Lenders Club Case Study

November 7, 2021

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Overview

The Lenders Club is the largest online loan marketplace, facilitating personal loans, business loans, and financing of medical procedures. Borrowers can easily access lower interest rate loans through a fast online interface.

When the company receives a loan application, the company has to make a decision for loan approval based on the applicant's profile.

Understanding the problem

Two types of risks are associated with when the company receives a loan application

Problem 1

If the applicant is likely to repay the loan, then not approving the loan results in a loss of business to the company

Problem 2

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

Project objective:

Perform EDA to understand how consumer attributes and loan attributes influence the tendency of default.

Understand the driving factors (or driver variables) behind loan default, i.e. the variables which are strong indicators of default. The company can utilise this knowledge for its portfolio and risk assessment.

Findings & Recommendations: Univariate Analysis

Assumption Made

Risk Assessment -

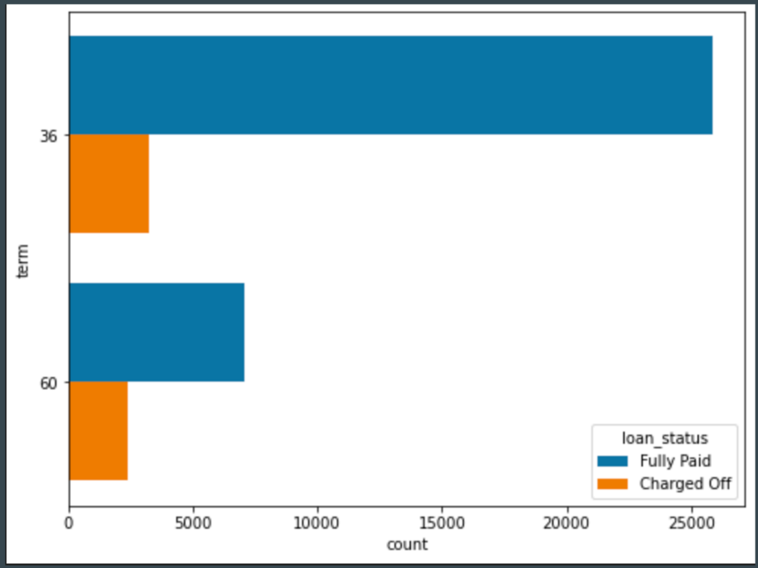
- >=25 is extremely risky
- >= 15% and <25 is high risk
- 10% >= and <15% is medium risk
- <10% is low risk

Finding 1: Loan Term

25% loans given for 5 years duration default as compared to 11% for 3 years.

Term	Charged off %
36	11%
60	25.30%

Short Term Loans seems like safer bet to give loans to.



Extremely Risky High Risk Medium Risk Low Risk

Finding 2: Interest Rates

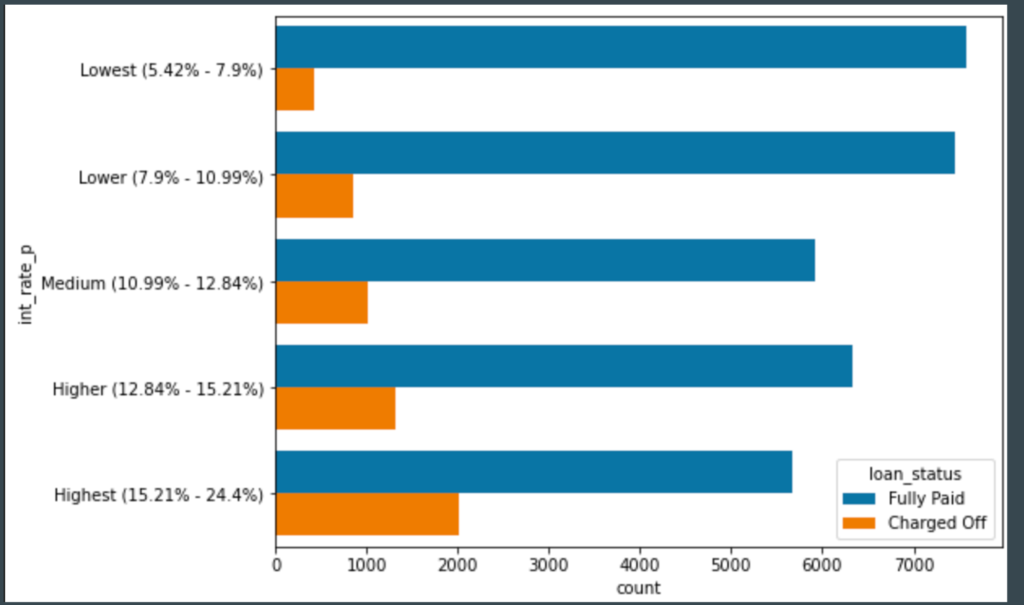
As the interest rates go up, chances of default goes up.

