**Project Development Phase**

**Model Performance Test**

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| Date | 24 June 2025 |
| Team ID | LTVIP2025TMID35493 |
| Project Name | TrafficTelligence: Advanced Traffic Volume Estimation with Machine Learning |
| Maximum Marks | 10 Marks |

**Model Performance Testing:**

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| **S.No.** | **Parameter** | **Values** | **Screenshot** |
|  | Metrics | **Regression Model:** - **MAE (Mean Absolute Error)**: 2.41  - **MSE (Mean Squared Error)**: 9.35  - **RMSE**: 3.06  - **R² Score**: 0.89-  **Classification Model:** - Confusion Matrix: [[94, 6], [3, 97]]  - Accuracy Score: 95.5%  - Classification Report:  Precision: 0.96, Recall: 0.95, F1-Score: 0.955- |  |
|  | Tune the Model | **Hyperparameter Tuning** –  GridSearchCV used for Random Forest: • n\_estimators: [100, 200, 300]  • max\_depth: [10, 20, None] • min\_samples\_split: [2, 5] **Validation Method –**  - **K-Fold Cross Validation** (k=5): Ensures robust performance by training the model on different data folds |  |