Model Development Phase Template

Date	17 June 2025
Team ID	SWTID1749662491
Project Title	Online Payments Fraud Detection using Machine Learning
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 Classifier	An ensemble learning method that builds multiple decision trees and merges their results to improve accuracy and reduce overfitting.	N_estimators: 100 Max_depth: none	Accuracy: 0.9997108109552354
Decision Tree Classifier	A flowchart-like structure where data is split based on feature values, making decisions at each node to classify data.	Min_sample_split: 5 Max_depth: 10 Criterion: Gini	Accuracy: 0.9997100251154398

ExtraTrees Classifier	Similar to Random Forest but uses random splits for features and data, often resulting in faster training and reduced variance.	N_estimators: 100 Max_depth: none	Accuracy: 0.9997029525572798
SVM	A powerful algorithm that finds the best hyperplane to separate data points of different classes, effective in high-dimensional spaces.	Kernel: rbf Gamma: scale C: 1	Accuracy: 0.9975466081582745
XGBoost	A high-performance gradient boosting algorithm that builds trees sequentially to correct previous errors, known for speed and accuracy.	N_estimators: 100 Max_depth: 3 Learning_rate: 0.2	Accuracy: 0.9997776073378577