Credit Card Fraud Detection

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Credit card problem -

Credit cards are used widely for online payments and purchases things, it is providing convenience in managing personal finances. Nevertheless, it comes with risks, especially the threat of credit card fraud, it involves unauthorized use of a card, or card information for cash withdrawals and transactions. Hence, it is important for credit card companies to detect fraudulent transactions to protect their consumers from being unfairly charged for purchases which they did not buy. In this context, I am analyzing a dataset containing credit card transactions made by European cardholders over two days in September 2013. This dataset includes 284,807 transactions, among which 492 are fraudulent. This makes the data highly imbalanced, fraudulent transactions constitute only 0.172% of the total. My goal with this project is to develop a classification machine learning model to predict whether a transaction is fraud or a legit one

Cost- Benefit Analysis:

In this case we have to account for what we need: high precision or high recall. For bank with smaller average transaction value, we want a high precision because we want to label the relevant transaction as fraudulent. If the transaction is fraud the bank can add human interaction to verify by calling the consumer, if precision is low there will be burden hence the human interaction has to be increased. For the banks which have larger transaction value, if the recall is low then it will unable to detect the transactions which are labeled as normal transaction. Hence consider the losses if the missed transaction is a high value fraud! Hence, to save the

banks from high value fraud transactions I have to focus on a high recall in order to detect the actual fraud transactions. Our XG Boost model is best suitable model for this.