



Project Development Phase Model Performance Test

Date	18 November 2022
Team ID	PNT2022TMID20562
Project Name	Project – Machine Learning based Vehicle Performance Analyzer

Model Performance Testing:

S.No.	Parameter	Values	Screenshot
1.	Metrics	Regression Model: 1) MAE - 1.7858 2) MSE - 5.9395 3) RMSE - 2.4371 4) R2 score - 0.9064	 <pre> [18] from sklearn.metrics import r2_score accuracy=r2_score(y_test,y_pred) print("R2 score") (accuracy) R2 score = 0.9064006323446798 from sklearn.metrics import mean_absolute_error print("MAE") mean_absolute_error(y_test, y_pred) MAE 1.7858139534883724 [23] from sklearn.metrics import mean_squared_error print("MSE") mean_squared_error(y_test,y_pred) MSE 5.939570173066526 [24] print("RMSE") import math math.sqrt(mean_squared_error(y_test,y_pred)) RMSE 2.4371233397320142 </pre>
2.	Tune the Model	Hyperparameter Tuning - Random Search Validation Method - Holdout method	 <pre> from sklearn.model_selection import train_test_split x_train,x_test,y_train,y_test = train_test_split(x,y,test_size=0.2,random_state=0) from sklearn.model_selection import RandomizedSearchCV param_vals = {'max_depth': [2, 5, 8, 11], 'n_estimators': [30, 35, 40, 43]} random_rf = RandomizedSearchCV(estimator=d, param_distributions=param_vals, n_iter=10, scoring='accuracy', cv=5, refit=True, n_jobs=-1) #Training and prediction random_rf.fit(x_train, y_train) preds = random_rf.best_estimator_.predict(x_test) random_rf.best_estimator_ RandomForestRegressor(max_depth=5, n_estimators=35, random_state=0) </pre>