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**PYTHON API PROGRAMS DOCUMENTATION**

**1.Real-Time Weather Monitoring System**

**Scenario:**

You are developing a real-time weather monitoring system for a weather forecasting company.The system needs to fetch and display weather data for a specified location.

**Tasks:**

1. Model the data flow for fetching weather information from an external API anddisplaying it to the user.

2. Implement a Python application that integrates with a weather API (e.g.,

OpenWeatherMap) to fetch real-time weather data.

3. Display the current weather information, including temperature, weather conditions,humidity, and wind speed.

4. Allow users to input the location (city name or coordinates) and display the

corresponding weather data.

**Deliverables:**

• Data flow diagram illustrating the interaction between the application and the API.

• Pseudocode and implementation of the weather monitoring system.

• Documentation of the API integration and the methods used to fetch and displayweather data.

• Explanation of any assumptions made and potential improvements.

**Data flow diagram:**

**Data Preprocessing**

**Sensor Data Collection**

**Start Program**

**Temperature**

**Data Visualization**

**Process Data**

**Humidity**

**Wind Speed**

**Weather Conditions**

**Implementation:**

import requests

# Replace with your OpenWeatherMap API key

API\_KEY = '26f6ac4550c9cd2d2d6b010857a4685f'

# The city for which you want to get the weather data

city = "London"

# API endpoint for current weather data

API\_URL = f"http://api.openweathermap.org/data/2.5/weather?q={city}&appid={API\_KEY}&units=metric"

# Fetch the data

response = requests.get(API\_URL)

# Check if the request was successful

if response.status\_code == 200:

data = response.json()

# Extract and print the relevant weather data

print(f"Current Weather in {city}:")

print(f"Temperature: {data['main']['temp']}°C")

print(f"Weather: {data['weather'][0]['description'].capitalize()}")

print(f"Humidity: {data['main']['humidity']}%")

print(f"Wind Speed: {data['wind']['speed']} m/s")

else:

print(f"Failed to retrieve data: {response.status\_code}")

