

Micro-CreditDefaulter Model

Submitted by:

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**ACKNOWLEDGMENT**

* Youtube(<https://www.youtube.com/watch?v=yoLpcelanpI>)
* Reference Material provided by Data Trained.

**INTRODUCTION**

* Business Problem Framing
* 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 donorsare 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 MFShas 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 arecollaborating 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 be6(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.
* Motivation for the Problem Undertaken

Objective- Build a model which can be used to predict in terms of a probability for each loan transaction, whether the customer will be paying back the loaned amount within 5 days of insurance of loan. In this case, Label ‘1’ indicates that the loan has been payed i.e. Non- defaulter, while, Label ‘0’ indicates that the loan has not been payed i.e. defaulter.

**Analytical Problem Framing**

* Data Sources and their formats

What are the data sources, their origins, their formats and other details that you find necessary? They can be described here. Provide a proper data description. You can also add a snapshot of the data.

* Data Preprocessing Done

Data preprocessing done successfully which includes data cleaning,

data reduction and data transformation.

* Hardware and Software Requirements and Tools Used

Jupyter Notebbok

**Model/s Development and Evaluation**

* Identification of possible problem-solving approaches (methods)

EDA

Model Training and Testing using different algorithms

* Testing of Identified Approaches (Algorithms)

Decision Tree Classifier

Random Forest Classifier

Adaboost Classifier

Cross Validation

Hyper parameter Tuning

* Key Metrics for success in solving problem under consideration

Accuracy Score

Confusion Matrix

Classification Report

Auc Score

* Visualizations

Plotting of different graphs to get the insight

Countplot

Boxplot

Distplot

Heatmap

* Interpretation of the Results

In given dataset, There are some columns we dropped to get better accuracies.

Different Graphs were plotted to get better insight of data i.e.,

Linear relationship, univariate analysis, bivariate analysis and multivariate analysis.

**CONCLUSION**

* Best Model – Adaboost Classifier.