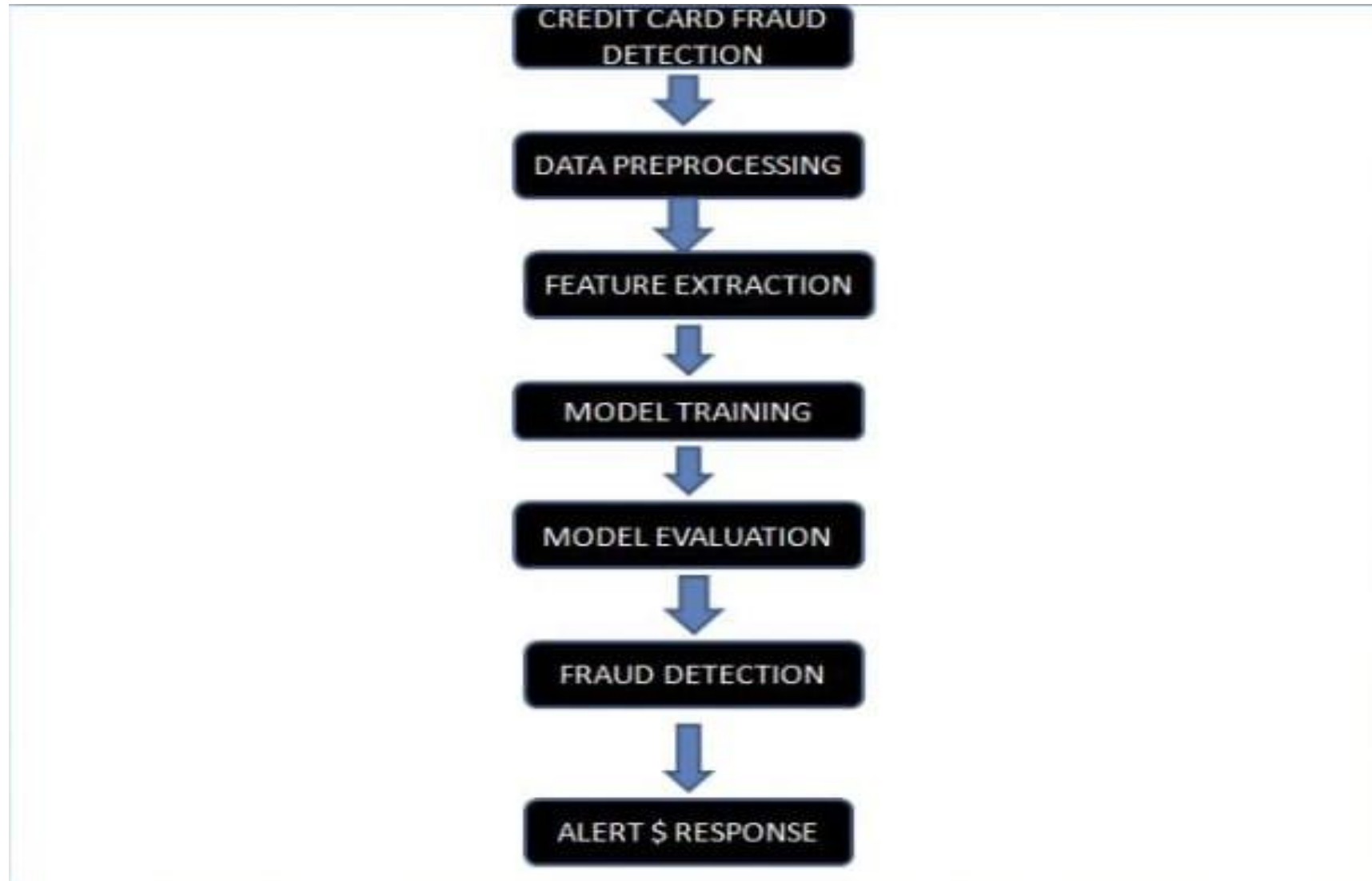
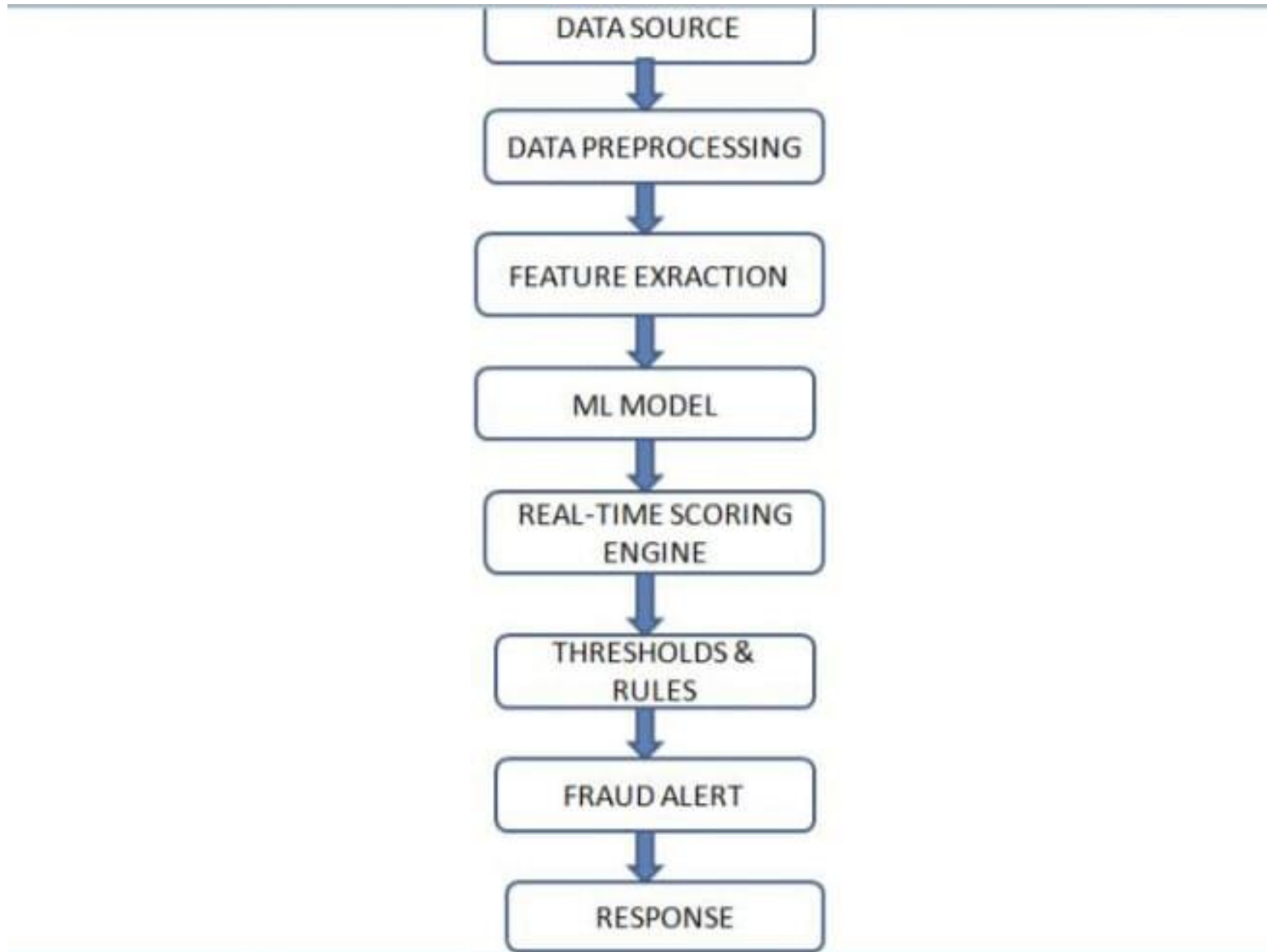


# Credit Card Fraud Detection

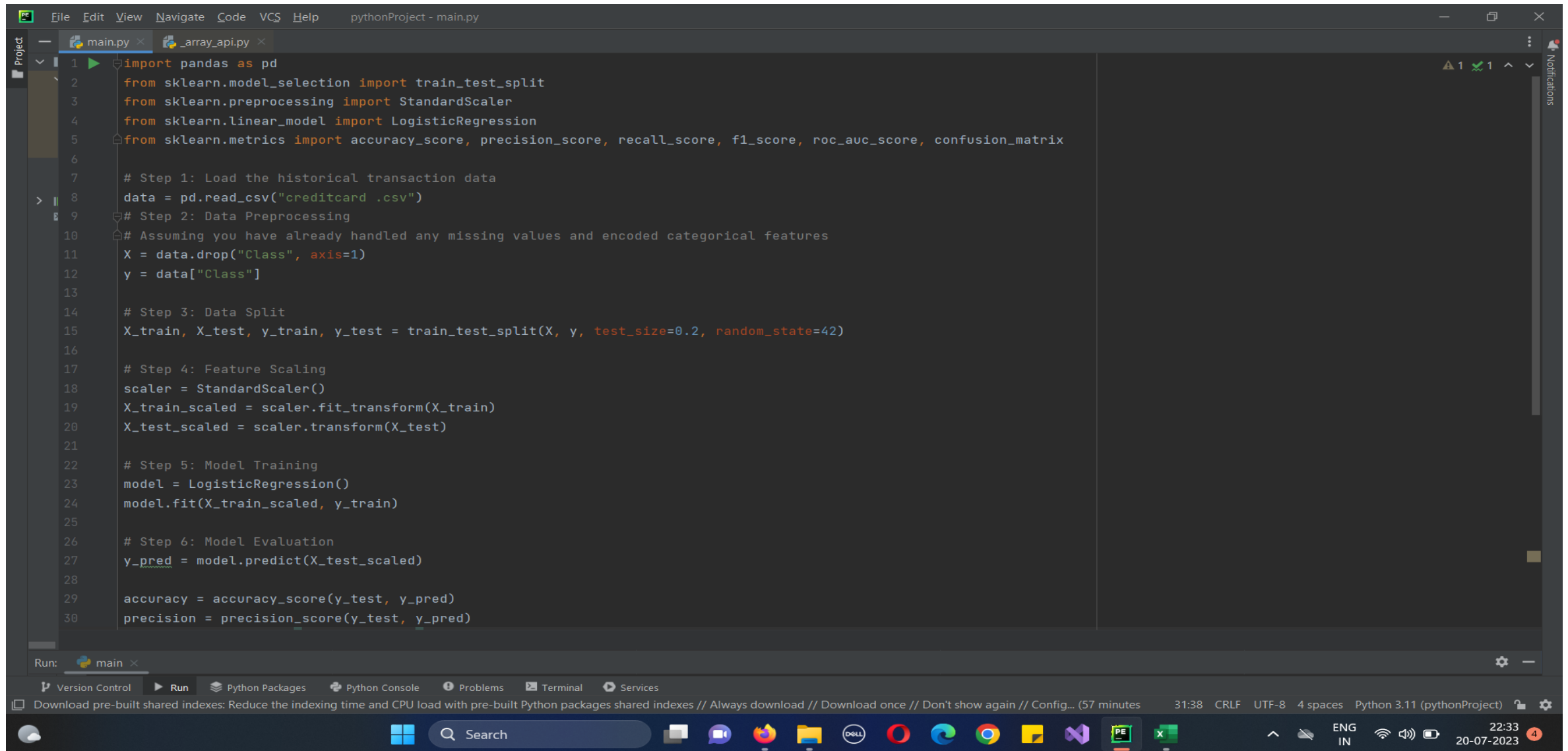
# Flow Chart



# Architecture Diagram



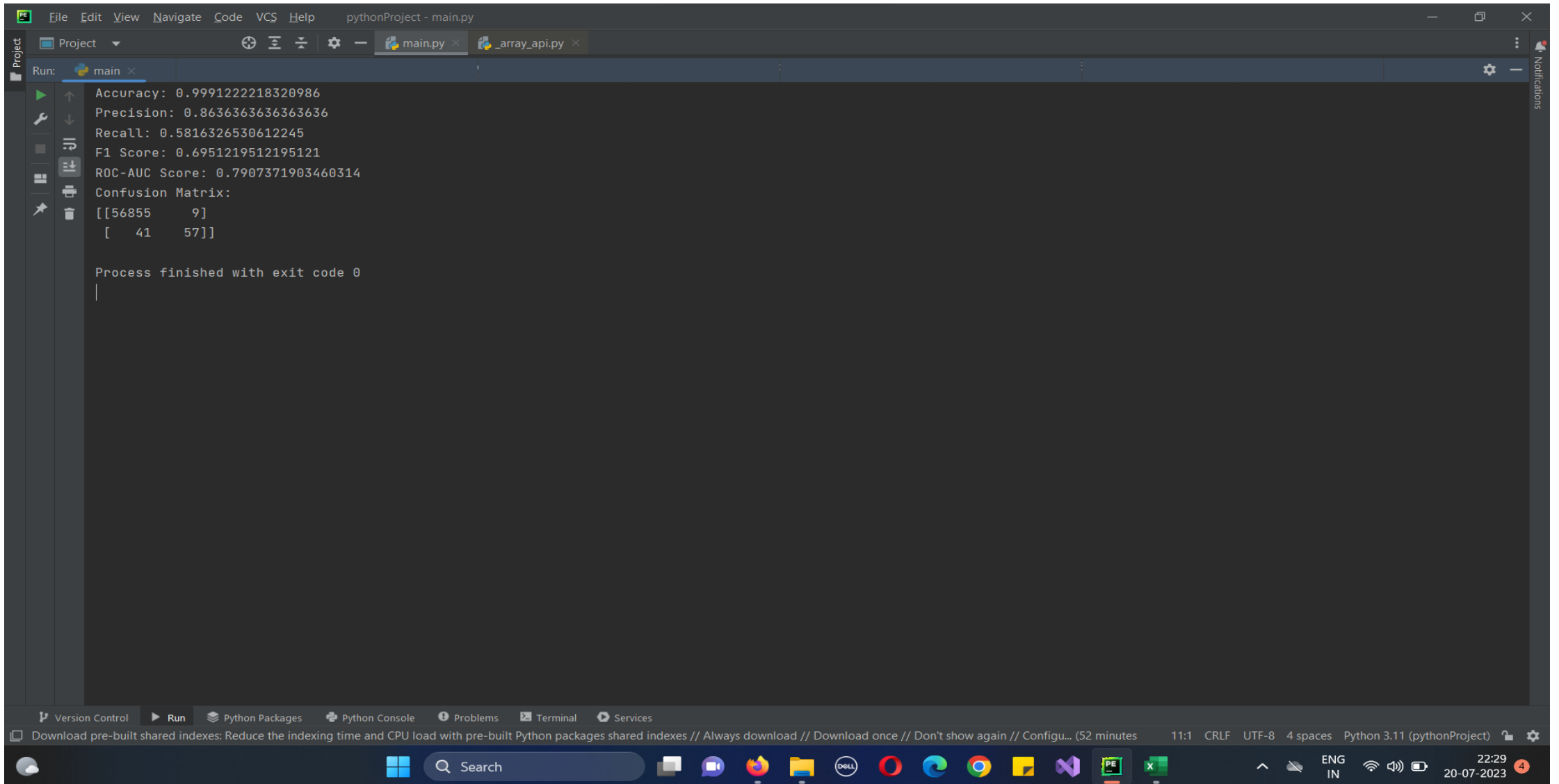
# Program Code



```
1 import pandas as pd
2 from sklearn.model_selection import train_test_split
3 from sklearn.preprocessing import StandardScaler
4 from sklearn.linear_model import LogisticRegression
