Project Development Phase
Model Performance Test

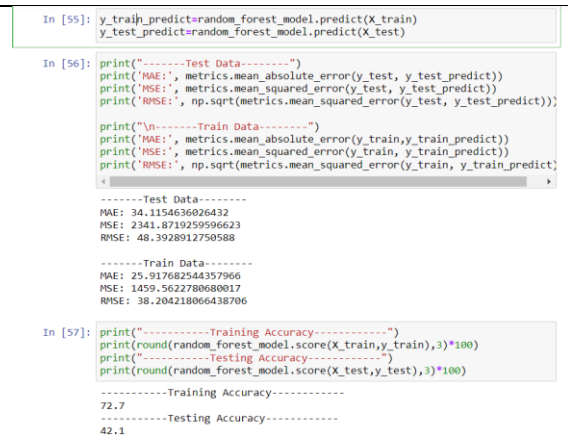
Date	10 November 2022
Team ID	PNT2022TMID16626
Project Name	Exploratory Analysis of Rainfall Prediction
Maximum Marks	10 Marks

Model Performance Testing:

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

S.No.	Parameter	Values	Screenshot

1.	Metrics	**Regression Model:** Random Forest classifier
		MAE –36.693305772295616,
		MSE -2707.377549592384,
		RMSE -52.032466303187896,
			In [53]:
			`print("-------Test Data--------")`
			`print('MAE:', metrics.mean_absolute_error(y_test, y_test_predict))`
			`print('MSE:', metrics.mean_squared_error(y_test, y_test_predict))`
			`print('RMSE:', np.sqrt(metrics.mean_squared_error(y_test, y_test_predict)))`
			
			`print("\n-------Train Data--------")`
			`print('MAE:', metrics.mean_absolute_error(y_train,y_train_predict))`
			`print('MSE:', metrics.mean_squared_error(y_train, y_train_predict))`
			`print('RMSE:', np.sqrt(metrics.mean_squared_error(y_train, y_train_predict)))`
			
			`print("\n-----Training Accuracy-------")`
			`print(round(LR.score(X_train,y_train),3)*100)`
			`print("-----Testing Accuracy--------")`
			`print(round(LR.score(X_test,y_test),3)*100)`
			
			-------Test Data--------
			MAE: 36.693305772295616
			MSE: 2707.377549592384
			RMSE: 52.032466303187896
			
			-------Train Data--------
			MAE: 37.684332030035904
			MSE: 3113.2867829842517
			RMSE: 55.79683488321046
			
			-----Training Accuracy-------
			41.699999999999996
			-----Testing Accuracy--------
			33.1

2.	Tune the Model	**Hyperparameter Tuning** - The number of features is important and should be tuned in random forest classification. **Validation Method** - It involves partitioning the training data set into subsets, where one subset is held out to test the performance of the model. This data set is called the validation data set.	

Accuracy Score-

Linear regression: Testing Accuracy: 41.699999999999996

Training accuracy: 33.1

&

Random regression: Testing Accuracy: 42.5

Training accuracy: 72.5

Hence, we tested with Logistic regression and Random Forest Classification wherein the accuracy o f Random Forest classification is 95% compared with Logistic Regression.