Project Development Phase
Model Performance Test

Date	20 November 2022
Team ID	PNT2022TMID17876
Project Name	Predicting the energy output of wind turbine based on weather condition
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	**Regression Model:** **1. Linear Regression Model** MAE - 149.044, MSE - 43108.98, RMSE – 209.31, R2 score -85.0	-------LINEAR REGRESSION METRICS------ -------Test Data-------- MAE: 149.04421616824322 MSE: 43810.98108666043 RMSE: 209.31072855126283 -------Train Data-------- MAE: 149.11934775839532 MSE: 42671.04510091187 RMSE: 206.56971002766082 -----Training Accuracy------- R2 score 86.0 -----Testing Accuracy-------- R2 score 85.0
		2. Decision Tree Regression Model MAE- 62.4184, MSE- 14889.97, RMSE- 122.02, R2 Score -95.0	-------DECISION TREE REGRESSOR METRICS------- -------Test Data-------- MAE: 62.41840996300885 MSE: 14889.978097767444 RMSE: 122.02449794105873 -------Train Data-------- MAE: 13.834952023323225 MSE: 2258.2346855734895 RMSE: 47.520886834880194 -----Training Accuracy------- R2 score 99.0 -----Testing Accuracy-------- R2 score 95.0

		3. Random Forest Regression Model MAE- 53.52, MSE- 9893.57, RMSE- 99.466, R2 Score- 97.0	-------RANDOM FOREST REGRESSOR METRICS------- -------Test Data-------- MAE: 53.52428576267578 MSE: 9893.574694260942 RMSE: 99.46645089579264 -------Train Data-------- MAE: 44.56230699864768 MSE: 7130.980284591737 RMSE: 84.44513179924428 -----Training Accuracy------- R2 score 98.0 -----Testing Accuracy-------- R2 score 97.0
		4.XGBoost Regression model MAE- 59.05, MSE- 11101.80, RMSE- 105.36, R2 Score- 96.0	-------XGBOOST REGRESSOR METRICS------- -------Test Data-------- MAE: 59.05906970779872 MSE: 11101.803984338969 RMSE: 105.36509851150413 -------Train Data-------- MAE: 54.64 MSE: 9111.755416621236 RMSE: 95.45551538083714 -----Training Accuracy------- R2 score 97.0 -----Testing Accuracy-------- R2 score 96.0
2.	Tune the Model	Validation Method – K-fold Linear Regression cross validation	--LINEAR REGRESSION CROSS VALIDATION---- ---K-FOLD VALIDATION--- Cross Validation Scores: [0.85333732 0.86254759 0.84740778 0.84719649 0.85781129] Average CV Score: 0.8536600981232743 Number of CV Scores used in Average: 5

		Decision Tree Regression Cross validation	--DECISION TREE REGRESSION CROSS VALIDATION---- ---K-FOLD VALIDATION--- Cross Validation Scores: [0.94125092 0.93970889 0.9415568 0.94030881 0.9465957] Average CV Score: 0.9418883005469291 Number of CV Scores used in Average: 5
		Random Forest Regression Cross validation	--RANDOM FOREST REGRESSION CROSS VALIDATION---- ---K-FOLD VALIDATION--- Cross Validation Scores: [0.96295917 0.96780515 0.96252742 0.96234277 0.96629065] Average CV Score: 0.9643850315302966 Number of CV Scores used in Average: 5
		XGBoost regression cross validation	--XGBOOST REGRESSION CROSS VALIDATION---- ---K-FOLD VALIDATION--- Cross Validation Scores: [0.96103984 0.96228288 0.95911245 0.96042026 0.96324056] Average CV Score: 0.961219199352616 Number of CV Scores used in Average: 5