Lending Club Case Study

Data Analysis Exercise

Submitted by: Muhammad Furqan

(baqai.furqan@gmail.com)

Introduction

- This case-study is an academic analysis of a fictious Finance house / Lending House known as Lending Club which specialises in lending various types of loans to urban customers
- When the company receives a loan application, the company has to make a decision for loan approval based on the applicant’s profile. Two types of risks are associated with the bank’s decision:
  - If the applicant is likely to repay the loan, then not approving the loan results in a loss of business to the company
  - If the applicant is not likely to repay the loan, i.e. he/she is likely to default, then approving the loan may lead to a financial loss for the company.
- Data set contains all loans processed by the Lending house
- When a person applies for a loan, there are two types of decisions that could be taken by the company:
  - **Loan accepted**: If the company approves the loan, there are 3 possible scenarios described below:
    - **Fully Paid**: Applicant fully paid his loan
    - **Current**: Existing Loan and customer is paying the instalments.
    - **Charged-off**: Customer have defaulted to the loan
  - **Load Rejected**: Customer's loan have been rejected

Observations

- Number of charged offloans is more then number of current, underprocess loans
- Not much diffrence between long-term vs short term loans
- People having more the 10 years of experience have more loans
- In `2011` maximum number of loans where issued
- Average loan amount lies between 10K to 15K
- 75% of loans are amounted above 12K to 18K (approx)
- More customers are taking loan for `debt consolidation`
- There is a Positive correlation between annual income and employment years
- Loan amount, investor amount, funding amount are strongly correlated.
- Annual income with DTI(Debt-to-income ratio) is negatively correalted.

Observations

- **Interest Rate vs Charged Off**
  - There is a direct relation of charged-off loan with higher interest rates
  - Loans with higher interest rates are more riskier
- **Home Ownership vs Loan Status**
  - Number of applicants having rented house is high
  - Charged-off loans having rented house is high as well
- **Purpose of Payments and Charged Off**
  - More number of people are doing debt consolidation, that is why the charged off is high as well
  - Credit card, other and Small business have high charged-off's number as well
- **Determining Relationship of Employment Length**
  - People with 10+ years of experience have more charged off as they have more number of loans
  - People having no experience have high number of charged-off
- **Relationship of Annual Income**
  - People having annual income between 20K to 60K have more number of charged-offs