MICRO CREDIT DEFAULTERS PROJECT

PRESENTED BY
VARSHA VASANT SHINDE

FLIP ROBO

Introduction

- 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.
- 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 be6(in Indonesian Rupiah), while, for the loan amount of 10(in Indonesian Rupiah), the payback amount should be 12(in Indonesian Rupiah).

Defaulters in microfinance

- Default in microfinance is the failure of a client to repay a loan. The default could be in terms of the amount to be paid or the timing of the payment.
- MFIs can sustain and increase deployment of loans to stimulate the poverty reduction goal if repayment rates are high and consistent). MFIs are able to reduce interest rates and processing fees if repayment rates are high, thus increasing patronage of loans.
- A high repayment rate is a catalyst for increasing the volume of loan disbursements to various sectors of the economy. The agriculture sector is experiencing a decline in access to credit due to poor loan repayment performance.
- Poor management procedures, loans diversion and unwillingness to repay loans as well as other socioeconomic factors are likely causes of poor loan repayment performance. Income, farm size, age of farmers, farming experience and level of education of farmers contribute positively to the credit worthiness of farmers.

Methodology and Data Estimation Techniques

- In this section we describe our data set and how we chose our samples. Our data was obtained from one of the leading microfinance companies .Customers at the point of applying for the loan volunteer their personal data. The data was then extracted from applications filed. Within this period the microfinance company received loan applications from individuals across the country and approved Our data contains information on only individuals that were granted the loan and does not contain those who were denied.
- The credit worthiness or Probability of Default of rejected applicants was therefore not considered. This may result in potential bias in the model developed but this is common with other researchers Of those who were offered loans defaulted representing a default rate.
- Also for those who had more than one loan the loans were aggregated. From the data we randomly selected defaulters and non-defaulters. Default was defined by the microfinance institutions as a loan that is overdue for 90 days with payments on interest and or principal, which is consistent with the literature.

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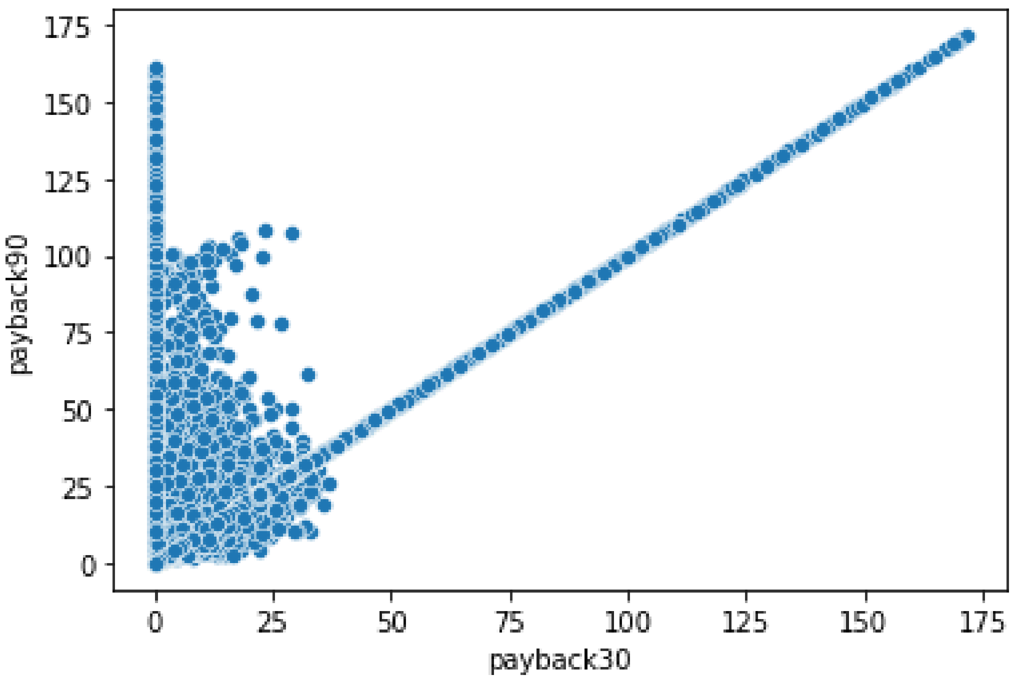
Comparing with MDA, Logistic Regression Analysis (LRA) does not make assumptions of multivariate normality also Variance-Covariance matrix of the independent variables can be different for defaulting and non-defaulting customers. The logistic regression model offer the following advantages:-

