Credit Card Fraud Detection

This credit card fraud detection project has been created to demonstrate the detection of fraud in transactions that have taken place.

1. Problem Statement:

A credit card is one of the most used financial products to make online purchases and

payments. Though the Credit cards can be a convenient way to manage your finances, they can

also be risky. Credit card fraud is the unauthorized use of someone else's credit card or credit

card information to make purchases or withdraw cash.

It is important that credit card companies are able to recognize fraudulent credit card

transactions so that customers are not charged for items that they did not purchase.

The following points describe the steps taken to detect frauds in the dataset given:

1. Dataset has been checked for data gaps and cleanness.

2. The Data metrics have been checked.

3. A statical analysis of the data set has been done to understand various patterns.

4. Data has been separated for training and testing.

5. Hyperparameter tunning has been carried out to understand the optimal parameters

6. Model validation has been done to understand the performance of the model.

7. Therefore, based on this dataset we train the model to detect frauds with a accuracy of more than 80%.

2. Conclusion

I have performed a thorough analysis of the data given and understand the following:

- The credit card data contains 28 variables and these variables help me identify the fraudulent transactions

- I carry out an Exploratory Data Analysis, understand the Data and plot interactive plotly graphs.

- I understand the relationship between variables

- I undertake SMOTE and Random Forest Classifier to predict the Frauds in transactions

- I have then trained the model on various parameters.

- SMOTE and RFC give a highest accuracy of 84% on the model.
- I have evaluated the model using confusion matrix and ROC
- Therefore, based on this dataset I train the model to detect frauds with a accuracy of more than 80%

3. Code: Attached separately