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ACTIVE LEARNING 2

DEMONSTRATION ON REAL TIME APPLICATIONS

CREDIT CARD FRAUD DETECTION

SUBMITTED BY

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1 YEAR

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

TITLE : CREDIT CARD FRAUD DETECTION

DESCRIPTION :

This Python program is developed to detect credit card fraud using Linear Regression. The program uses a dataset (creditcard.csv) that contains transaction details such as the Amount and a label Class, which indicates whether a transaction is fraudulent (1) or not fraudulent (0). The model is trained using the Amount column as the input feature and Class as the target. The dataset is split into training and testing sets using the train_test_split() function. A Linear Regression model from sklearn.linear_model is trained on the training data. The model is then used to predict fraud values on the test data. Red dots represent the actual data points. Blue line represents the predicted values.

CODING :

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression

# Load dataset
df =
pd.read_csv(r"C:\\Users\LENOVO\Downloads\creditcard.csv")

X = df[['Amount']]       # Feature: transaction amount
y = df['Class']          # Target: fraud status

# Split the dataset
X_train, X_test, y_train, y_test = train_test_split(X, y,
test_size=0.3, random_state=42)


# Train the model
model = LinearRegression()
model.fit(X_train, y_train)
```

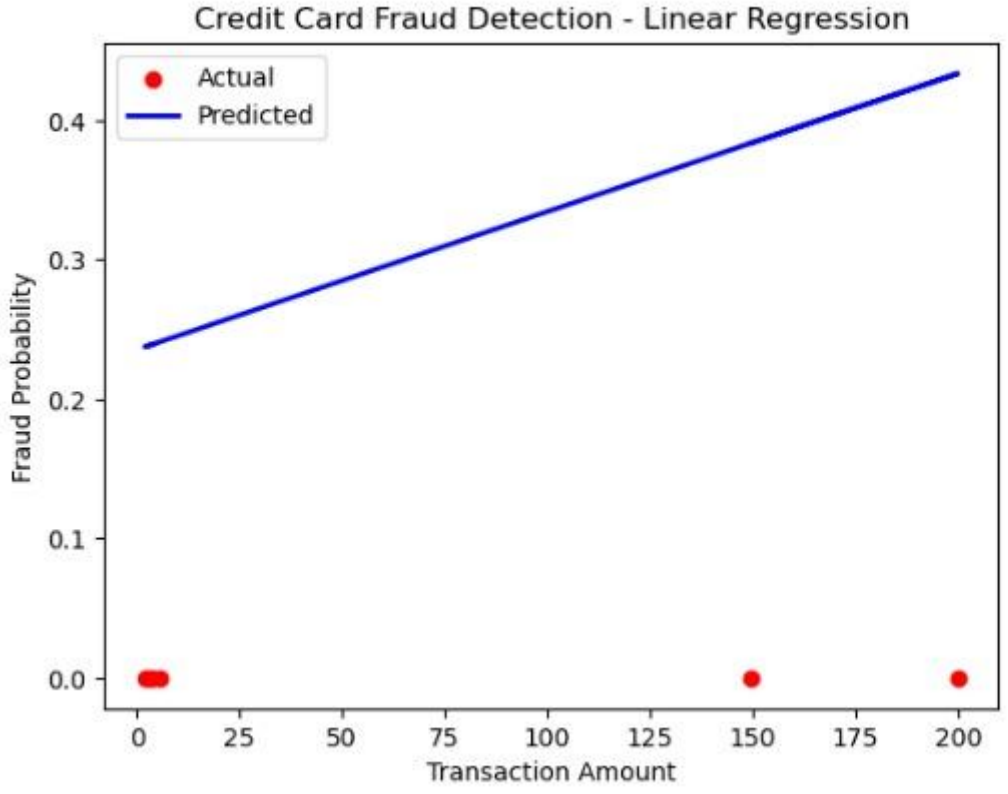
```
# Predict
y_pred = model.predict(X_test)

# Show some predictions
print("Predicted values:", y_pred[:10])
print("Actual values:", y_test.values[:10])

# Visualize
plt.scatter(X_test, y_test, color='red', label='Actual')
plt.plot(X_test, y_pred, color='blue', linewidth=2,
label='Predicted')
plt.xlabel("Transaction Amount")
plt.ylabel("Fraud Probability")
plt.title("Credit Card Fraud Detection - Linear Regression")
plt.legend()
plt.show()
```

OUTPUT :

```
Predicted values: [0.38354439 0.43338922 0.24095533 0.23817518 0.23747272 0.23914477]
Actual values: [0 0 0 0 0 0]
```



RESULT :

Thus, the Python program for Credit Card Fraud Detection using Linear Regression was successfully executed. The model was trained and tested using the transaction amount data, and the predicted results were visualized using a graph.