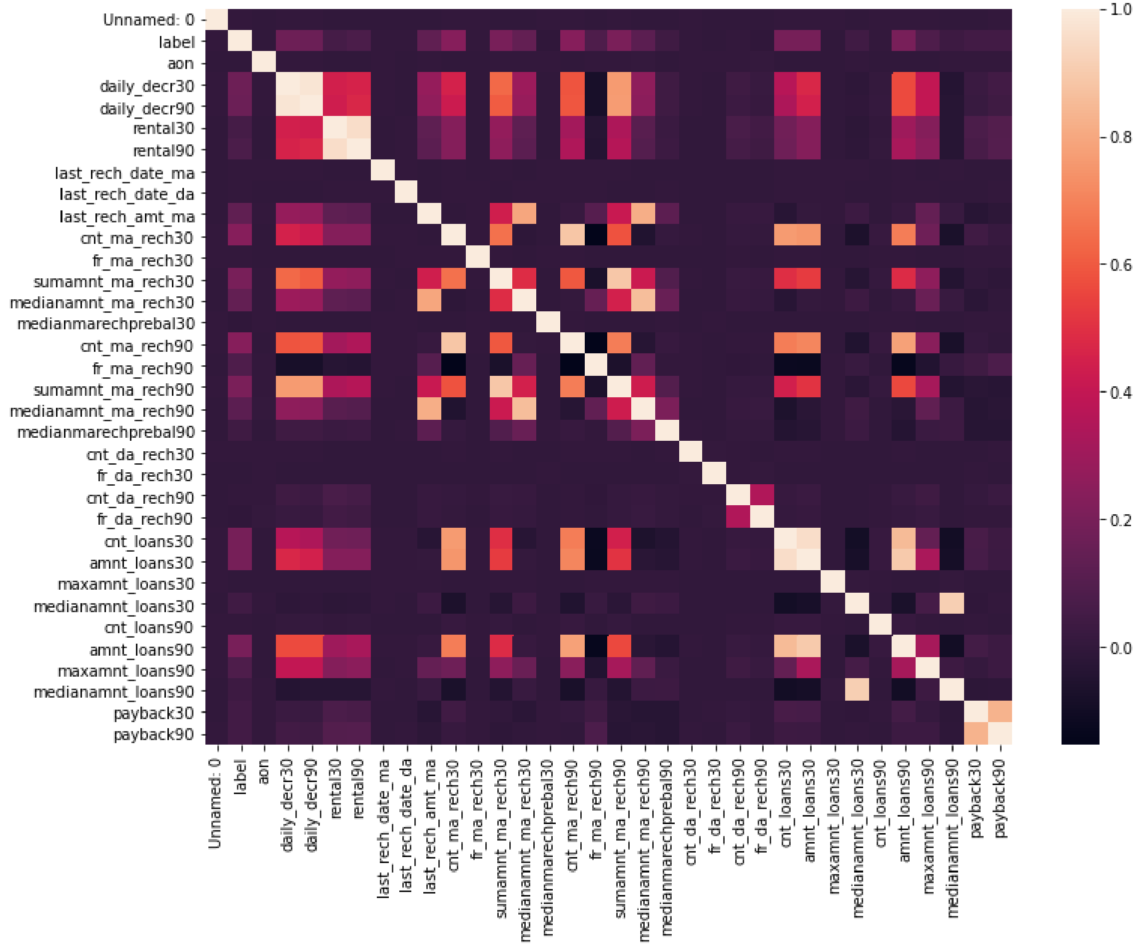
- fits the problem of default prediction, that is, Logistic regression has a score between 0 and 1 conveniently giving us the probability of default.
- LRA models allow us to model dichotomous dependent variable in our case default and non-default.
- Lastly estimated coefficients of the LRA model can show the relative importance of particular independent variable.

EDA plot



175
150
125
100
75
50
25
0
payback90
0
25
50
75
100
125
150
175
payback30

Correlation Heatmap



Conclusion

- The Random Forest approach is appropriate for classification and regression tasks on datasets with many entries and features that are likely to have missing values when we need a highly accurate result while avoiding over fitting. Furthermore, the random forest provides relative feature significance, enabling you to select the most important features. It is more interpretable than neural network models but less interpretable than decision trees. In the case of categorical features, we need to perform encoding so that the ML algorithm can process them.
- Predicting CREDIT Default is highly dependent on the demographics of the people, people with lower income are more likely to default on CREDIT. We are able to successfully perform the classification task using Random Forest Classifier. Hope you liked my article on predicting loan default. Along with this am trying to use data cleaning, Eda and visualization in the dataset to make project.
- Microfinance has been globally accepted as the preferred medium to reach out to the rural and productive poor with banking services which includes micro credit to help alleviate poverty which is one of the United Nations millennium challenge goals. Micro credit default has been identified to be one of the major drawbacks of this.
- Laudable initiative as it depletes these revolving funds and reduces investors confidence. Therefore, it is important to understand the factors that influence a loan beneficiary to default so that appropriate countermeasures can be developed to prevent and reduce the incidents of default. In this study, logistic regression was applied to identify the factors associated with the occurrence of micro credit default.

THANK YOU