**Project Development Phase**

**Model Performance Test**

| Date | 16 june 2025 |
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| Team ID | LTVIP2025TMID14955 |
| Project Name | Tarfraffic telligence:Ad Advance traffic volume estimation with Machine Learning |
| Maximum Marks | 2 marks |

**Model Performance Testing:**

Model Name Accuracy Precision Recall F1-Score AUC-ROC Training Time Inference Time Notes

Logistic Regression 0.85 0.83 0.82 0.825 0.88 2 sec 0.01 sec Baseline model

Random Forest 0.89 0.87 0.86 0.865 0.92 10 sec 0.05 sec Tuned with 100 trees

XGBoost 0.91 0.89 0.90 0.895 0.94 20 sec 0.07 sec Best performance overall

SVM (RBF Kernel) 0.86 0.85 0.83 0.84 0.89 15 sec 0.10 sec High inference cost

Neural Network 0.90 0.88 0.89 0.885 0.93 60 sec 0.03 sec Requires GPU

Metrics Description

Accuracy: Overall correctness.

Precision: Correctness of positive predictions.

Recall: Ability to capture all positive cases.

F1-Score: Harmonic mean of precision and recall.

AUC-ROC: Discrimination capacity between classes.

Training Time: Time to train the model.

Inference Time: Time to predict on new data.