Model Development Phase Template

Date	19 Feb 2026
Team ID	LTVIP2026TMIDS80731
Project Title	Online Payment Fraud Detection using ML
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)
Random Forest	An ensemble learning method that builds multiple decision trees and combines their outputs to improve predictive accuracy and control overfitting. It is robust to noise and effective for imbalanced datasets.	random_state=42, class_weight='balanced',n_estimators=100	F1 Score= 0.94
Decision Tree	A tree-based model that splits data based on feature values to create a set of decision rules, making predictions by traversing the tree. It is simple, interpretable, and fast but can overfit on complex data.	random_state=42, class_weight='balanced', criterion='gini'	F1 Score=0.94

KNN	A non-parametric, instance-based algorithm that classifies a data point based on the majority class among its k closest neighbors in the feature space. It is straightforward but can be slow and less effective with high-dimensional or imbalanced data.	n_neighbors=5, weights='distance', metric='minkowski',p=2	F1 Score=0.89
Gradient Boosting	An ensemble technique that builds trees sequentially, where each new tree corrects errors made by previous ones. It achieves high predictive performance but can be sensitive to overfitting and typically requires careful tuning.	random_state=42, n_estimators=100, learning_rate=0.1	F1 Score=0.87