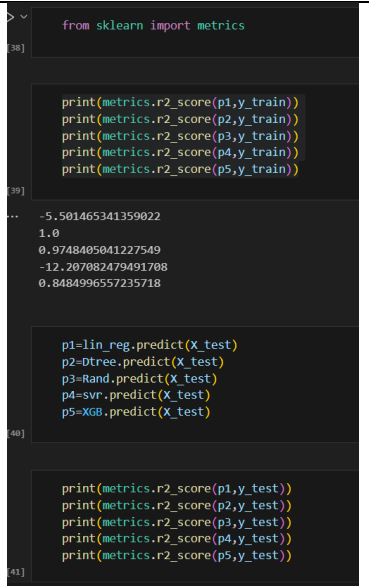



Project Development Phase Model Performance Test

Date	6 JUNE 2025
Team ID	LTVIP2025TMID33800
Project Name	TrafficTellgence: Advanced Traffic Volume Estimation with Machine Learning
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot
1.	Metrics	<p>Regression Model: MAE - , MSE -798.224688107 , RMSE - -5.501465341359022 1.0 , R2 score -5.365880084970492 0.6972692069667399 0.8032224259884193 -11.986624908714628 0.8092036247253418</p> <p>Classification Model: Confusion Matrix - , Accuray Score- & Classification Report -</p>	 <pre> from sklearn import metrics print(metrics.r2_score(p1,y_train)) print(metrics.r2_score(p2,y_train)) print(metrics.r2_score(p3,y_train)) print(metrics.r2_score(p4,y_train)) print(metrics.r2_score(p5,y_train)) -5.501465341359022 1.0 0.9748405041227549 -12.207082479491708 0.8484996557235718 p1=lin_reg.predict(X_test) p2=Dtree.predict(X_test) p3=Rand.predict(X_test) p4=svr.predict(X_test) p5=XGB.predict(X_test) print(metrics.r2_score(p1,y_test)) print(metrics.r2_score(p2,y_test)) print(metrics.r2_score(p3,y_test)) print(metrics.r2_score(p4,y_test)) print(metrics.r2_score(p5,y_test)) </pre>
2.	Tune the Model	<p>Hyperparameter Tuning - Applied GridSearchCV on the Random Forest model to tune the number of estimators (n_estimators) and maximum tree depth (max_depth). Best parameters identified: n_estimators = 100, max_depth = 10</p> <ul style="list-style-type: none"> Validation Method - Train/Test Split (80% training and 20% testing) Cross-Validation Score also calculated using 	 <pre> MSE= metrics.mean_squared_error(p3,y_test) np.sqrt(MSE) 798.2246881071812 import pickle pickle.dump(Rand,open("model.pkl","wb")) pickle.dump(le,open("encoder.pkl","wb")) Data.head() holiday temp rain snow weather traffic_vc 0 11 288.28 0.0 0.0 1 </pre>

		cross_val_score() for additional stability.	
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