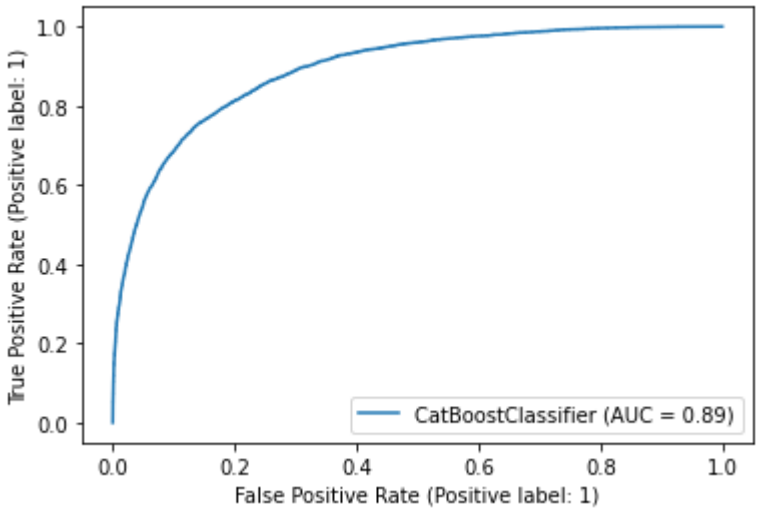
Project Development Phase
Model Performance Test

Date	10 NOvember 2023
Team ID	PNT2022TMID591569
Project Name	Project – Rainfall Prediction Using ML
Maximum Marks	10 Marks

Model Performance Testing:

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

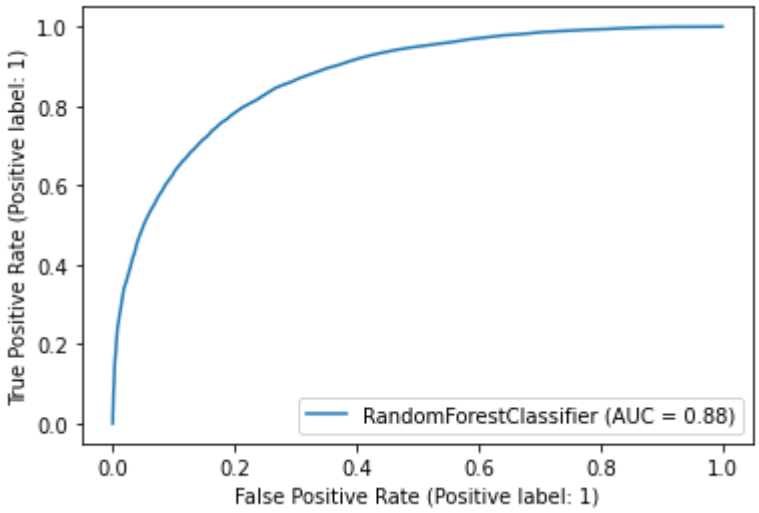
S.No.	Parameter	Values	Screenshot
1.	Metrics	**Regression Model:** MAE - , MSE - , RMSE - , R2 score - **Classification Model:** Confusion Matrix - , Accuray Score- & Classification Report -	1. CatboosClassifier MODEL- [[21520 1197] [2777 3598]] 0.8633988725422796 precision recall f1-score support 0 0.89 0.95 0.92 22717 1 0.75 0.56 0.64 6375 accuracy 0.86 29092 macro avg 0.82 0.76 0.78 29092 weighted avg 0.86 0.86 0.86 29092 

2. RandomForestClassifier()-

```
[[20633  2084]
 [ 2470  3905]]
0.8434621201704936
              precision    recall  f1-score   support

           0       0.89      0.91      0.90     22717
           1       0.65      0.61      0.63      6375

    accuracy                           0.84     29092
   macro avg       0.77      0.76      0.77     29092
     weighted avg       0.84      0.84      0.84     29092
```

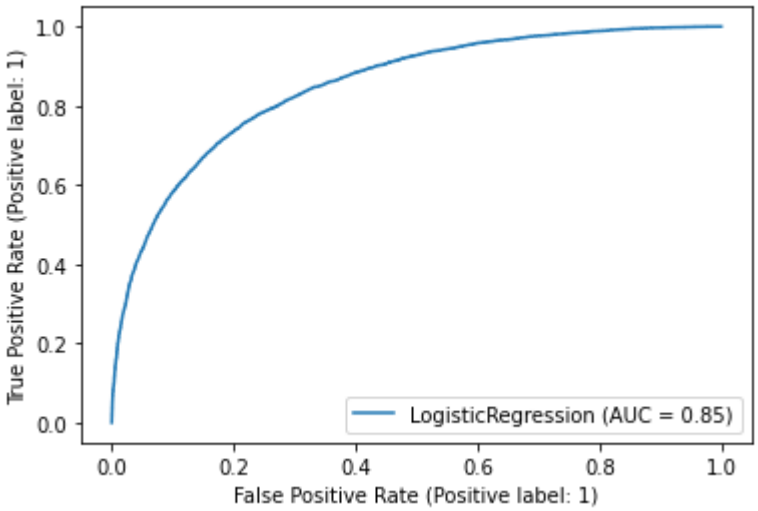


3. LogisticRegression()-

```
[[17649  5068]
 [ 1519  4856]]
0.7735803657362849
              precision    recall  f1-score   support

           0       0.92      0.78      0.84     22717
           1       0.49      0.76      0.60      6375

    accuracy                           0.77     29092
   macro avg       0.71      0.77      0.72     29092
     weighted avg       0.83      0.77      0.79     29092
```

