

LENDING CLUB Case Study

Submitted by: Sateeshkumar Jagadeesan

Venkata Ravi Kumar Vissamsetty

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Objectives:

- Understanding Data
- Data Cleaning and Manipulation
- Data Analysis
- Recommendations
- Conclusion

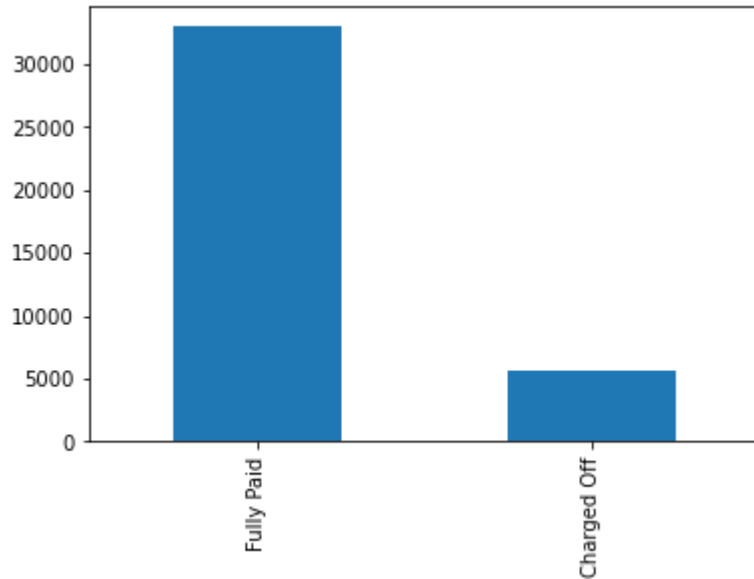
Understanding Data

- ✓ Import all Required libraries such as Pandas, NumPy, Seaborn, matplotlib etc.
- ✓ Data cleaning to be done with respect to null, unique and missing values.
- ✓ Identify & delete columns which are not value added for analysis.
- ✓ Identify and convert datatype, category into required format.
- ✓ Perform EDA. Univariate, Bivariate & Multivariate Analysis.
- ✓ Recommendations based on plots, curves.
- ✓ List variables that may cause loan defaults.

Data Cleaning and Manipulation

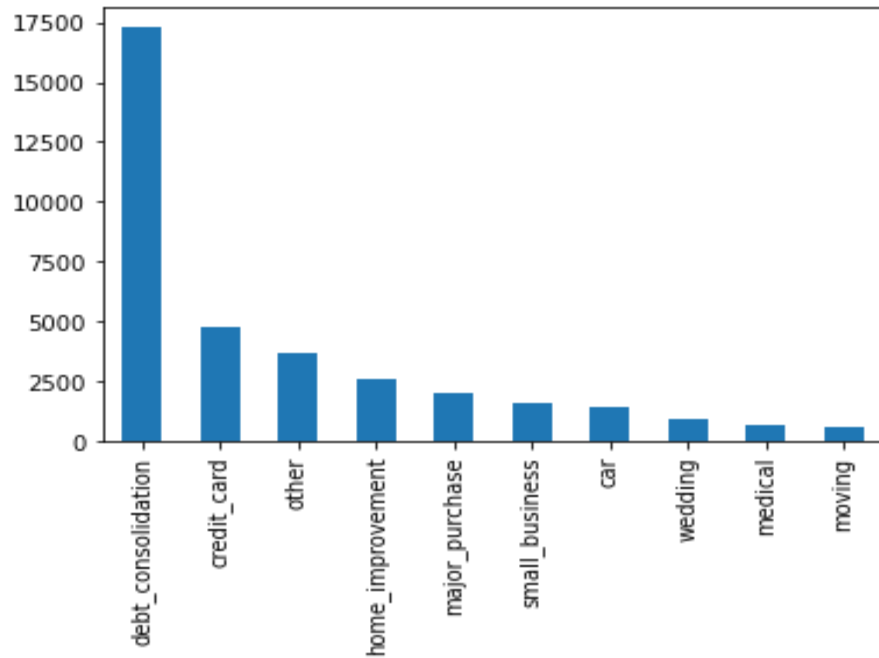
- ✓ Data before Cleaning
- ✓ Rows: 39717
- ✓ Columns: 111
- ✓ Data Cleaning. Remove Outliers.
- ✓ Removing Null, Unique, Missing Data & Non-Required Columns.
- ✓ Rows Remaining: 36654
- ✓ Columns Remaining: 28

Analysis – Loan Status



- ✓ Fully Paid: 31236 Rows
- ✓ Charged Off : 5418 Rows
- ✓ Loan Status: “Current” records ignored. As these records doesn't give much information.

