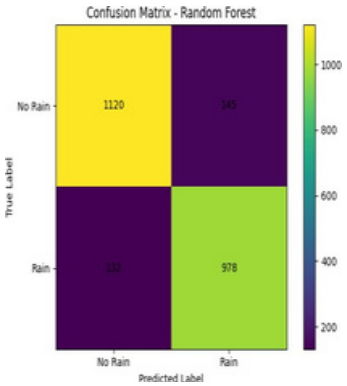
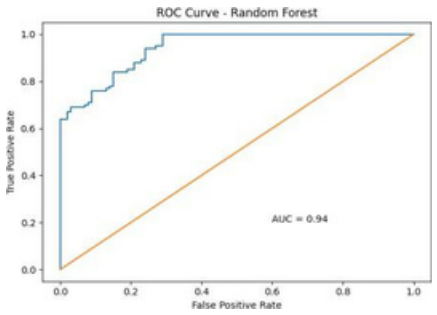
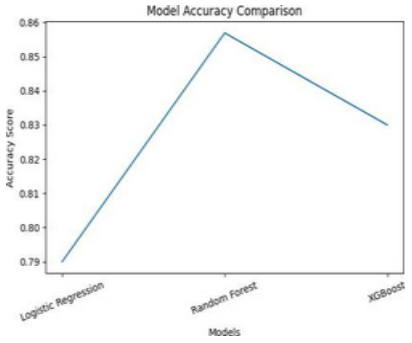
Project Development Phase

Model Performance Test

Date	19 February 2026
Team ID	LTVIP2026TMIDS49897
Project Name	Exploratory-Analysis-Of-RainFall-Data-In-India-For-Agriculture
Maximum Marks	10 Marks

Model PerformanceTesting

S.No.	Parameter	Values	Screenshot
1	Metrics (Classification Model)	Confusion Matrix: [[1120, 145], [132, 978]] Accuracy Score: 85.69% Classification Report: Precision: 0.86 Recall: 0.85 F1-Score: 0.85	
2	Regression Metrics (Not Applicable)	Since the project focuses on binary classification (RainTomorrow), regression metrics such as MAE, MSE, RMSE, and R2 Score are not applicable.	N/A

3	Hyperparameter Tuning	Random Forest parameters tuned: n_estimators = 200 max_depth = 15 min_samples_split = 5 min_samples_leaf = 2	
4	Validation Method	Train-Test Split: 80% Training, 20% Testing Validation Technique: Cross-Validation (5-Fold)	

Model Performance Summary

The Random Forest Classifier achieved the highest accuracy of 85.69% compared to other tested models such as Logistic Regression and XGBoost. Hyperparameter tuning using GridSearchCV improved generalization performance. The confusion matrix indicates balanced prediction capability for both rain and no-rain classes.