

Lending Club Case Study

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Effective Attributes to contribute to Loan Application Risk Analysis

1. loan_amnt – Loan Amount
2. int_rate – Interest Rate
3. term – Loan Term
4. grade, sub_grade - Grades and Sub-Grades are typically used by lenders to determine the interest rate and other terms of a loan
5. emp_length – Employment Length
6. home_ownership – Ownership of the home like rented, own, mortgage
7. verification_status – Documents are verified or not
8. loan_status – Charged Off, Fully Paid, Current
9. application_type – Individual or Joint

Data Cleaning and Manipulation

1. if missing data of critical attributes exist, then consider to drop
2. Change data type to make the data more meaningful e.g., in interest rate, remove % and keep number only and change data type to float.
3. Remove the columns which are not critical for analysis
4. Remove the categorical column if there is only one category play role
5. Remove those columns which gives information post loan approval because here ask is to analyze before loan approval/reject not after.
6. Remove columns which have more than 80% missing values then it won't contribute much.

Data Analysis Strategy to collect various factor impacted the loan status

1. Mean, Min, Max
2. Correlation
3. Univariate
4. Bivariate
5. Derived Columns

Univariate Data Analysis Observations

1. Around 73% applications opt for 36 months term period.
2. Around 42% of applications are having employment length of either 1 or 10+ years
3. Around 55% of applications comes under grade A or B.
4. Around 92% of applications are those who already have mortgage or on rent.
5. Around 13% of applications are those whose loan status id Charged-Off.
6. Mean of loan amount is 11292 and (25%-75%) range is (5500 - 15000)

Bivariate Data Analysis Observations

1. With status Charged Off, applicant's employment length is either 1 or 10+.
2. With status Charged Off, interest rate falls under 12 – 17 % of range (25%-75%)
3. With status Charged Off, loan amount falls under 7000 – 17000 of range (25%-75%)
4. With status Charged Off, most of them are having mortgage or on rent.
5. With status Charged Off, more cases are of loan purpose are Vacation and credit card.

Data Analysis Report

From the above analysis, it comes out that for loan risk analysis to approve the loan applications one should consider below criteria as critical where most of the default applications lie:

- ***Purpose – Vacation or Credit Card***
- ***Home Ownership – Mortgage or Rent***
- ***Loan Amount Range – 7000 – 17000***
- ***Interest Rate range – 12 % – 17 %***
- ***Employment Length – 1 year or 10+ years***

Thank You