Project Development Phase
Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID17967
Project Name	Project - Efficient Water Quality Analysis and Prediction using Machine Learning
Maximum Marks	10 Marks

Model Performance Testing:

S.No.	Parameter	Values	Screenshot

1.	Metrics	**Regression Model:**
		Linear Regression:
		MAE - 6.837882116994348,
		MSE - 72.12112265184501,
		RMSE - 8.492415595803411,
		R2 score - 0.27583949127715235
		
		Decision Tree:
		MAE - 0.4438127090301296,
		MSE - 3.5931063545150494,
		RMSE - 1.895549090505189,
		R2 score - 0.9639220019058543
		
		Random Forest:
		MAE - 0.47559899665555844,
		MSE - 2.012301841939794,
		RMSE - 1.4185562526526023,
		R2 score - 0.9797946915968346
			`from sklearn import metrics`
			`print('MAE:',metrics.mean_absolute_error(Y_test,Y_pred))`
			`print('MSE:',metrics.mean_squared_error(Y_test,Y_pred))`
			`print('RMSE:',np.sqrt(metrics.mean_squared_error(Y_test,Y_pred)))`
			`print('r2_score:',metrics.r2_score(Y_test,Y_pred))`
			
			`MAE: 6.837882116994348`
			`MSE: 72.12112265184501`
			`RMSE: 8.492415595803411`
			`r2_score: 0.27583949127715235`
			
			`from sklearn import metrics`
			`print('MAE:',metrics.mean_absolute_error(Y_test,Y_pred2))`
			`print('MSE:',metrics.mean_squared_error(Y_test,Y_pred2))`
			`print('RMSE:',np.sqrt(metrics.mean_squared_error(Y_test,Y_pred2)))`
			`print('r2_score:',metrics.r2_score(Y_test,Y_pred2))`
			
			`MAE: 0.4438127090301296`
			`MSE: 3.5931063545150494`
			`RMSE: 1.895549090505189`
			`r2_score: 0.9639220019058543`
			
			`from sklearn import metrics`
			`print('MAE:',metrics.mean_absolute_error(Y_test,Y_pred1))`
			`print('MSE:',metrics.mean_squared_error(Y_test,Y_pred1))`
			`print('RMSE:',np.sqrt(metrics.mean_squared_error(Y_test,Y_pred1)))`
			`print('r2_score:',metrics.r2_score(Y_test,Y_pred1))`
			
			`MAE: 0.47559899665555844`
			`MSE: 2.012301841939794`
			`RMSE: 1.4185562526526023`
			`r2_score: 0.9797946915968346`

2.	Tune the Model	Hyperparameter Tuning	All the features are required for WQI calculation.So hyperparameter tuning is not applicable.