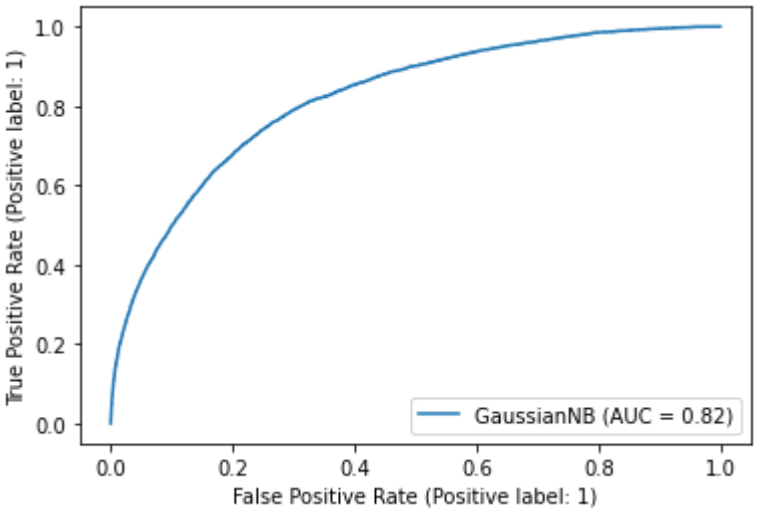


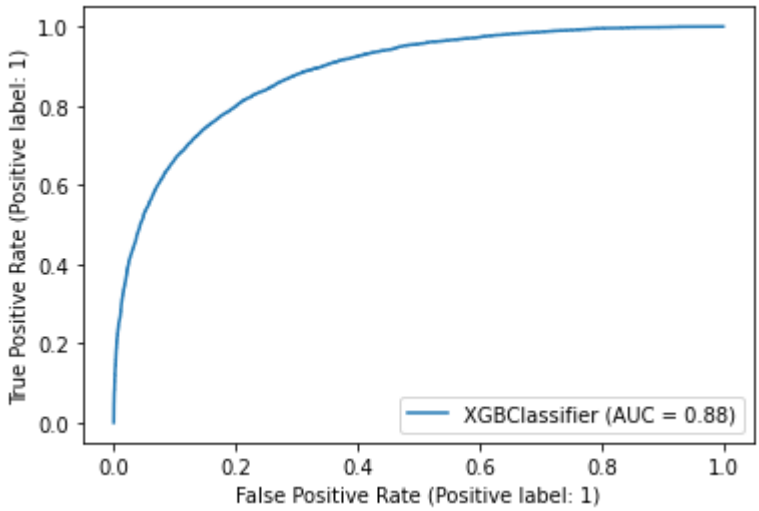
4. GaussianNB()-

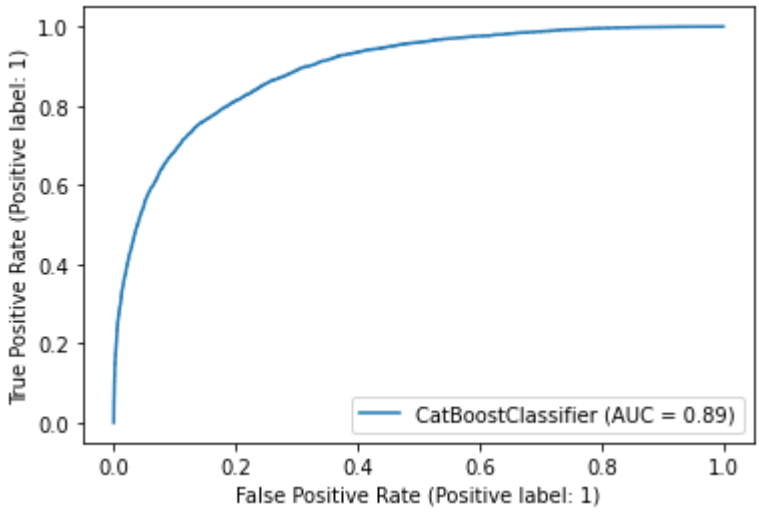
```
[[17078  5639]
 [ 1661  4714]]
0.7490719098033823
              precision    recall  f1-score   support

           0       0.91      0.75      0.82     22717
           1       0.46      0.74      0.56      6375

    accuracy                           0.75     29092
   macro avg       0.68      0.75      0.69     29092
weighted avg       0.81      0.75      0.77     29092
```



			5. XGBClassifier- [[21396 1321] [2844 3531]] 0.8568334937439847 precision recall f1-score support 0 0.88 0.94 0.91 22717 1 0.73 0.55 0.63 6375 accuracy 0.86 29092 macro avg 0.81 0.75 0.77 29092 weighted avg 0.85 0.86 0.85 29092 
2.	Tune the Model	Hyperparameter Tuning - Validation Method -	CatBoost Classifier- HIGHER THE ACCURACY OF THIS MODEL [[21520 1197] [2777 3598]] 0.8633988725422796

			 True Positive Rate (Positive label: 1) False Positive Rate (Positive label: 1) CatBoostClassifier (AUC = 0.89) 0.0 0.2 0.4 0.6 0.8 1.0