Project Development Phase
Model Performance Test

Date	12 February 2026
Team ID	LTVIP2026TMIDS90283
Project Name	Rising waters: a machine learning approach to flood prediction

Model Performance Testing:

Model training is the process of teaching the machine learning algorithm to learn patterns from historical data.

The cleaned and scaled dataset was split into training and testing sets using the `train_test_split()` function. The training dataset was used to train the model, while the testing dataset was used to evaluate its performance.

During training:

The model learned the relationship between rainfall parameters and flood occurrence.

Feature scaling was applied using StandardScaler to normalize input values.

The algorithm adjusted internal parameters to minimize prediction error.

For classification:

The model predicts either:

1 → Possibility of Severe Flood

0 → No Possibility of Severe Flood

After training, the model was evaluated on unseen test data to measure its generalization capability. Accuracy and classification metrics were calculated to ensure reliable performance.

Hyperparameter tuning was performed (if applicable) to improve model performance by adjusting parameters such as learning rate, number of estimators, and depth (for XGBoost).

Finally, the trained model was saved and integrated into the Flask application, where it processes real-time user input and generates predictions instantly.