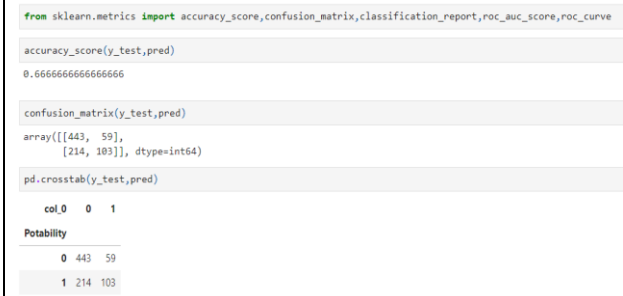


## Project Development Phase

### Model Performance Test

Date	22 October 2023
Team ID	PNT2023TMID PNT2022TMID592061
Project Name	River Water Quality Forecasting Using Machine Learning
Maximum Marks	10 Marks

### Model Performance Testing:

S.No.	Parameter	Values	Screenshot
1.	Metrics	<p><b><u>Regression Model:</u></b> NaN</p> <p><b><u>Classification Model:</u></b> accuracy_score, confusion_matrix, classification_report, roc_auc_score, roc_curve</p>	<p><b><u>Classification Model Screenshot:</u></b></p>  <pre>from sklearn.metrics import accuracy_score, confusion_matrix, classification_report, roc_auc_score, roc_curve  accuracy_score(y_test, pred) 0.6666666666666666  confusion_matrix(y_test, pred) array([[443,  59],        [214, 103]], dtype=int64)  pd.crosstab(y_test, pred)  col_0    0    1 Potability 0      443   59 1      214  103</pre>

2.	Tune the Model	<p><b><u>Hyperparameter Tuning:</u></b></p> <p>RandomizedSearchCV</p> <p><b><u>Validation Method:</u></b></p> <p>train_test_split</p>	<p><b><u>Hyperparameter Tuning Screenshot:</u></b></p> <pre>In [32]: from sklearn.svm import SVC model=SVC(probability=True)  In [33]: rand_list={"C":[2,3,5,6,7,8,10],                   "gamma":[0.1,0.2,0.5,0.4,0.8]}  In [34]: from sklearn.model_selection import RandomizedSearchCV rand_search=RandomizedSearchCV(model,param_distributions=rand_list,n_iter=20,cv=5)  In [35]: rand_search.fit(X_train,y_train)  Out[35]: RandomizedSearchCV           estimator: SVC               SVC</pre> <p><b><u>Validation Method Screenshot:</u></b></p> <p>Splitting Data into Train and Test.</p> <pre>9]: from sklearn.model_selection import train_test_split  0]: X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.25, random_state=0)  1]: print(X_train.shape, X_test.shape, y_train.shape, y_test.shape)  (2457, 9) (819, 9) (2457,) (819,)</pre>
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