PROJECT DESIGN

Data Flow Diagram

Date	28 JUNE 2025
Team ID	LTVIP2025TMID59766
Project Name	TrafficTelligence: Advanced Traffic Volume Estimation with Machine Learning
Maximum Marks	4 Marks

Data Flow Diagram:

Entity/Process	Description
External Data Sources	CSV files, APIs, Sensor data
User	Inputs queries and receives predictions
User Interface (UI)	Interface for input/output interaction
Data Preprocessing	Cleaning, normalization, splitting data
Train Data/Test Data	Splitted datasets for training and testing
Model Training/Algorithm	Model building using machine learning algorithms
Model Evaluation	Testing model accuracy with test data
Trained Model	Final model ready for predictions
Prediction Generation	Generates outputs based on user input

Data Flow Diagram:

Entity/Process	Description
Display Result	Outputs predictions to the user

```
                    ┌─────────────┐
                    │    start    │
                    └──────┬──────┘
                           ▼
        ┌──────────────────────────────────┐
        │     sampling original traffic     │
        └──────────────────┬───────────────┘
                           ▼
        ┌──────────────────────────────────┐
        │        differential process       │
        └──────────────────┬───────────────┘
                           ▼
        ┌──────────────────────────────────┐
        │        stationary sequence        │
        └──────────────────┬───────────────┘
                           ▼
        ┌──────────────────────────────────┐
        │       determining order of        │
        │          ARMA model               │
        └──────────────────┬───────────────┘
                           ▼
        ┌──────────────────────────────────┐
        │    calculating model parameter    │
        └──────────────────┬───────────────┘
                           ▼
        ┌──────────────────────────────────┐
        │         prediction model          │
        └──────────────────┬───────────────┘
                           ▼
        ┌──────────────────────────────────┐
        │      fitting and predicting by    │
        │          prediction model         │
        └──────────────────┬───────────────┘
                           ▼
        ┌──────────────────────────────────┐
        │    analysing prediction result    │
        └──────────────────┬───────────────┘
                           ▼
                    ┌─────────────┐
                    │     end     │
                    └─────────────┘
```