- More than quarter of the loans (26.22%) of loans with interest rates > than 15.21% default.

Interest rates	Charged off %
Lowest (5.42% - 7.9%)	5.35%
Lower (7.9% - 10.99%)	10.29%
Medium (10.99% - 12.84%)	14.70%
Higher (12.84% - 15.21%)	17.16%
Highest (15.21% - 24.4%)	26.22%

Extremely Risky High Risk Medium Risk Low Risk

Loans with interest rates less than 12.84% seems like a safer bet (<15% risk) to give loans to.



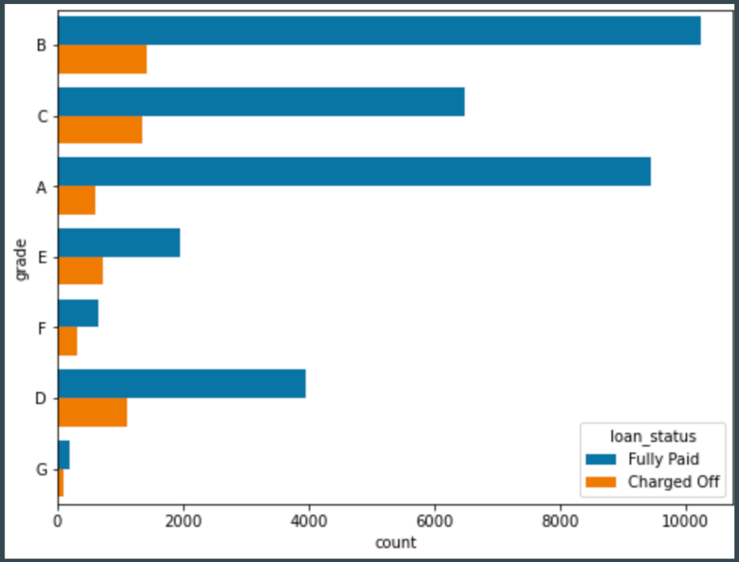
Finding 3: Grade

Higher the Grade, higher the chances of charged off

Grade	Charged off %
A	5.99%
B	12.21%
C	17.19%
D	21.99%
E	26.85%
F	32.68%
G	33.78%

Extremely Risky High Risk Medium Risk Low Risk

- Grade E,F & G are extremely risky. Best to avoid.
- C & D are high risk, can be evaluated.
- A and B seem much safer in comparison to give loan for.

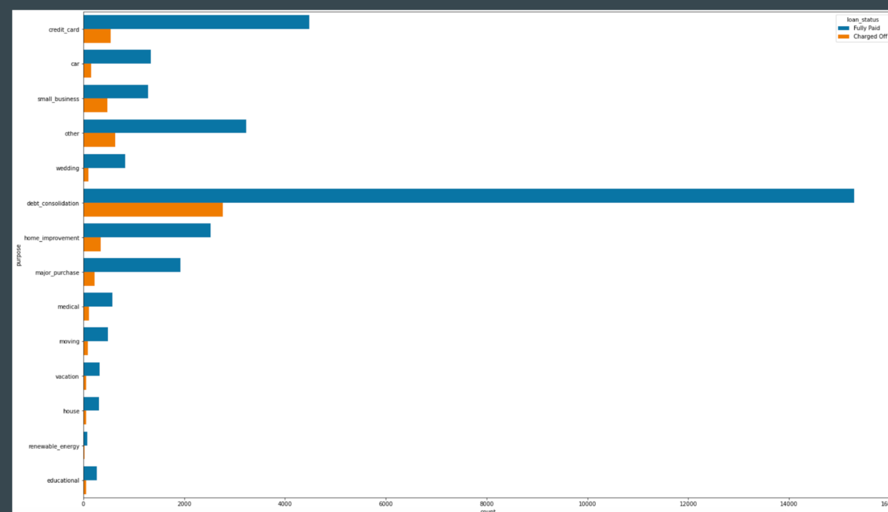


Finding 4: Purpose

Purpose	Charged off %
Major purchase	10.33%
Wedding	10.37%
Car	10.67%
Credit card	10.78%
Home improvement	12.07%
Vacation	14.13%
Debt consolidation	15.33%
medical	15.57%
moving	15.97%
house	16.08%
other	16.38%
Educational	17.23%
Renewable Energy	18.63%
small_business	27.08%

Extremely Risky High Risk Medium Risk Low Risk

- Loans for small businesses are extremely risky, should be avoided.
- Loans for Renewable Energy, Education and house loans are high risk, should be avoided.



