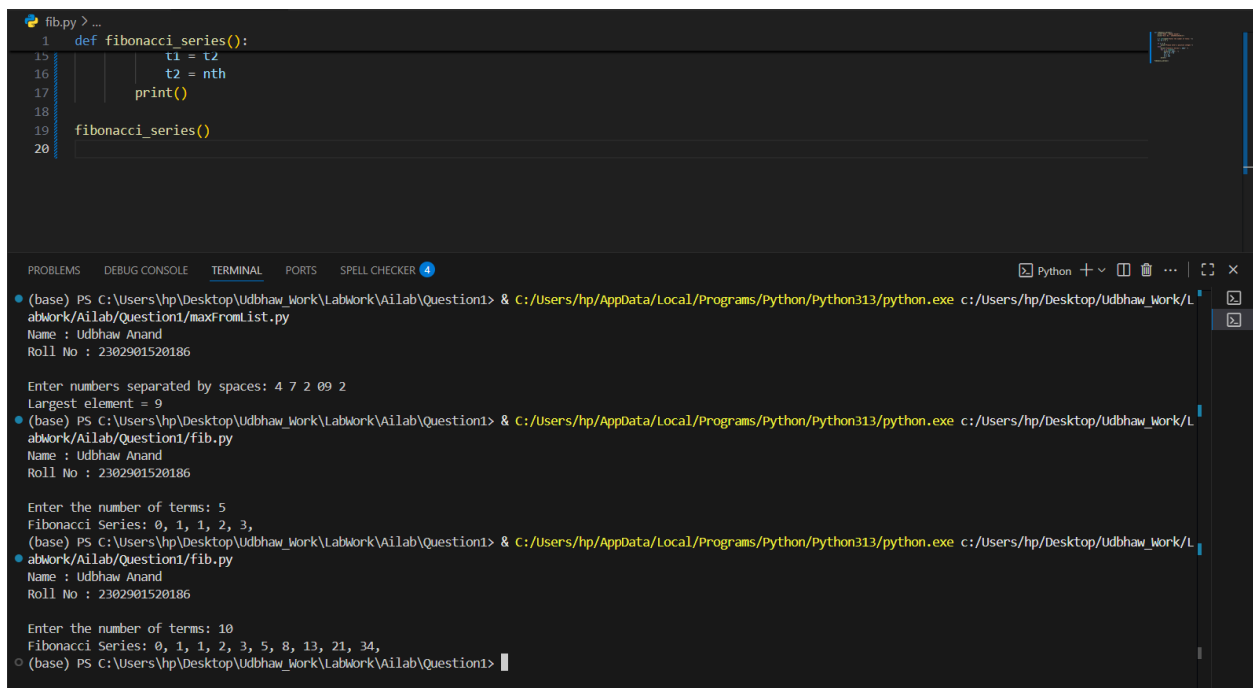
Program

```
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()
```



The screenshot shows a Python IDE with a dark theme. The editor window displays the code for the `fibonacci_series()` function. The terminal window at the bottom shows the output of the program. The first execution shows the program printing the name and roll number, then prompting for the number of terms. The second execution shows the program printing the Fibonacci series for 5 terms: 0, 1, 1, 2, 3. The third execution shows the program printing the Fibonacci series for 10 terms: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34.

```
fib.py > ...
1 def fibonacci_series():
15     t1 = t2
16     t2 = nth
17     print()
18
19     fibonacci_series()
20

PROBLEMS  DEBUG CONSOLE  TERMINAL  PORTS  SPELL CHECKER 4

(base) PS C:\Users\hp\Desktop\Udbhaw_Work\LabWork\Ailab\Question1> & C:/Users/hp/AppData/Local/Programs/Python/Python313/python.exe c:/Users/hp/Desktop/Udbhaw_Work/L
abWork/Ailab/Question1/maxFromList.py
Name : Udbhaw Anand
Roll No : 2302901520186

Enter numbers separated by spaces: 4 7 2 09 2
Largest element = 9
(base) PS C:\Users\hp\Desktop\Udbhaw_Work\LabWork\Ailab\Question1> & C:/Users/hp/AppData/Local/Programs/Python/Python313/python.exe c:/Users/hp/Desktop/Udbhaw_Work/L
abWork/Ailab/Question1/fib.py
Name : Udbhaw Anand
Roll No : 2302901520186

Enter the number of terms: 5
Fibonacci Series: 0, 1, 1, 2, 3,
(base) PS C:\Users\hp\Desktop\Udbhaw_Work\LabWork\Ailab\Question1> & C:/Users/hp/AppData/Local/Programs/Python/Python313/python.exe c:/Users/hp/Desktop/Udbhaw_Work/L
abWork/Ailab/Question1/fib.py
Name : Udbhaw Anand
Roll No : 2302901520186

Enter the number of terms: 10
Fibonacci Series: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34,
(base) PS C:\Users\hp\Desktop\Udbhaw_Work\LabWork\Ailab\Question1>
```

