Model Development Phase Template

Date	20 feb 2026
Team ID	LTVIP2026TMIDS80731
Project Title	Online Payments Fraud Detection using ML
Maximum Marks	5 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	Description	Hyperparameters	Performance Metrics(eg:Train and Test accuracies)
Random Forest Classifier	An ensemble learning method that constructs multiple decision trees and aggregates their results for classification. It handles non-linear relationships well and reduces overfitting, making it effective for detecting complex patterns in fraudulent transactions.	-	-Train accuracy: 1.000 -Test accuracy: 1.000
Decision Tree Classifier	A model that splits data into branches based on feature values, making decisions at each node to classify transactions. It's easy to interpret and handles both numerical and categorical data, suitable for detecting patterns in fraudulent activities.	max depth	-Train accuracy: 1.000 -Test accuracy: 0.997

Extra Trees Classifier	An ensemble learning method that builds multiple decision trees using random splits of all observations and features. It is robust and efficient, reducing variance and handling non-linear data effectively, making it suitable for detecting intricate patterns in fraudulent transactions.	-	-Train accuracy: 1.000 -Test accuracy: 1.000
SVM classifier	A powerful model that finds the optimal hyperplane to separate different classes in the feature space. It works well for both linear and non-linear data through the use of kernel functions, making it effective for distinguishing between fraudulent and legitimate transactions.	-	-Train accuracy: 0.999 -Test accuracy: 0.998
XgBoost	An efficient and scalable gradient boosting algorithm that builds an ensemble of weak learners (typically decision trees). It is known for its speed and performance, making it highly effective for detecting complex patterns in fraudulent transactions.	-	-Train accuracy: 1.000 -Test accuracy: 1.000