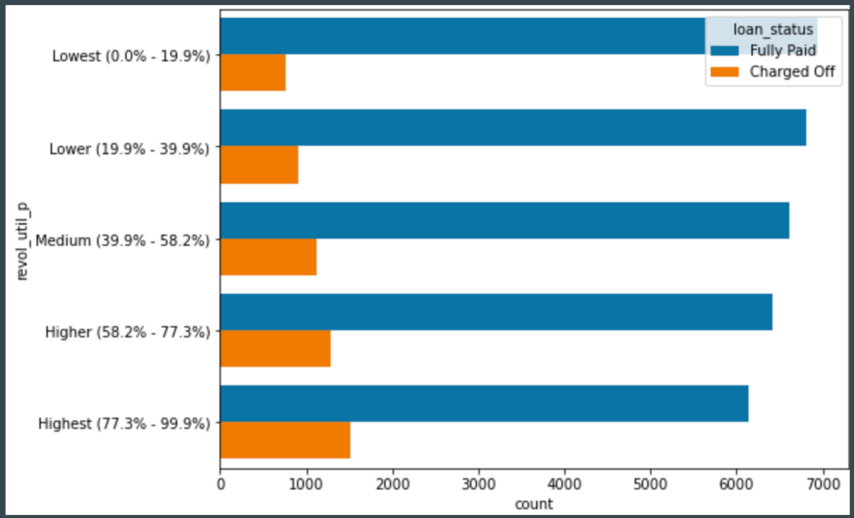
Finding 5: Revolving Line Utilization

Higher the Revolving Line utilization, higher the chances of charged off

Revolving Line Utilization	Charged off %
Lowest (0.0% - 19.9%)	9.94%
Lower (19.9% - 39.9%)	11.84%
Medium (39.9% - 58.2%)	14.50%
Higher (58.2% - 77.3%)	16.77%
Highest (77.3% - 99.9%)	19.81%

High Risk Medium Risk Low Risk

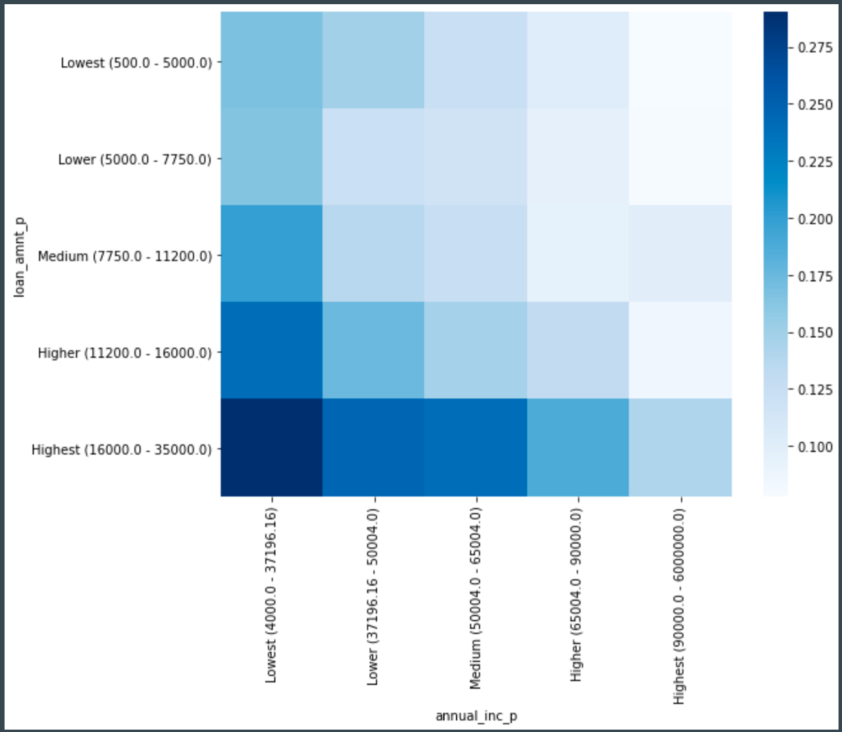
Borrowers with Revolving Line Utilization greater than 58% should be avoided.



