**Assignment: Python Programming for DL**

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**Problem 1: Real-Time Traffic Monitoring System**

**Scenario:**

You are developing a real-time traffic monitoring system for a corporation use. The system needs to fetch and display traffic data for a specified location.

**Tasks:**

* **Model the data flow for fetching weather information from an external API and displaying it to the user.**
* **Implement a Python application that integrates with a TRAFFIC API (e.g., TOM TOM API) to fetch real-time TRAFFIC data.**
* **Display the current traffic information, including longitudes, latitudes, speed.**
* **Allow users to input the location (city name or coordinates) and display the corresponding traffic 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 display weather data.
* Explanation of any assumptions made and potential improvements.

**Solution:**

**Real-Time Traffic Monitoring System**

**1.Data Flow Diagram**



**2. Implementation**



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**3.Display the Current Traffic information**

enter the city: CHENNAI

 longitude: 80.2705

 latitude: 13.0843

 Traffic condition: Mild traffic in outer sides.

**4.User Input**



**5.Documentation**

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**Introduction**

* **Real-time traffic monitoring systems are crucial for urban planning, navigation, and improving road safety. This documentation will guide you through creating a real-time traffic monitoring system using Python, focusing on data collection, processing, and visualization.**

**Prerequisites**

* **Basic knowledge of Python programming.**
* **Familiarity with APIs and JSON data.**
* **Understanding of web frameworks (Flask, Django) for building dashboards.**
* **Libraries required: requests, pandas, matplotlib, folium, plotly, dash.**

**Data Collection**

**3.1 Choosing a Traffic Data Source**

Select a traffic data provider that suits your needs. Popular options include:

* **Google Maps Traffic API**: Provides traffic conditions, travel times, and congestion information.
* **HERE Technologies**: Offers comprehensive traffic data including incidents, flow, and congestion.
* **TomTom Traffic API**: Known for real-time traffic information and incident reports.

Data Processing

4.1 Data Parsing

Parse the JSON response to extract relevant information.

**Conclusion**

* This documentation provides a comprehensive guide to building a real-time traffic monitoring system using Python. By following the steps outlined, you can collect, process, and visualize traffic data effectively, aiding in better traffic management and urban planning.