Model Development Phase Template

Date	15 June 2025
Team ID	SWTID1749618778
Project Title	Rising Waters: A Machine Learning Approach To Flood Prediction
Maximum Marks	6 Marks

Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. This comprehensive report will provide insights into the chosen models and their effectiveness.

Model Selection Report:

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
Decision Tree	An ensemble of decision trees that aggregates results to boost accuracy and reduce overfitting. In this project, it achieved 100% accuracy and demonstrated strong generalization for flood prediction.	-	Accuracy score: 100%
Random Forest	A simple, interpretable model that splits data based on feature thresholds. It provided 100% accuracy but may be prone to overfitting without pruning or tuning. Suitable for understanding feature influence.	-	Accuracy score: 100%

KNN	A distance-based classifier that assigns labels based on the nearest neighbors. It achieved 91.3% accuracy, performing well overall but showed reduced recall for flood-positive cases (1 class).	-	Accuracy score: 91.3%
XGB	An advanced gradient boosting model that builds trees sequentially to optimize prediction accuracy. It handled complex relationships effectively, achieving 91.3% accuracy on this dataset.	-	Accuracy score: 91.3%