MICRO-CREDIT DEFAULTER

Problem Statement and Background

A Microfinance Institution (MFI) is an organization that offers financial services to low income populations. MFS becomes very useful when targeting especially the unbanked poor families living in remote areas with not much sources of income. The Microfinance services (MFS) provided by MFI are Group Loans, Agricultural Loans, Individual Business Loans and so on.

Many microfinance institutions (MFI), experts and donors are supporting the idea of using mobile financial services (MFS) which they feel are more convenient and efficient, and cost saving, than the traditional high-touch model used since long for the purpose of delivering microfinance services. Though, the MFI industry is primarily focusing on low income families and are very useful in such areas, the implementation of MFS has been uneven with both significant challenges and successes.

Today, microfinance is widely accepted as a poverty-reduction tool, representing $70 billion in outstanding loans and a global outreach of 200 million clients.

We are working with one such client that is in Telecom Industry. They are a fixed wireless telecommunications network provider. They have launched various products and have developed its business and organization based on the budget operator model, offering better products at Lower Prices to all value conscious customers through a strategy of disruptive innovation that focuses on the subscriber.

They understand the importance of communication and how it affects a person's life, thus, focusing on providing their services and products to low income families and poor customers that can help them in the need of hour.

They are collaborating with an MFI to provide micro-credit on mobile balances to be paid back in 5 days. The Consumer is believed to be defaulter if he deviates from the path of paying back the loaned amount within the time duration of 5 days. For the loan amount of 5 (in Indonesian Rupiah), payback amount should be 6 (in Indonesian Rupiah), while, for the loan amount of 10 (in Indonesian Rupiah), the payback amount should be 12 (in Indonesian Rupiah).

The sample data is provided to us from our client database. It is hereby given to you for this exercise. In order to improve the selection of customers for the credit, the client wants some predictions that could help them in further investment and improvement in selection of customers.

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Methods

We Import libraries for our use and then we import given data. Now we can see data and analyze but because data is huge we will use some basics steps to know is there any null values are present or not for that we will use df.isnull().sum(), After knowing tht we don't have any null value in our data we will loo for statistical description of data with the help of df.describe(). We also look for counts of label column which is our target column. We did not treat outliers here because if treat outliers we will loose lots of data.

Tools

Our data is classification base and that's the reason we will you here few models like LogisticRegression(), GaussianNB(), DecisionTreeClassifier(), KneighborsClassifier(), SVC(), RandomForestClassifier(). Apart from these models we also use here Confusion Matrix, Classification Report, Accuracy Score andAUC score and also plot the AUC_ROC curve for our final model.

Results

We make a machine learning model in order to improve the selection of customers for the credit. The client wants some predictions that could help them in further investment and improvement in selection of customers and our ML model helps them.