Project Development Phase

Model Performance Test

Date	18 February 2026
Team ID	LTVIP2026TMIDS65702
Project Name	Online Payments Fraud Detection using Machine Learning
Maximum Marks	

Model Performance Testing:

The following table summarizes the performance evaluation of the trained XGBoost fraud detection model.

S.No.	Parameter	Values	Screenshot
1	Model Summary	XGBoost Classifier trained on Kaggle dataset using transaction behavior features.	`print(xgb1)` `XGBClassifier(base_score=None, booster=None, callbacks=None, colsample_bylevel=None, colsample_bynode=None, colsample_bytree=None, device=None, early_stopping_rounds=None, enable_categorical=False, eval_metric=None, feature_types=None, feature_weights=None, gamma=None, grow_policy=None, importance_type=None, interaction_constraints=None, learning_rate=None, max_bin=None, max_cat_threshold=None, max_cat_to_onehot=None, max_delta_step=None, max_depth=None, max_leaves=None, min_child_weight=None, missing=nan, monotone_constraints=None, multi_strategy=None, n_estimators=None, n_jobs=None, num_parallel_tree=None, ...)`

2	Accuracy	Training Accuracy: 99.99% Validation Accuracy: 99.98%	`y_train_predict5 = xgb1.predict(x_train_numeric)`
			`train_accuracy = accuracy_score(y_train1,y_train_predict5)`
			`train_accuracy`
			`0.9999904033473125`

3	Fine Tuning Result	Validation Accuracy after tuning: 99.98%	`# Predict on test data (validation data)`
			`y_test_pred = xgb1.predict(x_test_numeric)`
			`# Validation accuracy`
			`val_accuracy = accuracy_score(y_test1, y_test_pred)`
			`print("Validation Accuracy:", round(val_accuracy * 100, 2), "%")`
			`Validation Accuracy: 99.98 %`