Lending Club Case Study

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Loan amounts

- People staying at rented accommodations are taking maximum loans
- Higher grade of employees take more loans, led by grade B
- Debt consolidation is the most common reason provided for loans
- Most of the loans are taken for shorter terms of 36 months
- Most of the loans are provided to unverified sources
- There is no clear pattern for employee experience on number of loans but employees more than 10+ years experience take a lot of loans
- People from state of CA take maximum loans
- Most of the loans fall between 5000-10000 dollars range
- Maximum loan applicants income is between 25000-75000 dollars range
- Maximum loans are provided within the range of 10pc – 15pc

Probability of chargeoffs

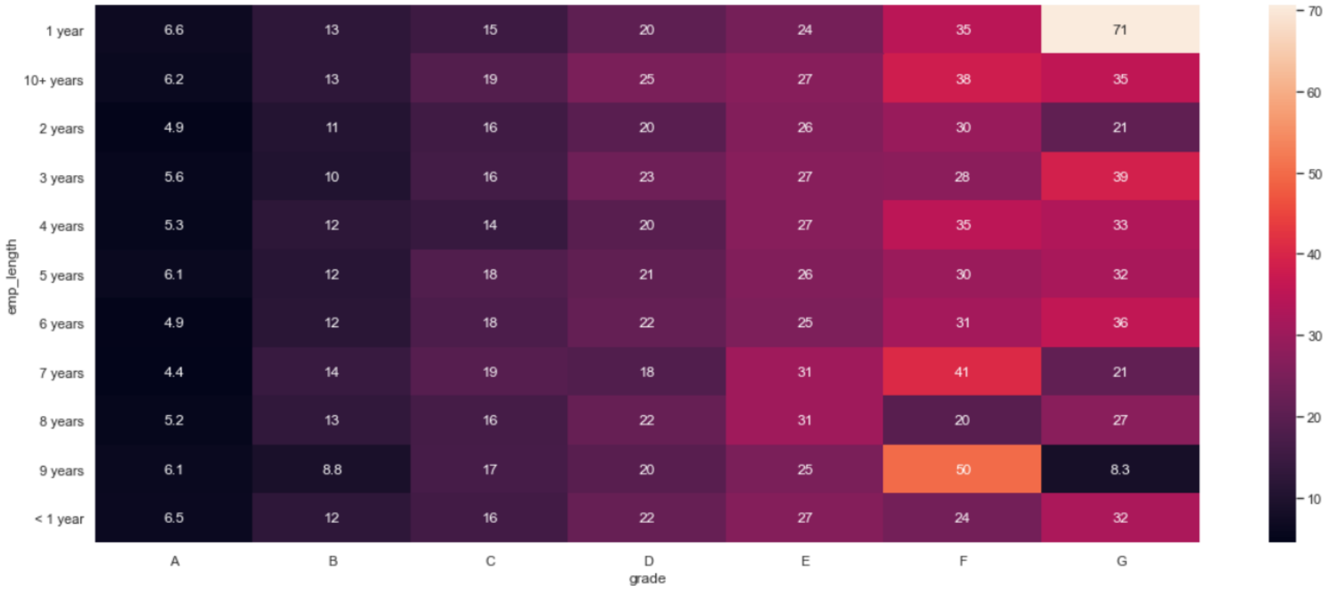
- Rental candidates have higher probability of chargeoff. But the gap is not far from 'Own' and 'Mortgage'. Candidates who haven't mentioned about their home ownership have highest chargeoff probability. So making the candidates write their accommodation type becomes important
- As the grade of an employee lowers higher becomes the chargeoff percentage – Similar is the case for sub grades
- Small business has the highest amount of chargeoff probability
- Higher term means higher probability of chargeoff
- Verification does not seem to have any effect on reducing chargeoff probability
- State of NE has the highest chargeoff probability

Probability of chargeoffs (contd.)