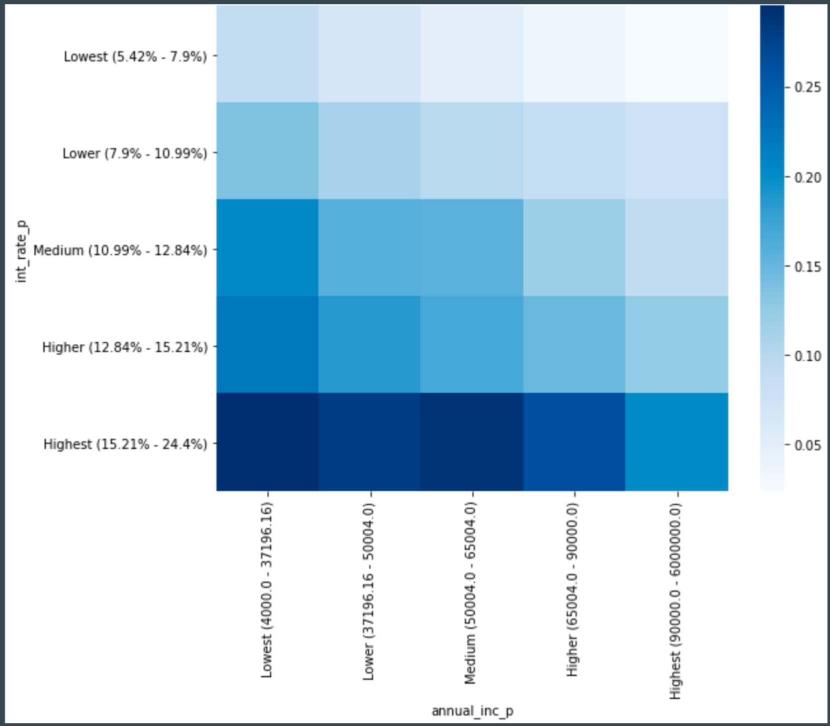
Findings & Recommendations: Bivariate Analysis

Finding 1: Annual Income with Loan Amount & Interest rates

High Loan Amounts (>16,000) given to low income borrowers (<37,196) are risky, should be avoided.



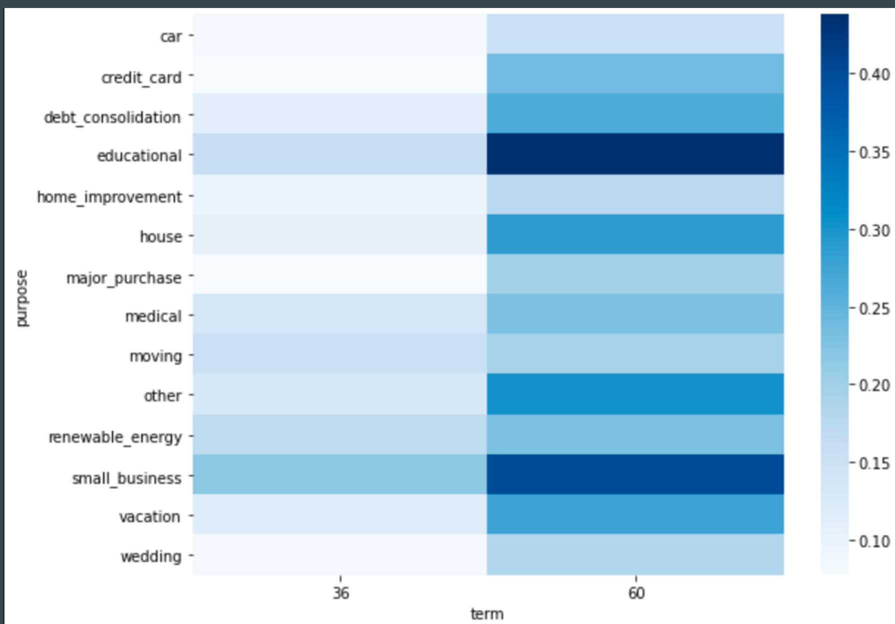
High Interest Rates (>15.21%) charged to low income borrowers (<37,196) are risky, should be avoided.