5 from sklearn.metrics import accuracy_score, precision_score, recall_score, f1_score, roc_auc_score, confusion_matrix
6
7 # Step 1: Load the historical transaction data
8 data = pd.read_csv("creditcard.csv")
9
10 # Step 2: Data Preprocessing
11 # Assuming you have already handled any missing values and encoded categorical features
12 X = data.drop("Class", axis=1)
13 y = data["Class"]
14
15 # Step 3: Data Split
16 X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
17
18 # Step 4: Feature Scaling
19 scaler = StandardScaler()
20 X_train_scaled = scaler.fit_transform(X_train)
21 X_test_scaled = scaler.transform(X_test)
22
23 # Step 5: Model Training
24 model = LogisticRegression()
25 model.fit(X_train_scaled, y_train)
26
27 # Step 6: Model Evaluation
28 y_pred = model.predict(X_test_scaled)
29
30 accuracy = accuracy_score(y_test, y_pred)
31 precision = precision_score(y_test, y_pred)
```



# Output



```
pythonProject - main.py
main.py x _array_api.py x
Run: main x
Accuracy: 0.9991222218320986
Precision: 0.8636363636363636
Recall: 0.5816326530612245
F1 Score: 0.6951219512195121
ROC-AUC Score: 0.7907371903460314
Confusion Matrix:
[[56855    9]
 [   41   57]]

Process finished with exit code 0
```

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