- Higher loans cause higher probability of chargeoffs.
- Lower income group candidates cause higher probability of chargeoff
- Higher interest rate cause higher probability of chargeoff.
- The probability of chargeoffs is decreasing with progression of years
- December and May have highest probability of chargeoffs
- 10+ years experience employees have highest probability of chargeoffs

Compare Employee grade and experience

- Employees with grade F and with higher experience have higher chargeoff probability
- Employees with grade G and lower experience also have higher chargeoff probability (**Alert** – Grade G and 1 year experience has 71pc of chargeoffs)
- In general we know that F and G grades have highest chargeoff, that doesn't change with employee experience

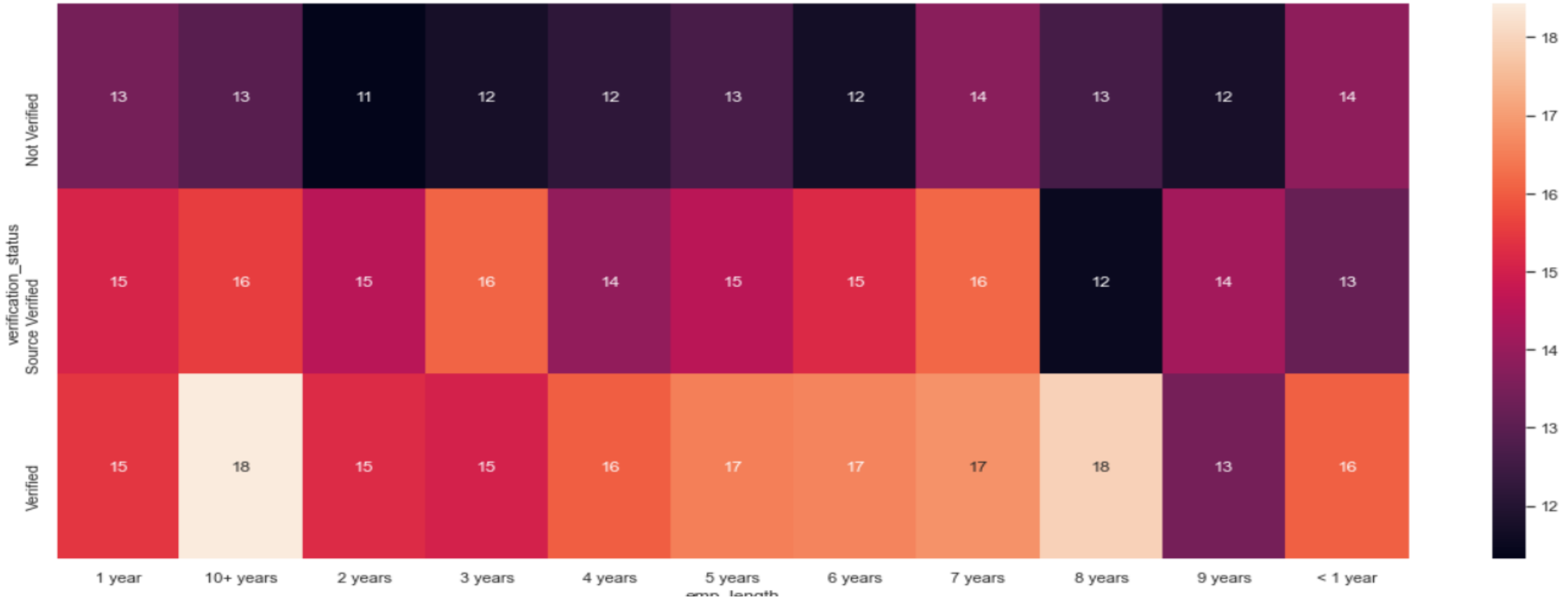


Impact of verification on employee grade

- We have seen earlier that verified employees have higher chargeoff probability
- Verification for employees for all grades except level G does not bring the chargeof probability down

Impact of verification on employee experience

- We have seen earlier that verified employees have higher chargeoff probability
- Verification of employees does not have any impact across employee experience
- Verification process might need to change to reduce chargeoffs



Analysis of Debt Cosolidation purpose

Debt consolidation is the most popular purpose of taking a loan among the candidates. To make maximum profit and reduce chargeoffs following are the people that the company can target and attract investors as well:

- Loans to grade F employees is discouraged since they have highest chargeoff
- Encourage it among lower experienced candidates (1-3 years)
- Since there is no difference in chargeoff probability between 20k-25k and 15k-20k people coming for 15-20k loans can be offered 20-25k loans as well
- Avoid giving debt consolidation loan to lower income group
- Avoid giving these loans at 20 and above pc interest rate since the chargeoff probability is really high. If higher interest rate has to be provided then limit it below 20

Analysis of Small Business purpose

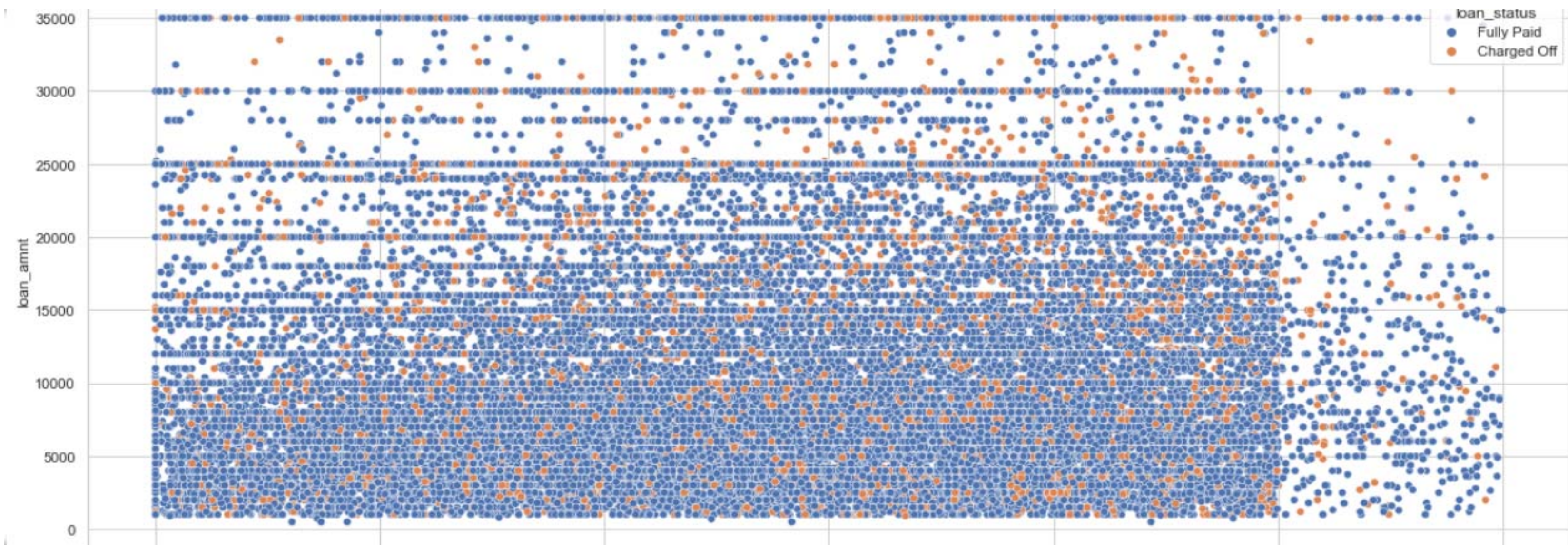
For givingloans for small business we already have seen there is huge risk of chargeoff. But following are the considerations under which loans can be given to make profit and investors can think of putting in their money:

- Encourage this loan among A grade employees
- Give it for shorter term of 36 months
- Give it to people with less experience (<1 year, 2-3 years)
- Give smaller loans, 10k-25k has same chargeoff probability but it shoots up after 25k
- Give it to people with income group >75k
- Keep the interest rate low till 10