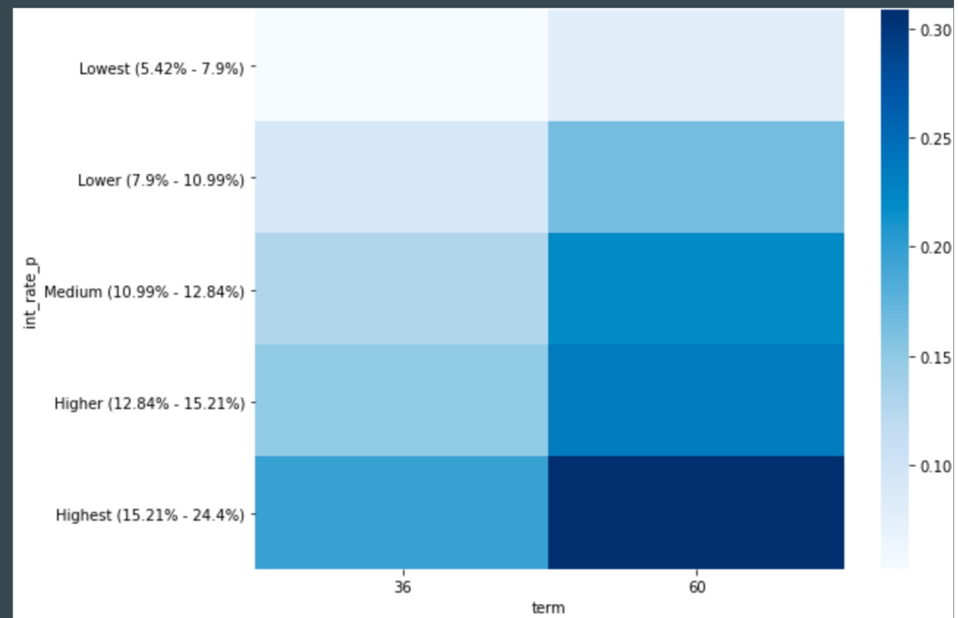


Finding 2: Term with Purpose & Interest Rate

Long Term(5 years) Educational loans are risky, should be avoided.

Long Term loans (5 Years) with high Interest Rate (>15.21%) is risky, should be avoided.

