Project proposal – Automated payment fraud detection

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1 - Problem Statement

Payment fraud prevention is a major issue for businesses, card issuers and payment processers. These actors lose billions of $ each year to fraudsters that can hide within the huge flow of genuine transactions.

In order to counter these fraudulent activities, financial institutions are investing in human and technical resources that aim to detect and prevent fraud. But, due to the volume of transactions that need to be reviewed and the professionalisation of fraudsters, the amount of fraudulent transaction is increasing each year.

2 - Data source

Due to the privacy linked to banking information there is no official database usable, so we will use the generator created by the Machine Learning Group (Université Libre de Bruxelles - ULB) Link.
This tool will allow us to create transactions, customer profiles and terminal information.

3 – System architecture

The system will be organised in two layers:

1- Based on determined criteria, the system will rate each transaction, this rating will illustrate the potential risk and will end with a decision (block, manual review, allow)

2- Using machine learning, the system will correct the criteria using the previous decision and report any potential fraud trend.

4– Expected result

This project aims to create a dynamic system that can be used by financial institutions following their context:
- Detect fraudulent users and/or transactions
- Limit the number of restrictions for genuine users
- Adapt quickly to new fraud trends
- Be able to integrate within a fraud department mixing IA and human reviews
- Limit fraudulent activity in % of transactions and in total amount