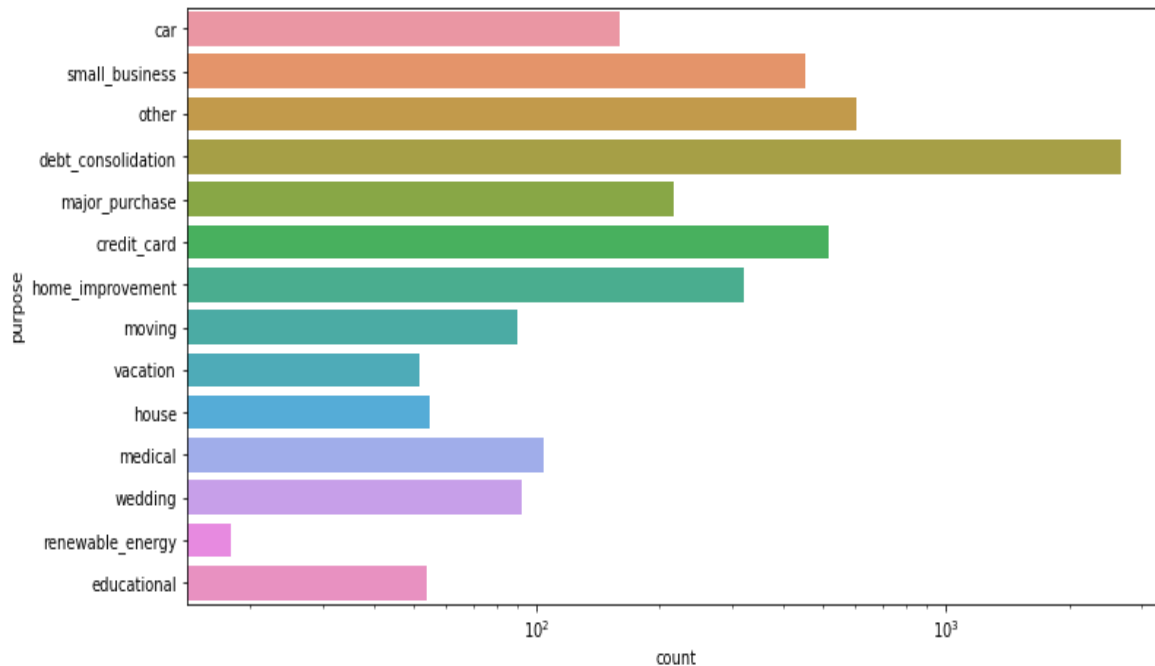
Analysis – Loan Purpose



Identify top 3 Loan Purpose Categories:

- ✓ Debt Consolidation
- ✓ Credit Card
- ✓ Other

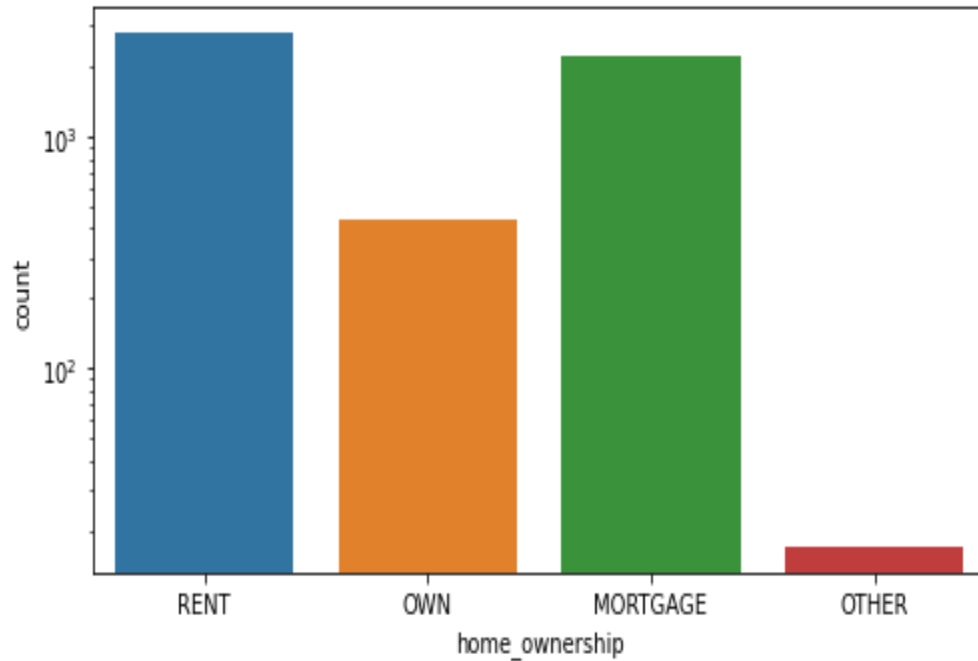
Analysis – Purpose Vs Charged Off count



Identify top Charged Off - Loan Purpose Categories:

- ✓ Debt Consolidation
- ✓ Credit Card
- ✓ Other
- ✓ Loan Approver need to do extra verifications for New Loan Applications of these categories.

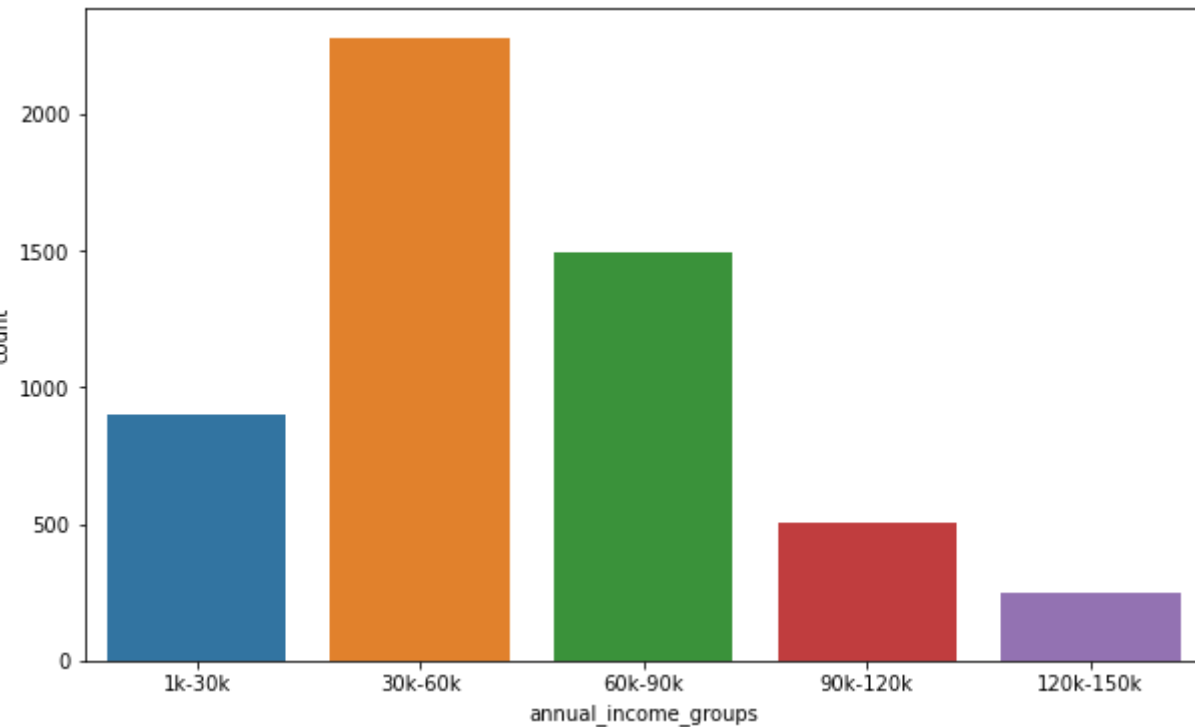
Analysis – Home Ownership Vs Charged off Loans



Identify Home Ownership type that has more Defaults:

- ✓ People who are having Own Home , less likely to default.
- ✓ Mortgage, Rent ownership Loans has more defaults.
- ✓ Loan Approver need to do extra checks based on Ownership.