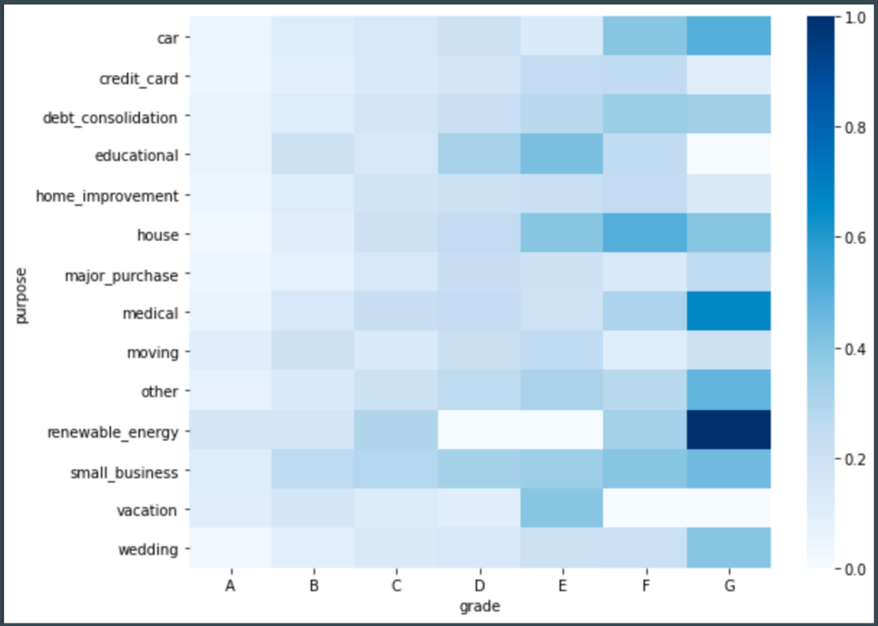


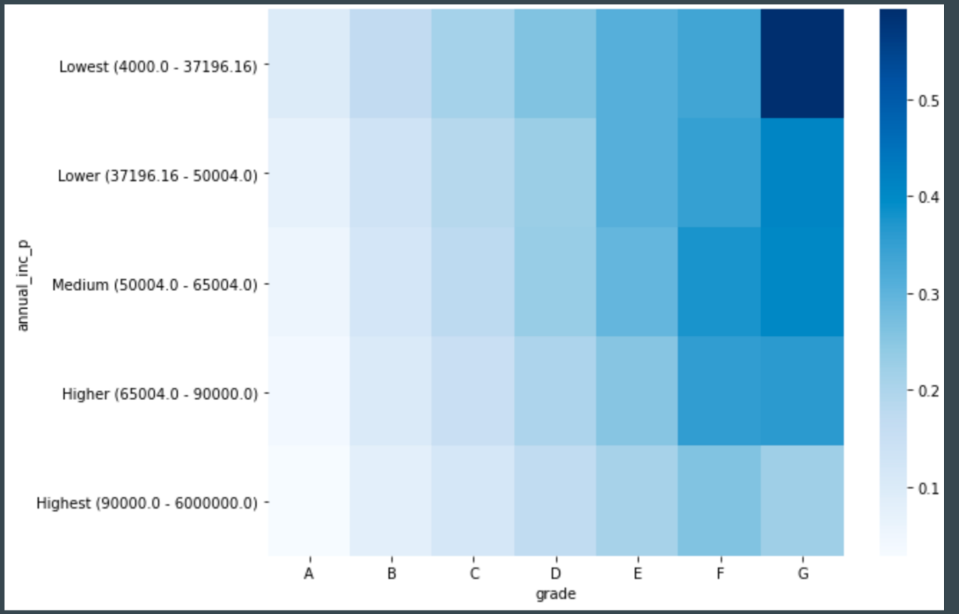


Finding 3: Grade with Purpose & Annual Income

Grade G loans given for Renewable Energy are risky, avoid it.

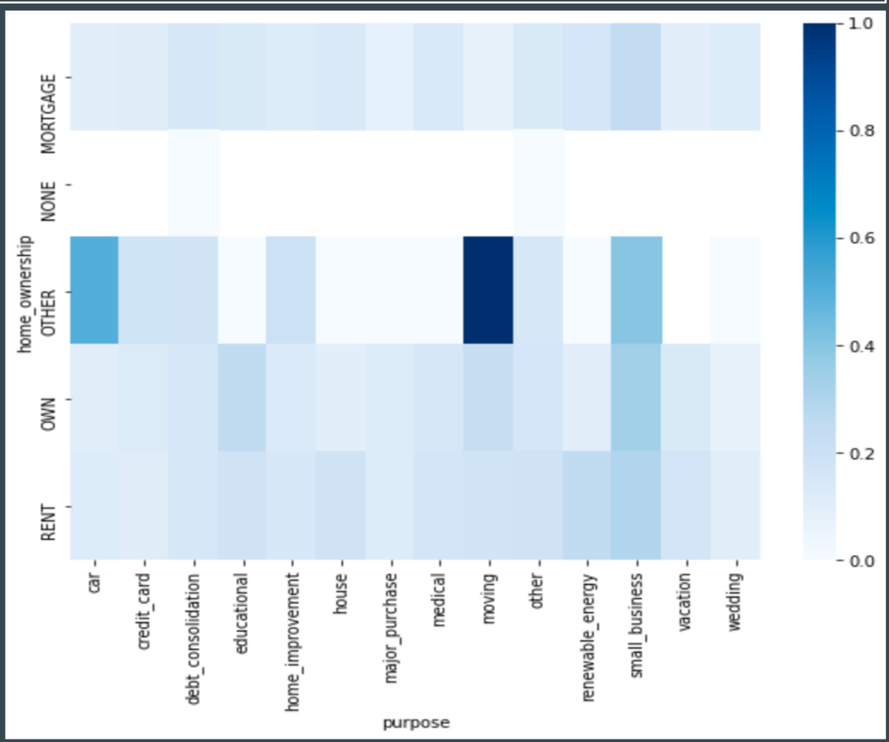
Grade G loans given to low income people is risky, avoid it.