e) Find Maximum from a List

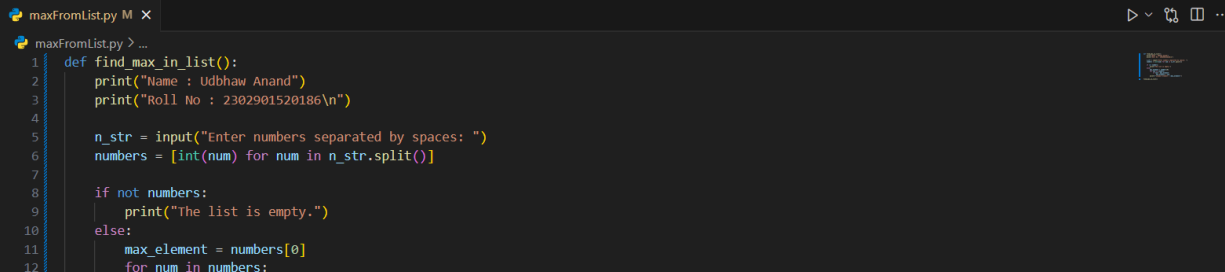
Program

```
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()
```



The screenshot shows a code editor with a Python script named `maxFromList.py`. The script defines a function `find_max_in_list()` that prints the user's name and roll number, prompts for a list of numbers, and finds the maximum value. Below the editor, a terminal window shows the execution of the script, displaying the user's input and the program's output.

```
maxFromList.py M X
1 def find_max_in_list():
2     print("Name : Udbhaw Anand")
3     print("Roll No : 2302901520186\n")
4
5     n_str = input("Enter numbers separated by spaces: ")
6     numbers = [int(num) for num in n_str.split()]
7
8     if not numbers:
9         print("The list is empty.")
10    else:
11        max_element = numbers[0]
12        for num in numbers:
```

PROBLEMS DEBUG CONSOLE TERMINAL PORTS SPELL CHECKER

(base) PS C:\Users\hp\Desktop\Udbhaw_work\LabWork\Ailab\Question1> & C:/Users/hp/Appdata/Local/Programs/Python/Python313/python.exe c:/Users/hp/Desktop/Udbhaw_work/LabWork/Ailab/Question1/maxFromList.py