Analysis of dti

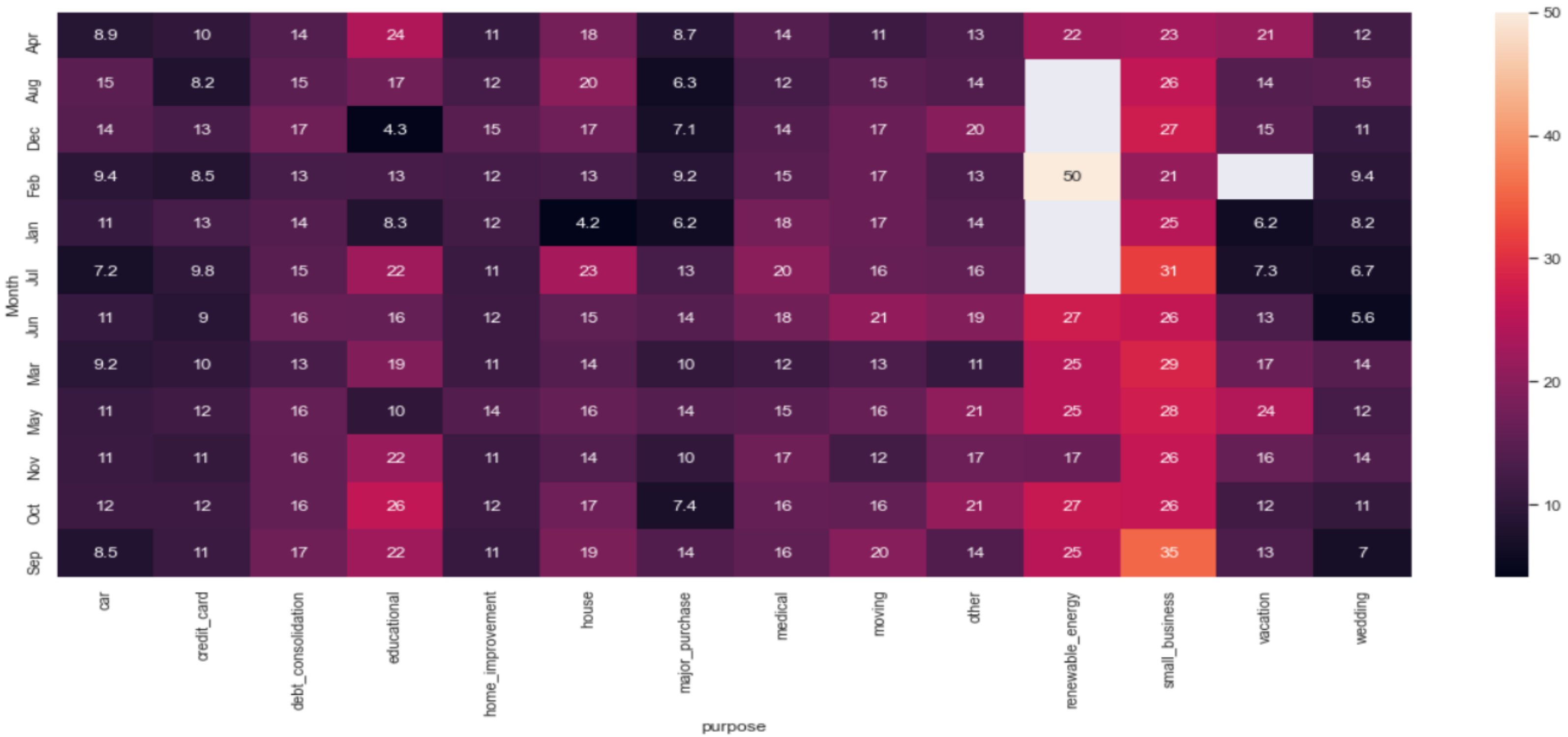
The maximum loans have been given at dti ratio till 25 and the maximum number of loans have been provided from 0 to 25000 dollars.

Checking the outliers (loan above 25000 dollars and dti >25) shows that this population has much higher chargeoff percentage (24 pc vs 14 pc for normal population)



Analysis of Months vs Purpose of loan

Chargeoff probability for May and April apart from small business (which is high for every month) vacation seems to be causing a lot of chargeoffs (much higher than other months)



