Lending Club Case Study

Aniket Badekar & Praveen Kumar Ainala

Lending Club Case Study

Objective:

- Study to understand how **consumer attributes** and **loan attributes** influence the tendency of Loan default Applicant's (i.e., Applicant has not paid the instalments in due time for a long period of time).

Data Sources provided:

- Information about the past loan applicants from a consumer finance company

Lending Club Case Study

Analysis outline:

Part 1:

- Data loading
- Dropping columns with high missing values and unnecessary columns
- Data imputation and imbalance checks

Part 2:

- Univariate and multivariate analysis to identify the attributes / common patterns of Loan default applicants.

Lending Club Case Study

Analysis outline:

Part 1:

- Data loading
- Dropping columns with high missing values and unnecessary columns
- Data imputation and imbalance checks

Part 2:

- Univariate and multivariate analysis to identify the attributes / common patterns of Loan default applicants.

Lending Club Case Study – Part 1

Data Cleaning:

- Dropped columns with more than 70% of missing values *(Fig 1)*

Data Imputations:

- Quantitative variables missing values are updated with Median / Mode
  - E.g., mths_since_last_delinq and pub_rec_bankruptcies
- Used Binning for continues variables

Data Imbalance for Target:

- Only 14% of the total loans are Charged-off (Default Loans) *(Fig 2)*
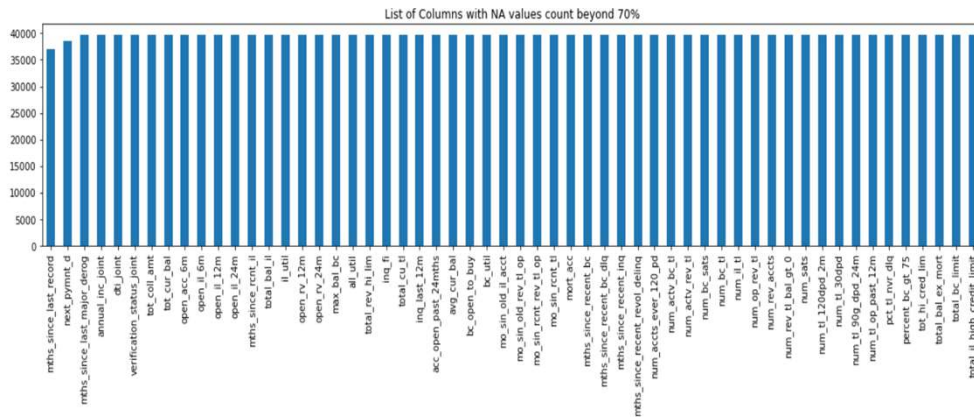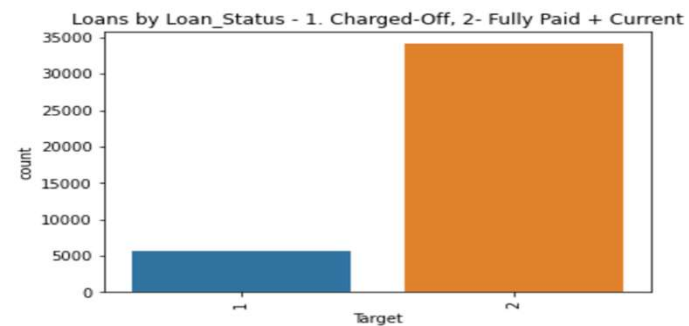
Fig 1: Columns with more than 70% of missing values

Fig 2: ~14% of total Loans are Charged-off

Lending Club Case Study – Part 2

Univariate Analysis Insights:

- 36 Month Loan term Loans getting Charged-off more compared to 60 Months Loans *(Fig 3)*

- Nearly 70% of Charged off Loans are from Grade B, C and D *(Fig 3)*

- Loans authorized towards end of year are getting charged-off more

- More loans are getting charged-off from the states -A and FL

- 40% of the changed-off loans are from the users with less than 40,000 Annual salary

