

# Project Development Phase

## Define the Problem Statements

|              |  |
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| Team ID      | PNT2022TMID18283   |
| Project Name | Efficient Water Quality Analysis & Prediction using Machine Learning |

## Model Performance Testing:

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

| S.No. | Parameter      | Values  | Screenshot   |
|-------|----------------|---|--|
| 1.    | Metrics        | <b>Random Forest Model:</b><br>MAE : 0.987<br><br>MSE : 5.55<br><br>RMSE : 2.35<br><br>R2 score: 0.96 | <pre>In [47]: 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)))  MAE: 0.9872080200501312 MSE: 5.55095879699248 RMSE: 2.3569250899634566  In [48]: metrics.r2_score(y_test, y_pred)  Out[48]: 0.96971918125809</pre> |
| 2.    | Tune the Model | Hyperparameter Tuning<br>–<br>n_estimators = 10,  | <pre>from sklearn.ensemble import RandomForestRegressor regressor = RandomForestRegressor(n_estimators = 10, random_state = 0) regressor.fit(x_train, y_train) y_pred = regressor.predict(x_test)</pre>  |