```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import LabelEncoder
from sklearn.metrics import accuracy_score, classification_report,
confusion_matrix, roc_auc_score
from sklearn.ensemble import RandomForestClassifier, VotingClassifier
from sklearn.linear_model import LogisticRegression
from xgboost import XGBClassifier
from sklearn.pipeline import Pipeline
from sklearn.preprocessing import StandardScaler
import joblib

# SOLELY XGBoost For the project
# Load dataset
df = pd.read_csv(r"C:\Users\hp\Desktop\Fraud_Payment_Detection2\
Fraud_Detection_Dataset\PS_20174392719_1491204439457_log.csv")

# Encode 'type'
le = LabelEncoder()
df['type'] = le.fit_transform(df['type'])

# Drop unnecessary columns
df.drop(['nameOrig', 'nameDest'], axis=1, inplace=True)

# Features and target
X = df.drop(['isFraud', 'isFlaggedFraud'], axis=1)
y = df['isFraud']

# Split dataset
X_train, X_test, y_train, y_test = train_test_split(X, y,
test_size=0.2, random_state=42)

# Build XGBoost model
model = XGBClassifier(use_label_encoder=False, eval_metric='logloss')
model.fit(X_train, y_train)

# Predict
y_pred = model.predict(X_test)

# Evaluation
print(" Accuracy:", accuracy_score(y_test, y_pred))
print(" ROC AUC:", roc_auc_score(y_test, y_pred))
print(" Classification Report:\n", classification_report(y_test,
y_pred))
print(" Confusion Matrix:\n", confusion_matrix(y_test, y_pred))

# Save model
joblib.dump(model, "best_fraud_model_xgb.pkl")
```

```
c:\Users\hp\Desktop\MODEL2\.venv\Lib\site-packages\xgboost\
training.py:183: UserWarning: [10:36:48] WARNING: C:\actions-runner\
_work\xgboost\xgboost\src\learner.cc:738:
Parameters: { "use_label_encoder" } are not used.

  bst.update(dtrain, iteration=i, fobj=obj)

 Accuracy: 0.9995630730736709
 ROC AUC: 0.884804547213326
 Classification Report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00   1270904
           1       0.87      0.77      0.82      1620

    accuracy                           1.00   1272524
   macro avg       0.94      0.88      0.91   1272524
weighted avg       1.00      1.00      1.00   1272524

 Confusion Matrix:
 [[1270721     183]
 [    373    1247]]

['best_fraud_model_xgb.pkl']
```