Model Development Phase Template

Date	26 June 2025
Team ID	LTVIP2025TMID44033
Project Title	TrafficTelligence: Advanced Traffic Volume Estimation with Machine Learning
Maximum Marks	6 Marks

Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. This comprehensive report will provide insights into the chosen models and their effectiveness.

Model Selection Report:

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
SVR	Can handle nonlinear relationships between features and high-dimensional data. So it can be useful to determine traffic volume with multiple features	-	R-square Score: 95%

Polynomial Regressor	polynomial regression can capture more complex relationship between a predictor variable and an outcome variable by using an nth-degree polynomial of the predictor. Unlike simple linear regression,	-	R-square Score: 75%

	which assumes a linear relationship. Which can capture the non-linear relationship for accurate prediction of traffic volume.		
Random Forest Regressor	It is an ensemble learning method used for regression tasks. It can capture more complex relationship using multiple decision trees. Using multiple trees helps to reduce error in traffic volume prediction.	-	R-square Score: 92%
XG Boost	Trees are trained sequentially, correcting errors made by previous trees. Which will be helpful in accurate determination and capturing complex behavior of traffic volume.	-	R-square Score: 23%