Name : Udbhaw Anand
Roll No : 2302901520186

Enter numbers separated by spaces: 4 7 2 09 2
Largest element = 9

(base) PS C:\Users\hp\Desktop\Udbhaw_work\LabWork\Ailab\Question1>

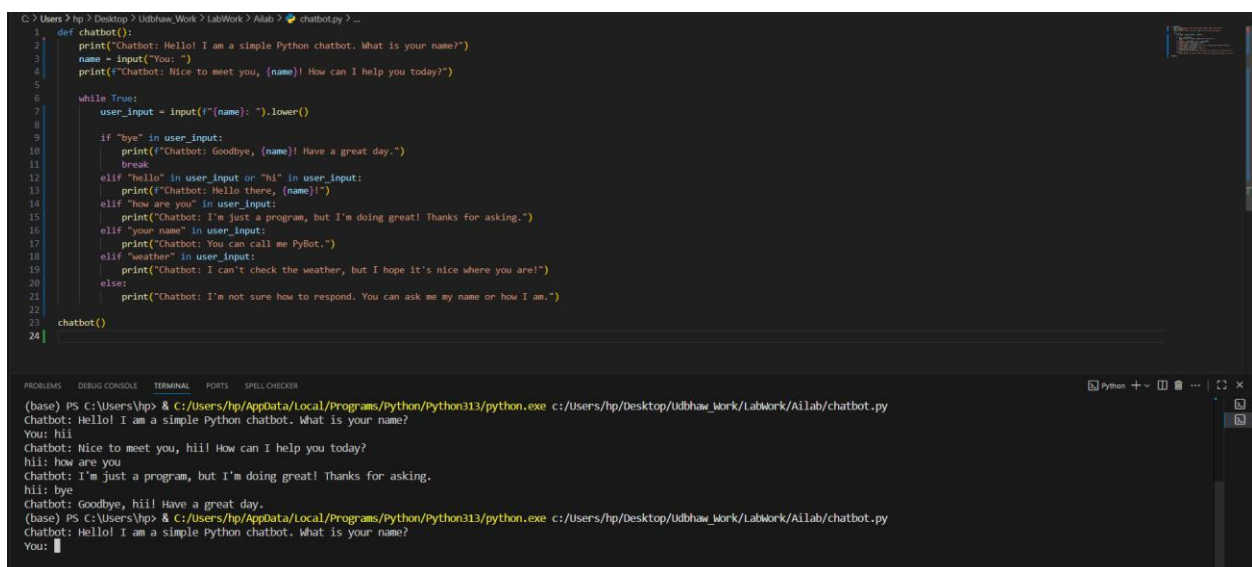
EXPERIMENT - 2

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()
```



The screenshot shows a Visual Studio Code editor window with a file named `chatbot.py` open. The code is a Python function `chatbot()` that implements a simple chatbot. The code is as follows:

```
1 def chatbot():
2     print("Chatbot: Hello! I am a simple Python chatbot. What is your name?")
3     name = input("You: ")
4     print(f"Chatbot: Nice to meet you, {name}! How can I help you today?")
5
6     while True:
7         user_input = input(f"{name}: ").lower()
8
9         if "bye" in user_input:
10            print(f"Chatbot: Goodbye, {name}! Have a great day.")
11            break
12        elif "hello" in user_input or "hi" in user_input:
13            print(f"Chatbot: Hello there, {name}!")
14        elif "how are you" in user_input:
15            print("Chatbot: I'm just a program, but I'm doing great! Thanks for asking.")
16        elif "your name" in user_input:
17            print("Chatbot: You can call me PyBot.")
18        elif "weather" in user_input:
19            print("Chatbot: I can't check the weather, but I hope it's nice where you are!")
20        else:
21            print("Chatbot: I'm not sure how to respond. You can ask me my name or how I am.")
22
23    chatbot()
24
```

Below the editor, the `TERMINAL` panel shows the output of running the script. The terminal window has a title bar that reads `Python + - [] ... [] x`. The terminal content is:

```
(base) PS C:\Users\hp> & C:\Users\hp\AppData\Local\Programs\Python\python313\python.exe c:/Users/hp/Desktop/Udhwark/LabWork/Ailab/chatbot.py
chatbot: Hello! I am a simple Python chatbot. What is your name?
You: hi!
Chatbot: Nice to meet you, hi! How can I help you today?
hi: how are you
Chatbot: I'm just a program, but I'm doing great! Thanks for asking.
hi: bye
Chatbot: Goodbye, hi! Have a great day.
(base) PS C:\Users\hp> & C:\Users\hp\AppData\Local\Programs\Python\python313\python.exe c:/Users/hp/Desktop/Udhwark/LabWork/Ailab/chatbot.py
chatbot: Hello! I am a simple Python chatbot. What is your name?
You: 
```