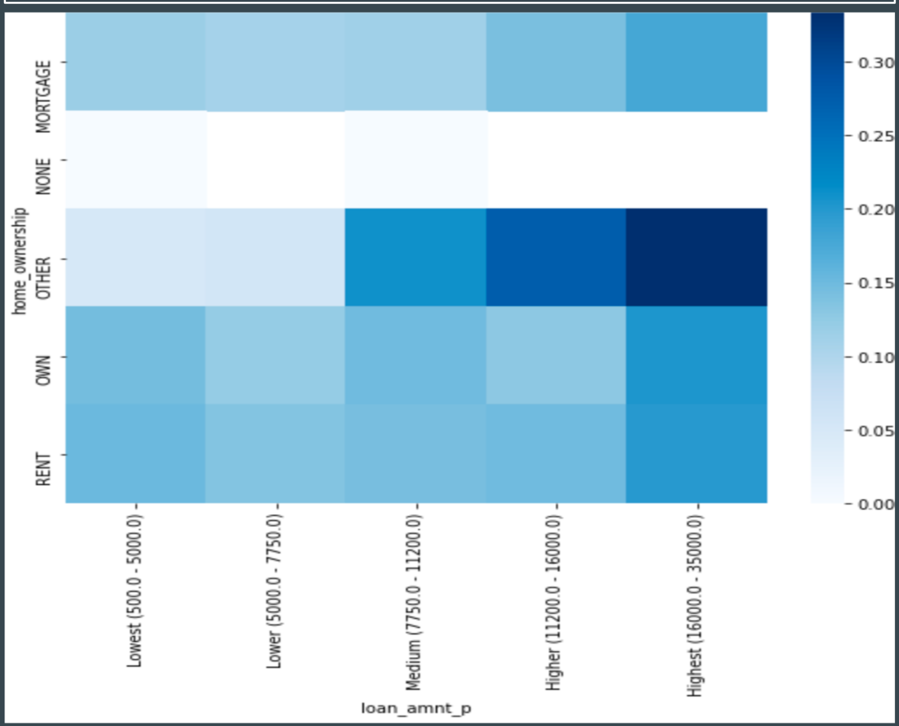


Finding 4: Home Ownership with Purpose & Loan Amounts

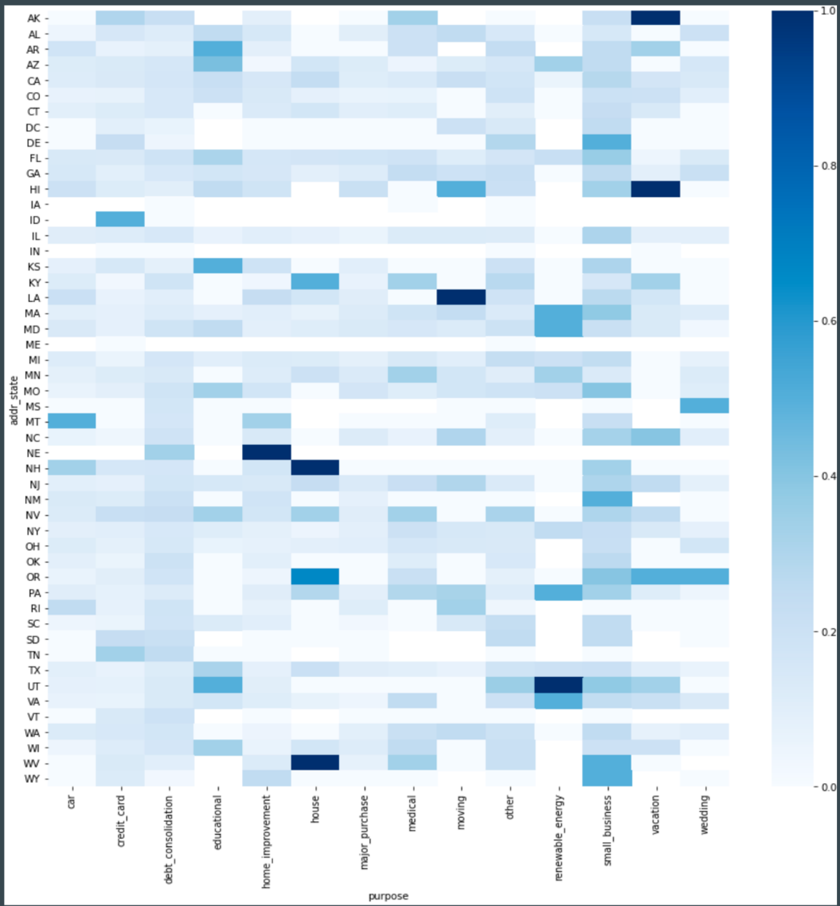
Folks who have home ownership classified as others default the most on loans taken for moving, avoid giving loans.



