Model Development Phase Template

Date	14th October 2024
Team ID	LTVIP2024TMID24968
Project Title	TrafficTelligenceAdvancedTrafficVolume EstimationwithMachineLearning
Maximum Marks	6 Marks

Model Selection Report

This report identifies the best predictive model for a specific problem by evaluating various candidates based on performance metrics. It outlines the dataset, candidate models, and selection criteria, ultimately recommending the most suitable model. This process ensures transparency and informs decision-making for stakeholders.

Model Selection Report:

Model	Description	Hyper parameters	Performance Metric (e.g., Accuracy, F1 Score)
Linear Regression	Linear Regression is a statistical method used to model the relationship between a dependent variable and one or more independent variables by fitting a linear equation to the observed data	-	14%
Decision Tree Regressor	A Decision Tree Regressor predicts continuous outcomes by splitting data into subsets based on feature values, resulting in a tree-like	-	78%

	structure. Suitable for initial insights into traffic patterns.		
Random Forest Regressor	Random Forest Regressor is an ensemble method that combines multiple decision trees to enhance prediction accuracy and reduce overfitting. Predicts traffic flow and congestion by analyzing diverse data sources, improving traffic management and urban mobility, and provides feature importance for traffic prediction	-	84%
Support vector Regression	Support Vector Regression (SVR) in traffic intelligence can handle non-linear relationships and robustness to outliers makes it effective for modeling complex traffic patterns. This enhances traffic management and helps improve urban mobility strategies.	-	59%
Gradient Boosting	Gradient boosting with trees optimizes predictive performance handles complex relationships, and is suitable for accurate traffic predictions.	-	86%