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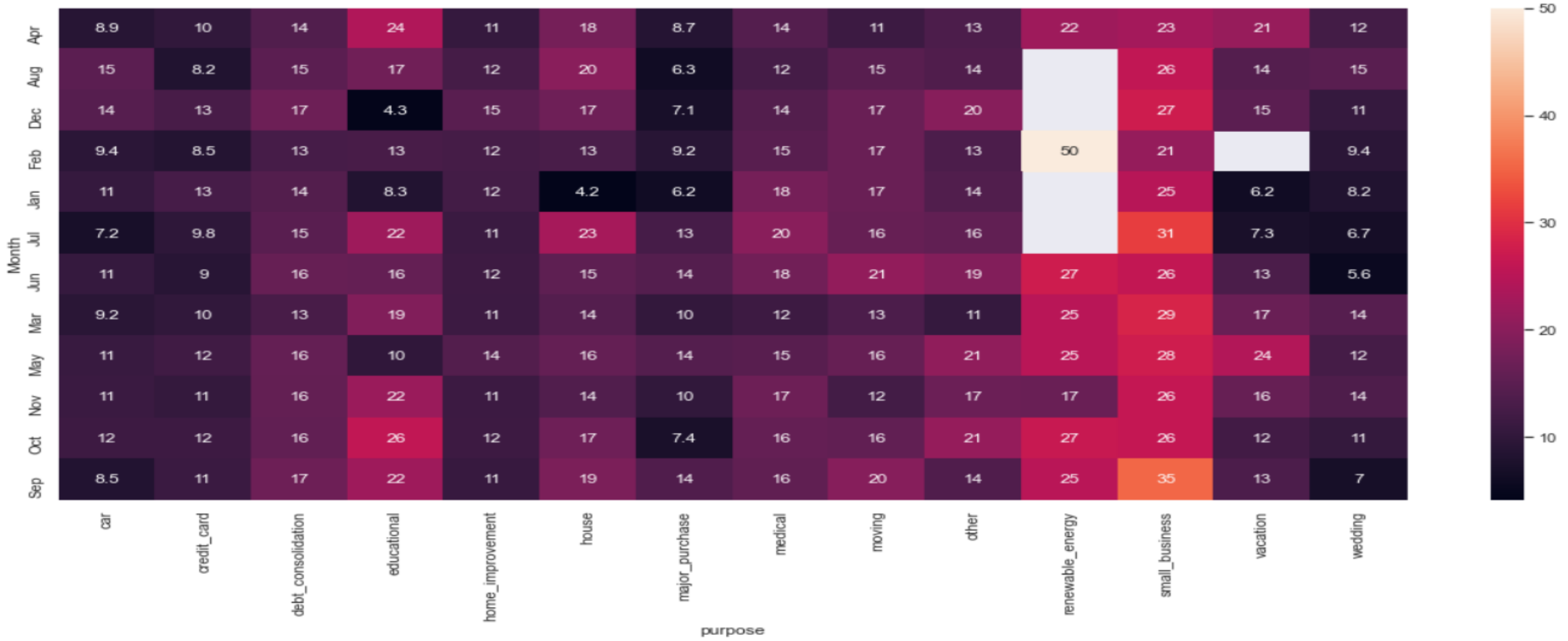
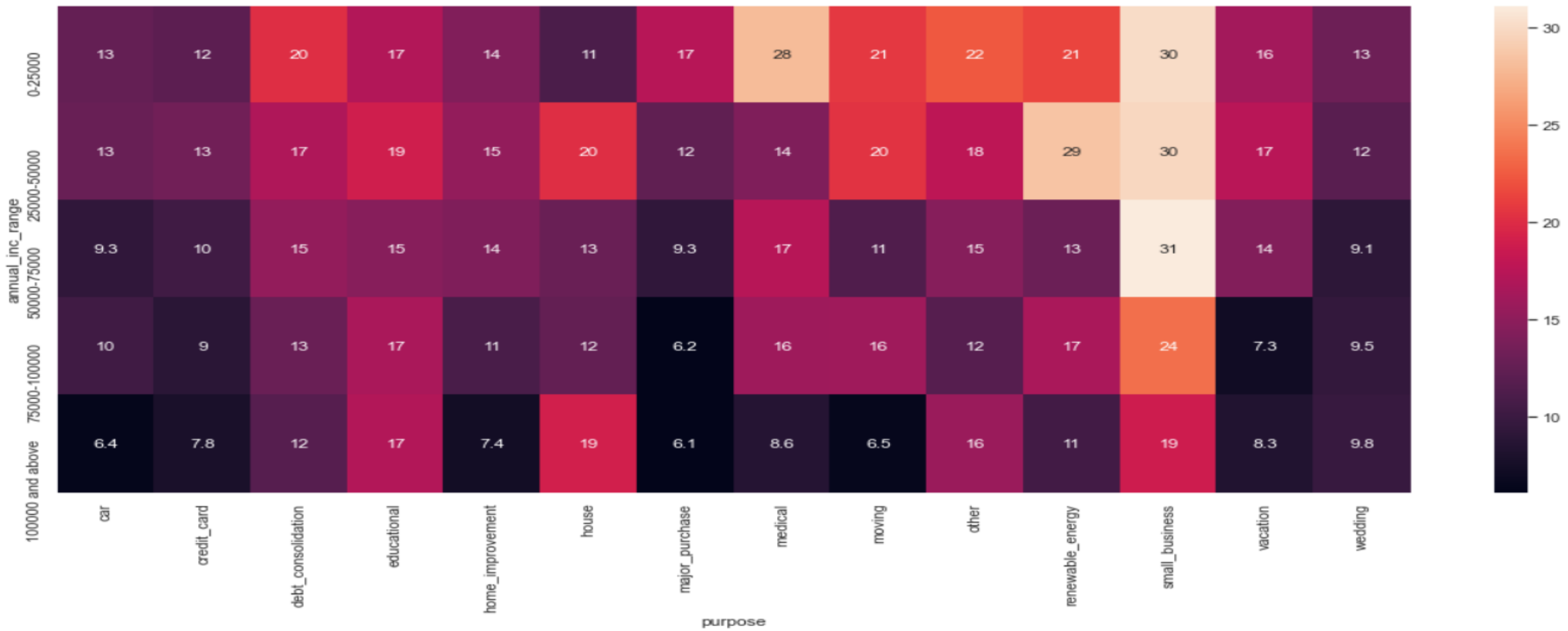
Checking the distribution against income groups it seems that 25000-50000 income group has maximum chargeoffs for vacation in May and April, so caution should be applied before investing