- 50% of the Loans are from the user's home ownership is Rent

- More change-off are observed in Loans sanctioned with high interest rate

- 50% of Charged-off Loans are with purpose debt consolidation
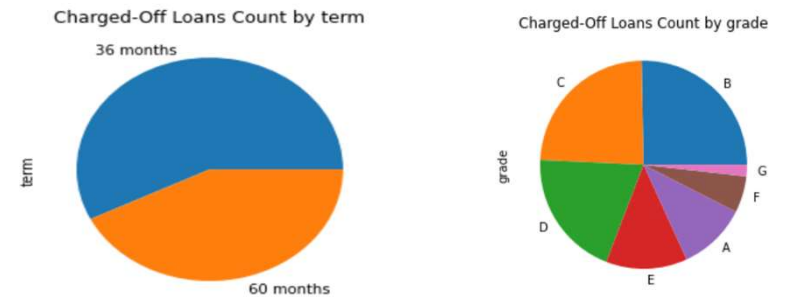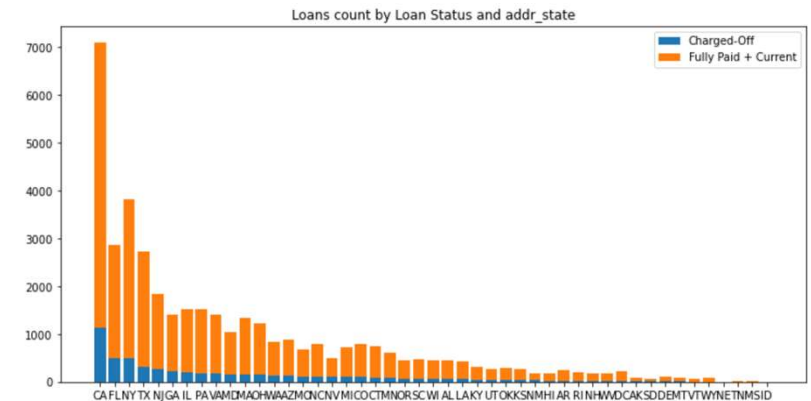
Fig 3: Charged-off users count by tern and grade

Fig 4: Ratio of charged-off users to total users

Lending Club Case Study – Part 2

Univariate and Bivariate Analysis Insights:

- More Loans are authorized for users staying rent home and from users in CA state *(Fig 5)*
- In NE state, 60% Loans are getting changed-off (Out of total Authorized) but total Loans Authorized in NE state are only 5
- SD, AK and NV states are having ~20% of Charge-offs (Out of total Authorized).
- Users with history of Public Bankruptcies getting charged-off more
- Charged-off loans are increasing year over year *(Fig 6)*
- Users with high salary applied for high Loan amount
- Users with below 40K income are taking more loans
- Chance of Loan getting charge-off increase as the interest rate increases.
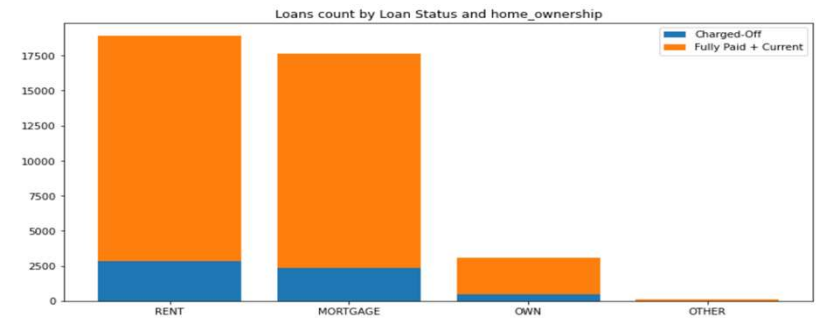
Fig 5: Loans count by Loan status and home ownership

Fig 6: Loans count by Loan status and year