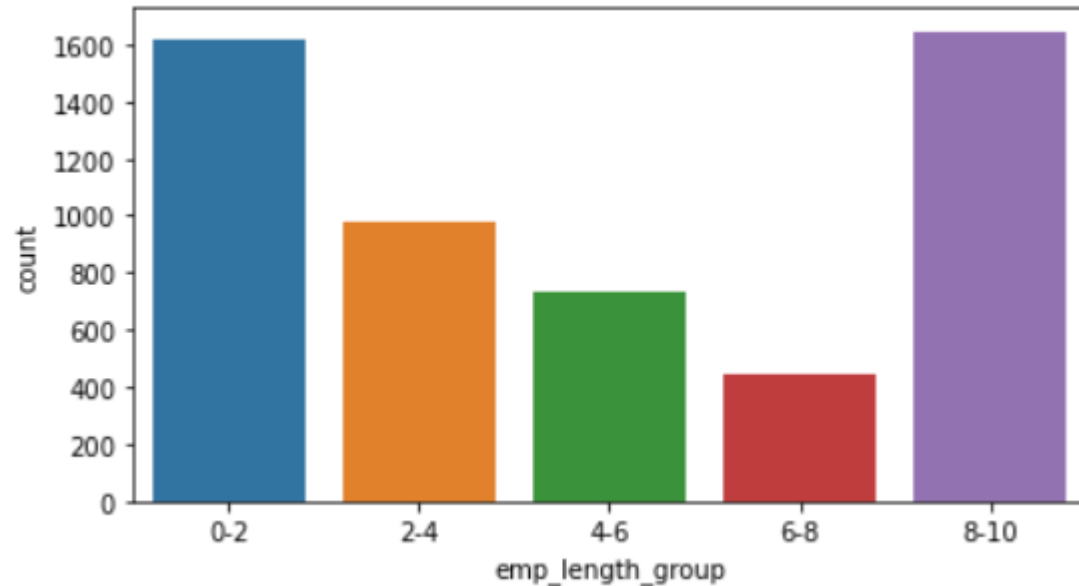
Analysis – Annual Income Vs Charged off Loans



Identify Annual Income Categories that has more Defaults:

- ✓ Binning done on Annual Income – 5 Bins.
- ✓ 30k-60K annual income Category has more defaults.
- ✓ Higher the Annual Income Lower probability of Loan Default.

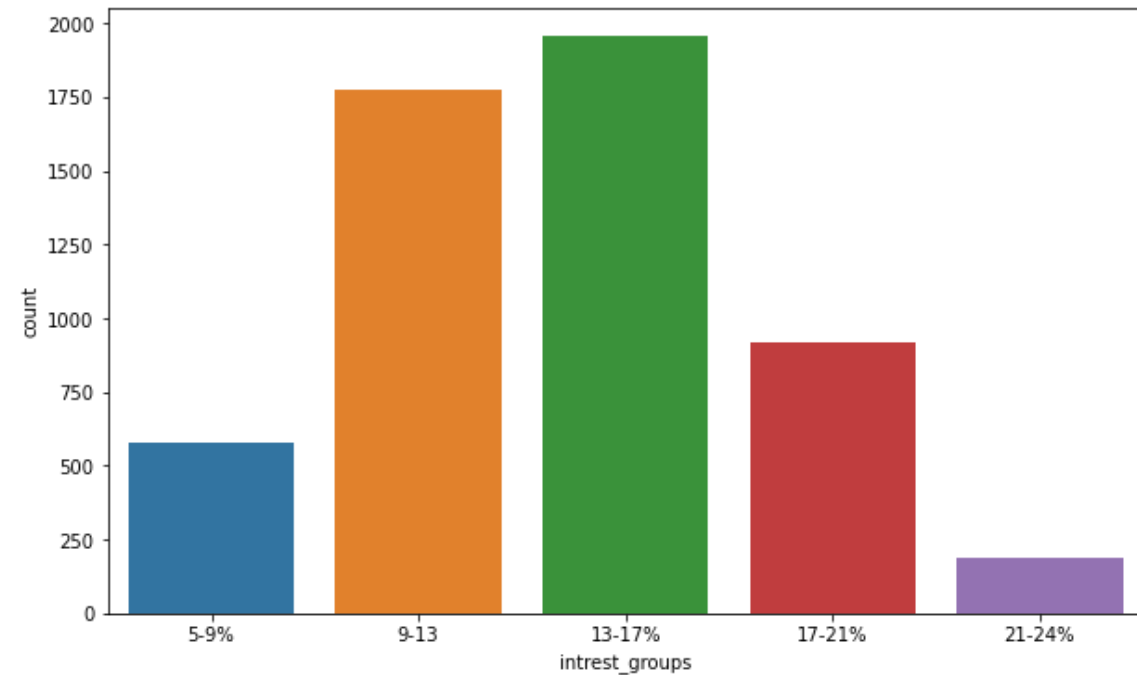
Analysis – Experience Vs Charged off Loans



