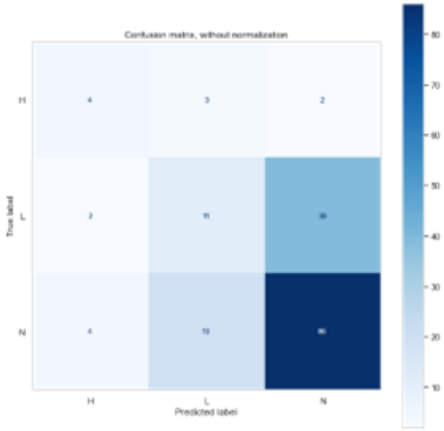
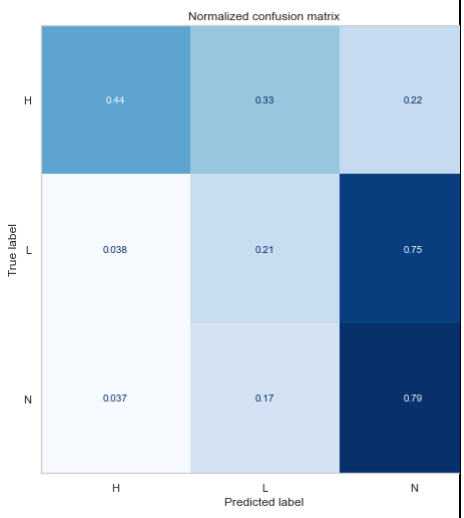
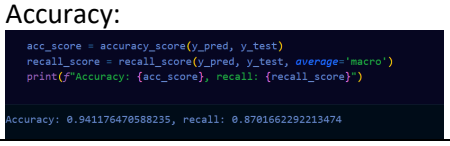
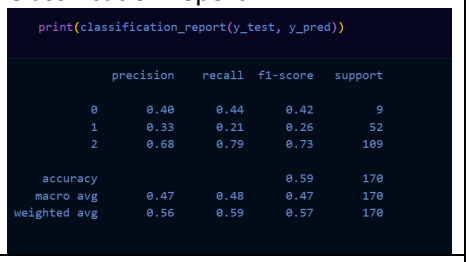
Project Development Phase
Model Performance Test

Date	22 November 2023
Team ID	591647
Project Name	Machine Learning Approach For Predicting The Rainfall
Maximum Marks	10 Marks

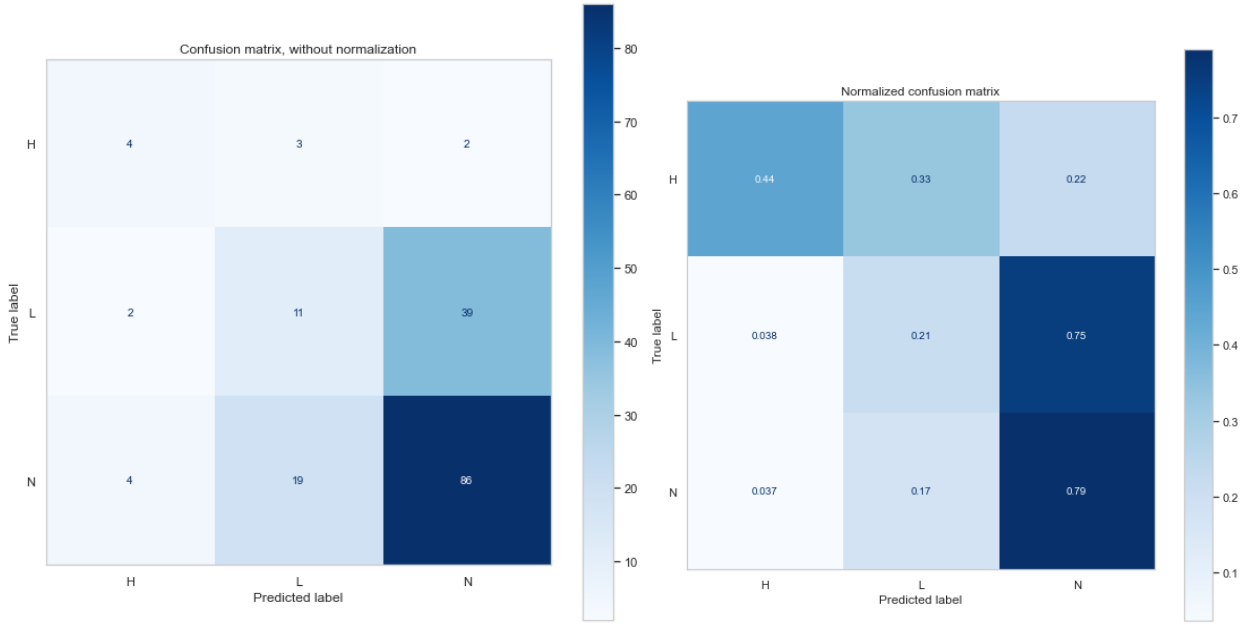
Model Performance Testing:

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

S.No.	Parameter	Values	Screenshot
1.	Metrics	**Classification Model:** Accuray Score- 94% Recall - 87	Confusion matrix:   Accuracy: 

			Classification report: `print(classification_report(y_test, y_pred))`  precision recall f1-score support 0 0.40 0.44 0.42 9 1 0.33 0.21 0.26 52 2 0.68 0.79 0.73 109 accuracy 0.59 170 macro avg 0.47 0.48 0.47 170 weighted avg 0.56 0.59 0.57 170
2.	Tune the Model	Hyperparameter Tuning – Tuning parameters used: boosting type : 'gbdt' (Gradient Boosting Decision Tree) num_leaves: 31 min_data_in_leaf: 20 max_depth: -1 learning_rate: 0.1 n_estimators: 100 subsample: 1.0 subsample_freq: 0 colsample_bytree: 1.0 max_bin: 255 reg_alpha: 0.0 reg_lambda: 0.0 min_child_samples: 20 min_child_weight: 0.001 scale_pos_weight: 1.0 class_weight: None importance_type: 'split' random_state: None silent: True Validation Method – Validation metrics, such as accuracy, recall, and the confusion matrix are used.	-

Confusion matrix:



Accuracy:

```
acc_score = accuracy_score(y_pred, y_test)
recall_score = recall_score(y_pred, y_test, average='macro')
print(f"Accuracy: {acc_score}, recall: {recall_score}")
```

```
Accuracy: 0.941176470588235, recall: 0.8701662292213474
```

Classification report:

```
print(classification_report(y_test, y_pred))
```

```
              precision    recall  f1-score   support

           0       0.40      0.44      0.42         9
           1       0.33      0.21      0.26        52
           2       0.68      0.79      0.73       109

    accuracy                           0.59       170
   macro avg       0.47      0.48      0.47       170
weighted avg       0.56      0.59      0.57       170
```