Same folks also default the most when they borrow loan amounts > 16,000. Avoid high loan amounts (>11,200)



Finding 5: Address State and Purpose

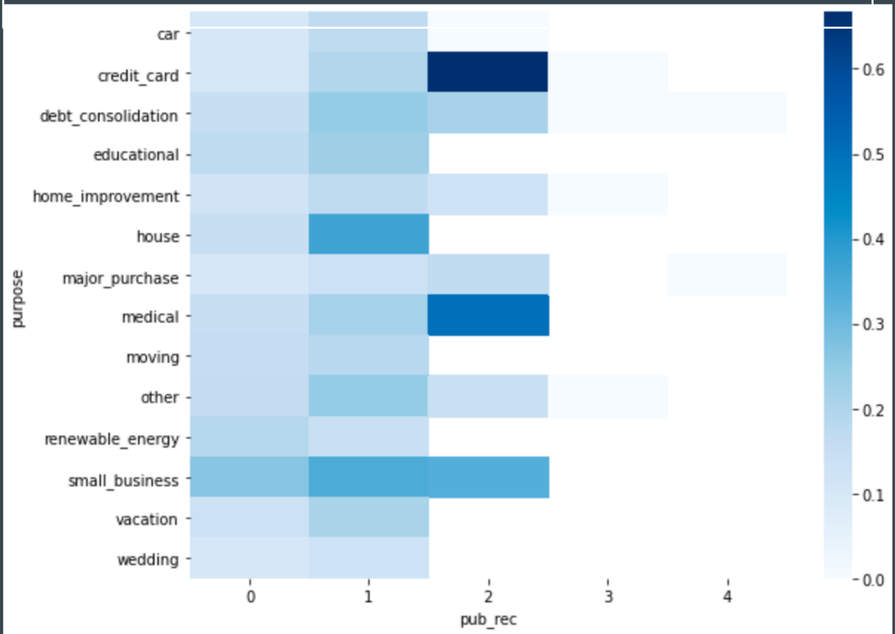


Avoid giving loans to borrowers from -

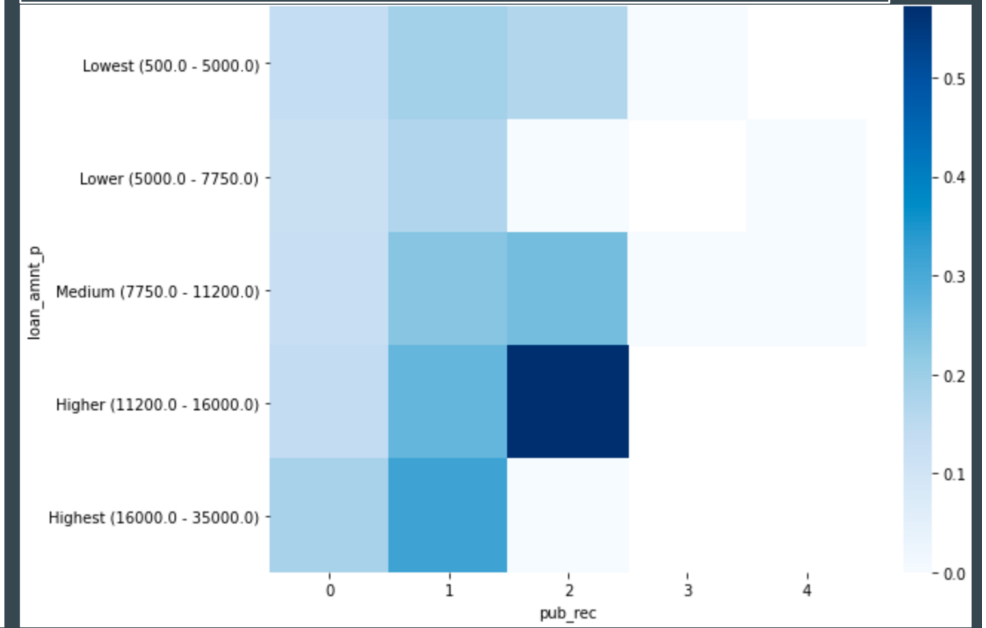
- Nebraska for Home improvement
- New Hampshire and West Virginia for house
- Los Angeles for moving
- Utah for renewable energy
- Hawaii and Alaska for vacation

Finding 6: Derogatory Public Records with Purpose

Folks who have 2 public Derogatory Records and take loans for Credit Card are risky, avoid giving loans



Folks who have 2 public Derogatory Records and borrow high loan amounts (>11,200) are risky, avoid giving loans.



The Team

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Thank You