SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE		DEPARTMENT OF COMPUTER SCIENCE ENGINEERING	
Program Name: B. Tech		**Assignment Type: Lab**	**AcademicYear:**2025-2026
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CourseCode	24CS002PC215	**CourseTitle**	AI Assisted Coding
Year/Sem	II/I	**Regulation**	R24
Date and Day of Assignment	06-08-2025	**Time(s)**	
Duration	2 Hours	**Applicable to Batches**	24CSBTB01 To 24CSBTB39
AssignmentNumber:2.5(Present assignment number)/**24**(Total number of assignments)			

Q.No.	Question	*ExpectedTime to complete*
1	**Lab 2: Additional AI Coding Tools and API Configurations** **Objective:** To build a simple AI weather chatbot that fetches real-time weather data using the OpenWeatherMap API and responds to natural language queries using basic NLP techniques. Suppose that you are working as a junior developer in an AI services startup. Your team is building a smart assistant for travelers to get weather updates by simply asking questions like “What’s the weather in Mumbai?” or “Is it raining in New York?” Tasks to be completed are as below 1. API Configuration: ● Register for a free OpenWeatherMap API key. ● Read the documentation and test API calls using tools like Postman or Python requests. Prompt: ● "Write a Python program that uses the OpenWeatherMap API to fetch and display the current weather for a given city.	01.08.2025 EOD

Code:

```python
import requests

# Replace this with your actual API key
api_key = "your_api_key_here"

# Get city name from user
city = input("Enter city name: ")

# Base URL
base_url = "http://api.openweathermap.org/data/2.5/weather"

# Parameters for the API call
params = {
    "q": city,
    "appid": api_key,
    "units": "metric"  # Use "imperial" for Fahrenheit
}

# Make the API call
response = requests.get(base_url, params=params)

# Check response status
if response.status_code == 200:
    data = response.json()
    temperature = data["main"]["temp"]
    description = data["weather"][0]["description"]
    humidity = data["main"]["humidity"]

    print(f"\nWeather in {city}:")
    print(f"Temperature: {temperature}°C")
    print(f"Description: {description}")
    print(f"Humidity: {humidity}%")
else:
    print("Error fetching data. Please check the city name or your API key.")
```

Output:

```
PS C:\PROGRAMMES VSCODE\AI coding> & C:\Users\venkatesh\AppData\Local\Programs\Pyth
Enter city name: warangal.
```

2. NLP Integration:

- Use spaCy or NLTK to extract city names from user input.
- Convert natural language queries to appropriate API parameters.

3. Chatbot Design:

- Develop a basic chatbot using Python with user input and response cycles.
- Integrate it with OpenWeatherMap API to display temperature, condition, and humidity.

Code:

```python
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# Replace this with your actual API key
api_key = "your_api_key_here"

# Get city name from user
city = input("Enter city name: ")

# Base URL
base_url = "http://api.openweathermap.org/data/2.5/weather"

# Parameters for the API call
params = {
    "q": city,
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response = requests.get(base_url, params=params)

# Check response status
if response.status_code == 200:
    data = response.json()
    temperature = data["main"]["temp"]
    description = data["weather"][0]["description"]
    humidity = data["main"]["humidity"]

    print(f"\nWeather in {city}:")
    print(f"Temperature: {temperature}°C")
    print(f"Description: {description}")
    print(f"Humidity: {humidity}%")
else:
    print("Error fetching data. Please check the city name or your API key.")
```

- Output:

```
WeatherBot: Hello! Ask me about the weather in any city. Type 'exit' to quit.

u: What's the weather in Hyderabad today?
WeatherBot:
City: Hyderabad
Temperature: 29°C
Condition: Clear Sky
Humidity: 70%

u: Check weather in London
WeatherBot:
City: London
Temperature: 21°C
Condition: Light Rain
Humidity: 60%

u: exit
```

- Comment:
  - mport requests (for API) and spaCy (for NLP).
  - Load spaCy model to detect **city names** from user queries.
  - Store your **OpenWeatherMap API key**.
  - Extract the city (GPE) from user input.
  - Call the **OpenWeatherMap API** → get JSON → read temp, condition, humidity.
  -

	Requirements: ● VS Code with Github Copilot or Cursor API and/or Google Colab with Gemini **Deliverables:** ● A working Python script or notebook. ● A short video demo or screenshot of chatbot interaction. ● A markdown file with steps followed and challenges faced. .	