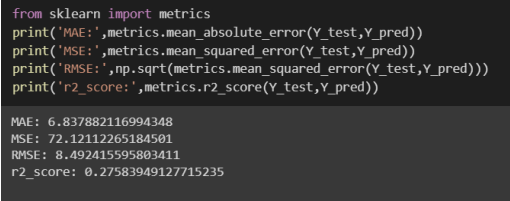
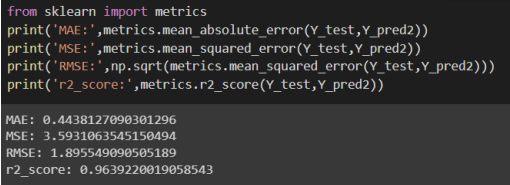
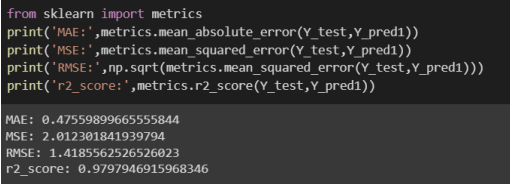


## Project Development Phase Model Performance Test

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	<p><b>Regression Model:</b></p> <p><b>Linear Regression:</b></p> <p>MAE - 6.837882116994348, MSE - 72.12112265184501, RMSE - 8.492415595803411, R2 score - 0.27583949127715235</p> <p><b>Decision Tree:</b></p> <p>MAE - 0.4438127090301296, MSE - 3.5931063545150494, RMSE - 1.895549090505189, R2 score - 0.9639220019058543</p> <p><b>Random Forest:</b></p> <p>MAE - 0.47559899665555844, MSE - 2.012301841939794, RMSE - 1.4185562526526023, R2 score - 0.9797946915968346</p>	 <pre>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</pre>  <pre>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</pre>  <pre>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</pre>
2.	Tune the Model	Hyperparameter Tuning	All the features are required for WQI calculation. So hyperparameter tuning is not applicable.