KING SALMAN INTERNATIONAL UNIVERSITY

Project title: Credit Card Fraud Detection using Machine Learning

Data set: The Credit Card Fraud Detection dataset contains transactions made by credit cards in September 2013 by European cardholders. The dataset includes a total of 284,807 transactions, out of which 492 are fraudulent. The dataset is highly imbalanced, with fraudulent transactions accounting for only 0.172%.

Project idea: This project aims to develop a machine-learning model to detect credit card fraud. We plan to use the Credit Card Fraud Detection dataset to train several machine learning models, such as Logistic Regression, Random Forest, and Support Vector Machines (SVMs), to detect fraudulent transactions. We will also experiment with different techniques for handling imbalanced data, such as oversampling, undersampling, and synthetic data generation. Finally, we will evaluate the performance of our models using metrics such as accuracy, precision, recall, and F1-score.

Software: We will use Python for this project and leverage popular machine learning libraries such as scikit-learn, Pandas, and Numpy. We may also use other Python libraries for data visualization and analysis.

Papers to read:

1. "Credit card fraud detection-machine learning methods". Paper presented at the 18th International Symposium INFOTEH-JAHORINA (INFOTEH), 2019.
2. "Credit card fraud detection using machine learning techniques: A comparative analysis" by John O. Awoyemi, 2017.
3. "Credit card fraud detection using Bayesian and neural networks", Proceeding International NAISO Congress on Neuro Fuzzy Technologies, 2002.

Team Name: "Model Masters"

- Mohammad Sherif Mousa Dabour. ID: 221101055
- Menna Allah Ahmed Younes. ID: 221101228

Work division:

- Both team members will collaborate on the project and share the workload equally. We will meet regularly to discuss our progress, share ideas, and troubleshoot any issues we encounter. We will also work together on the final report, contributing to different sections based on our areas of expertise.