Analysis of Income groups vs Purpose of loan

For lower income groups (<75k) its clear that loan given for small business is pretty risky. For higher income groups, risk is still there for small business but it is offset by their high income, but there is slight risk in giving loans to these higher income groups for house and educational purpose (in fact the risk of chargeoff is as much for these purpose for high income groups as low income groups)



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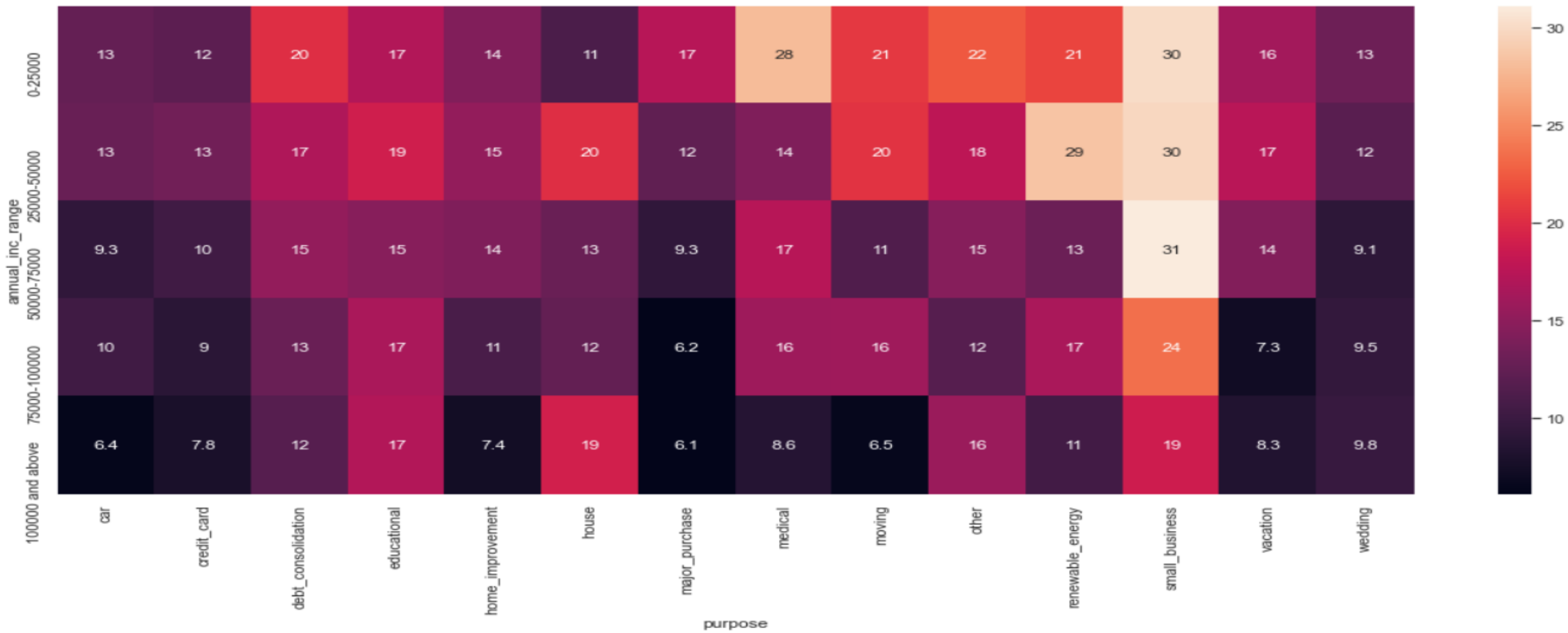
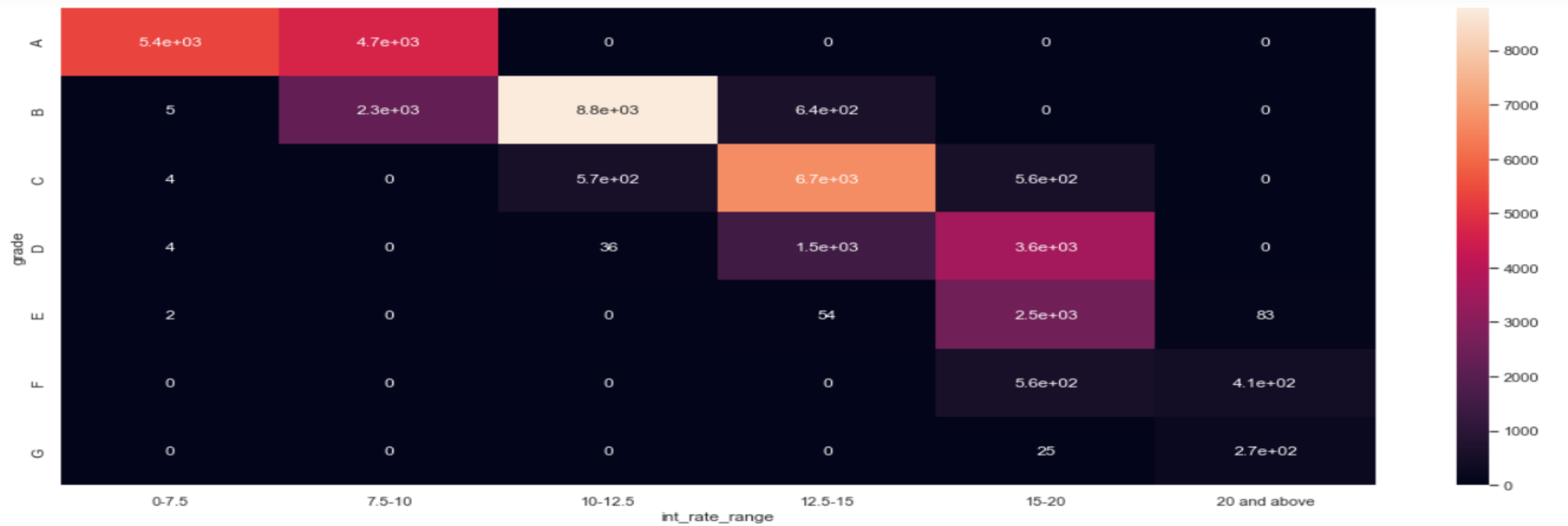


