Project Development Phase
Model Performance Test
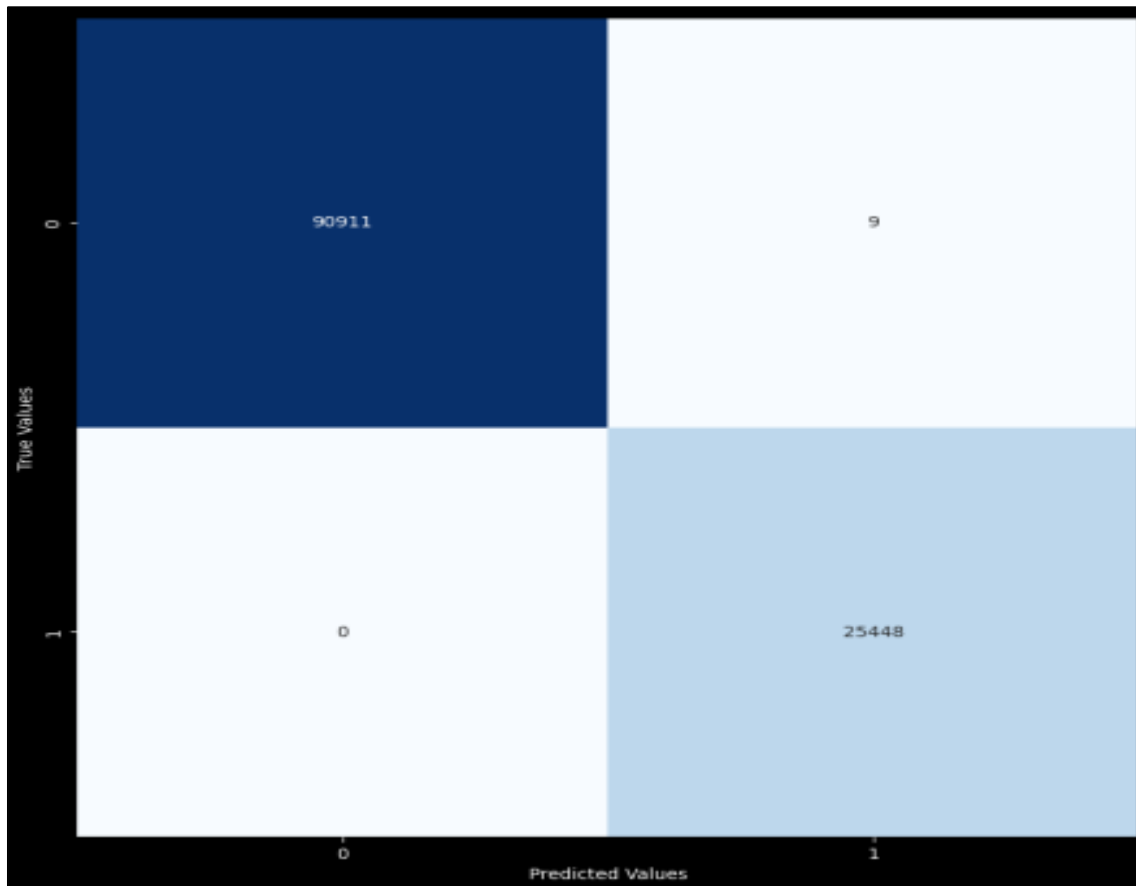
Date	19 November 2022
Team ID	PNT2022TMID46353
Project Name	Project - "EXPLORATORY ANALYSIS OF RAIN FALL DATA IN INDIA FOR AGRICULTURE"
Maximum Marks	4 Marks

Model Performance Testing:

S.No.	Parameter	Values	Screenshot
1.	**Metrics**	**Regression Model:** MAE - , MSE - , RMSE - , R2 score - **Classification Model:** Confusion Matrix - , Accuray Score- & Classification Report -	Below Mentioned
2.	**Tune the Model**	Hyperparameter Tuning - Validation Method -	Below Mentioned

a) Confusion Matrix

b)Classfication Report

	precision	recall	f1-score	support
No	1.00	1.00	1.00	90911
Yes	1.00	1.00	1.00	25457
accuracy			1.00	116368
macro avg	1.00	1.00	1.00	116368
weighted avg	1.00	1.00	1.00	116368

2. TUNE THE MODEL

a)Hyperparameter Tuning

Hyperparameter Tuning

```
In [47]: grid = {
             "n_estimators": [10, 100, 200, 500, 1000, 1200],
             "max_depth": [None, 5, 10, 20, 30],
             "max_features": ["auto", "sqrt"],
             "min_samples_split": [2, 4, 6],
             "min_samples_leaf": [1, 2, 4],
         }

         gs_model = GridSearchCV(estimator=model, param_grid=grid, cv=5)

         gs_model.fit(X_train, y_train)

Out[48]: GridSearchCV(cv=5, estimator=RandomForestClassifier(n_jobs=1),
                      param_grid={'max_depth': [30], 'max_features': ['auto', 'sqrt'],
                                  'min_samples_leaf': [1, 22],
                                  'min_samples_split': [2, 4],
                                  'n_estimators': [50, 100, 200]})
```