Dataset Link:

The dataset used in the project can be found on Kaggle:

https://www.kaggle.com/vishnusraghavan/theft-data-in-india

Description of Project:

The project aims to predict traffic volume based on historical data of traffic patterns in a particular area. The project uses GRU (Gated Recurrent Units) neural networks to make these predictions. The data used in this project was collected from the California Department of Transportation (CalTrans) Performance Measurement System.

A brief explanation of the outputs of the Traffic Congestion Project

The Traffic Congestion Project is a project that aims to predict traffic congestion levels in a given area using machine learning techniques. The outputs of this project are typically in the form of predictions of traffic congestion levels for a given time period.

More specifically, the outputs of the project include:

1. Predicted congestion levels: These are estimates of how much traffic congestion is expected to occur in a particular area during a specified time period. These predictions may be generated for different time periods, such as hourly, daily, or weekly.

2. Visualization of congestion levels: These outputs include maps or graphs that show the predicted traffic congestion levels in different areas of the city, or how congestion levels vary over time.

3. Recommendations for route planning: The project suggest alternate routes to drivers based on predicted congestion levels. For example, if a particular route is predicted to be congested during a certain time period, the project may recommend a different route that is expected to have less congestion.

4. Historical data analysis: The project provide insights into patterns of traffic congestion over time. For example, the project may identify certain areas or times of day that tend to have higher levels of congestion.

Overall, the outputs of the Traffic Congestion Project can help drivers, transportation planners, and city officials make more informed decisions about how to reduce traffic congestion and improve traffic flow in a given area.

Description of Output:

The output of a traffic prediction project is aimed at providing useful insights and information to help drivers, transportation planners, and city officials make informed decisions about how to reduce traffic congestion and improve traffic flow in a given area.

Instructions on How to Run the Code/Project/File:

1. Install Python: If you haven't already, install Python on your computer. You can download it from the official Python website: https://www.python.org/downloads/
2. Install necessary libraries: The Traffic Congestion Project uses several Python libraries, including NumPy, Pandas, Matplotlib, and Scikit-Learn. You can install these libraries using pip, the Python package manager, by running the following command in your terminal or command prompt:

   pip install numpy pandas matplotlib scikit-learn

3. Download the project file called "traffic_prediction".
4. After setting up the environment, you can run the code in a Jupyter notebook or Python IDE. The code consists of loading the dataset, preprocessing the data, building and training the GRU model, and evaluating the model's performance.
5. The output in the form of predicted congestion levels, data visualizations, and other relevant insights.

Note: Make sure to update the file paths in the code cells to match the location of the downloaded dataset and kernel files on your local machine.