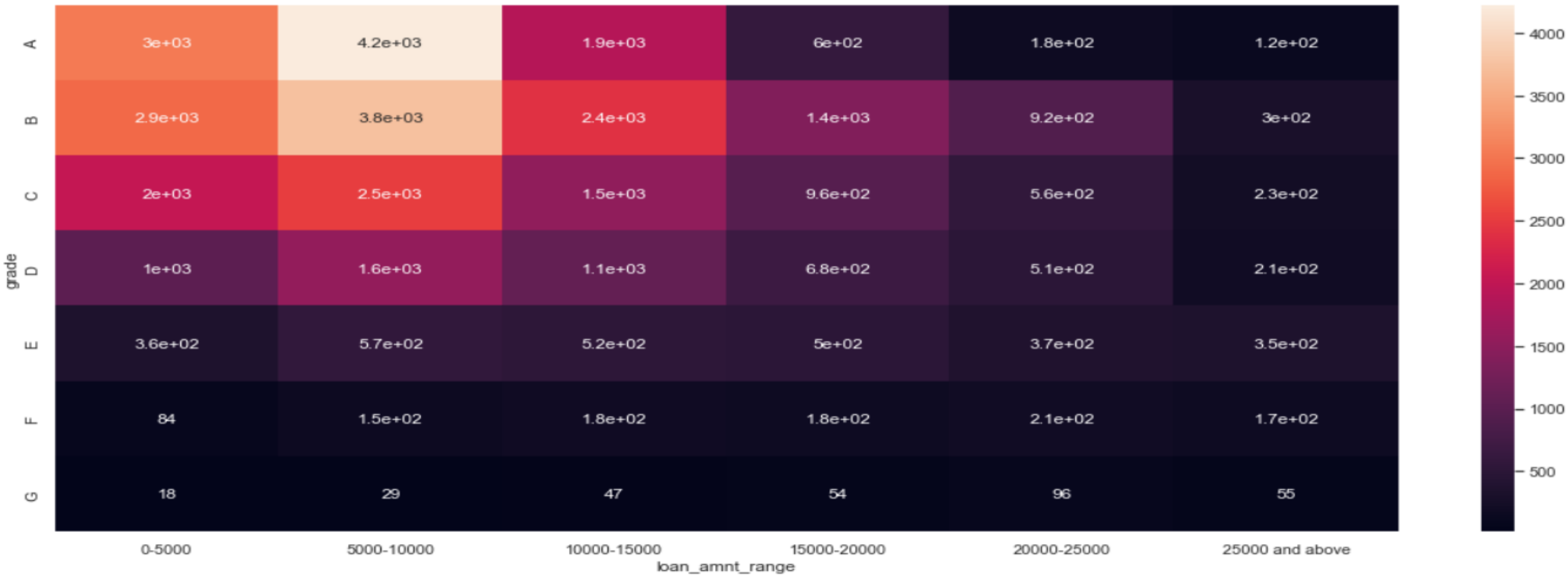
Analysis of interest rate with employee grade

Lower grade employees are not provided with lower interest rates due to probably their credit rating and incomes. But we have seen highest chargeoff probablity for F and G employees. They can't be given loans at lowest interest rates like A and B grade but at least more loans can be provided between 12.5 - 20 to ensure the company can get their money back from more people.



Analysis of loan amount with employee grade

Similarly, since higher grade employees cause least chargeoffs, there is a scope to encourage increase of the amount of loans given to A and B grade employees for more profits



Analysis of lower grade and income groups

- Lower Grade employees (E,F and G) have higher chargeoff probability because the loan amounts being offered to them have many outliers, the interest rate being offered is in accordance with median

- Lower income employees (0-50000) have higher chargeoffs because they are being offered loans at very high interest rates. It makes sense since it discourages them to take loans, but it would be better to reject their loans or provide them at a slightly lower price so that they can pay back and company can make a profit

Summary

- Try investing in people with higher salary, debt consolidation loans, employees with grade A and B, interest rates close to 15pc but not more than that
- State of NE has very high chargeoff percentage
- Employees with more experience doesn’t bring the chargeoff percentage down – the chargeoff probability varies with purpose of loan
- Verification has no impact on reducing chargeoff percentage across income groups and grades of employees
- F and G grade employees are being given very huge loans, there is scope to reduce that, knowing that they chargeoff the maximum