Identify Employment Experience Categories that has more Defaults:

- ✓ Binning done on Emp. Experience – 5 Bins.
- ✓ Less Experienced & High Experienced Categories has more defaults.
- ✓ Less Income / More Commitment causing high defaults.
- ✓ Loan Approver to do more checks.

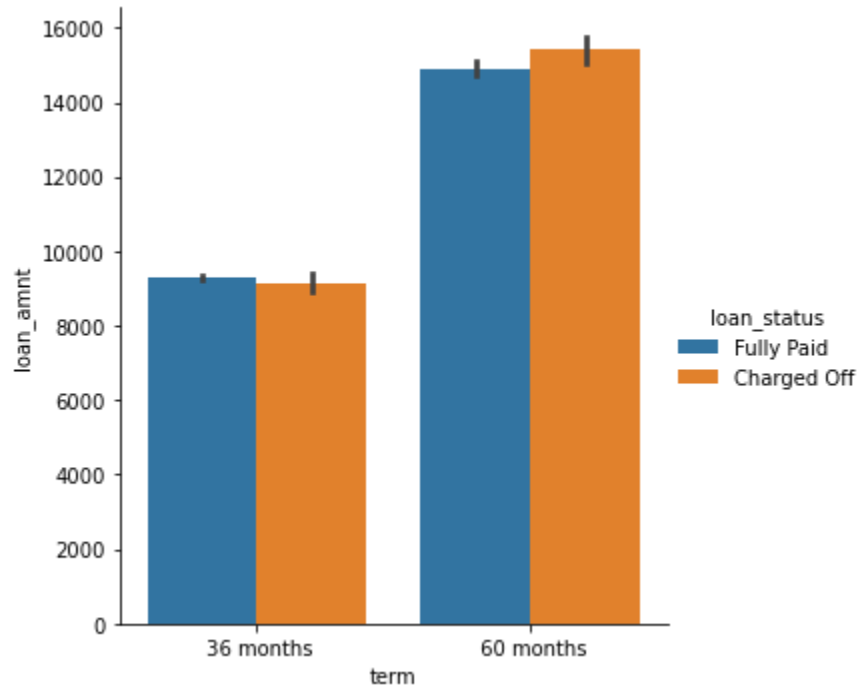
Analysis – Interest Rate Vs Charged off Loans



Identify Interest Rate Categories that has more Defaults:

- ✓ Binning done on Interest Rate – 5 Bins.
- ✓ 5-9% has less defaults
- ✓ 9-13%, 13-21% Interest Rate Categories has more defaults.
- ✓ Loan Approver to do more checks.

Analysis – Loan Term Vs Loan Status



Categorize Loan Term Vs Status

- ✓ 60 Months Loan Term has more defaults.
- ✓ Higher the term more chance of default.
- ✓ Loan Approver to do more checks.

Conclusion:

Rigorous Validations needs to be done for below Loan Applications:

- ✓ Loan applied for Debt Consolidation, Credit Card.
- ✓ Loan Application whose Home ownership is Rent / Mortgage.
- ✓ Loan Applicant whose experience is Less than 2 years Or more than 8 years.

Loan Applications that has less Risk or more chances of repayment:

- ✓ Loans can be disbursed for high salaried applicants.
- ✓ Loans with lesser term.
- ✓ Loans with lesser Interest Rate.