Lending Club Case Study

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Introduction

Our business has two types of risks associated with lending

Business Loss: If the loan is rejected for an applicant who is likely to pay, we have

Financial Loss: If the applicant failed to repay the loan

With regards to Financial Loss, we could always analyze past loan data and understand the correlation between applicant profile and the risk of default

Data used for this case study comprises of the loans issued between 2007 and 2011 with two terms '36 months' and '60 months'

Objective of case study

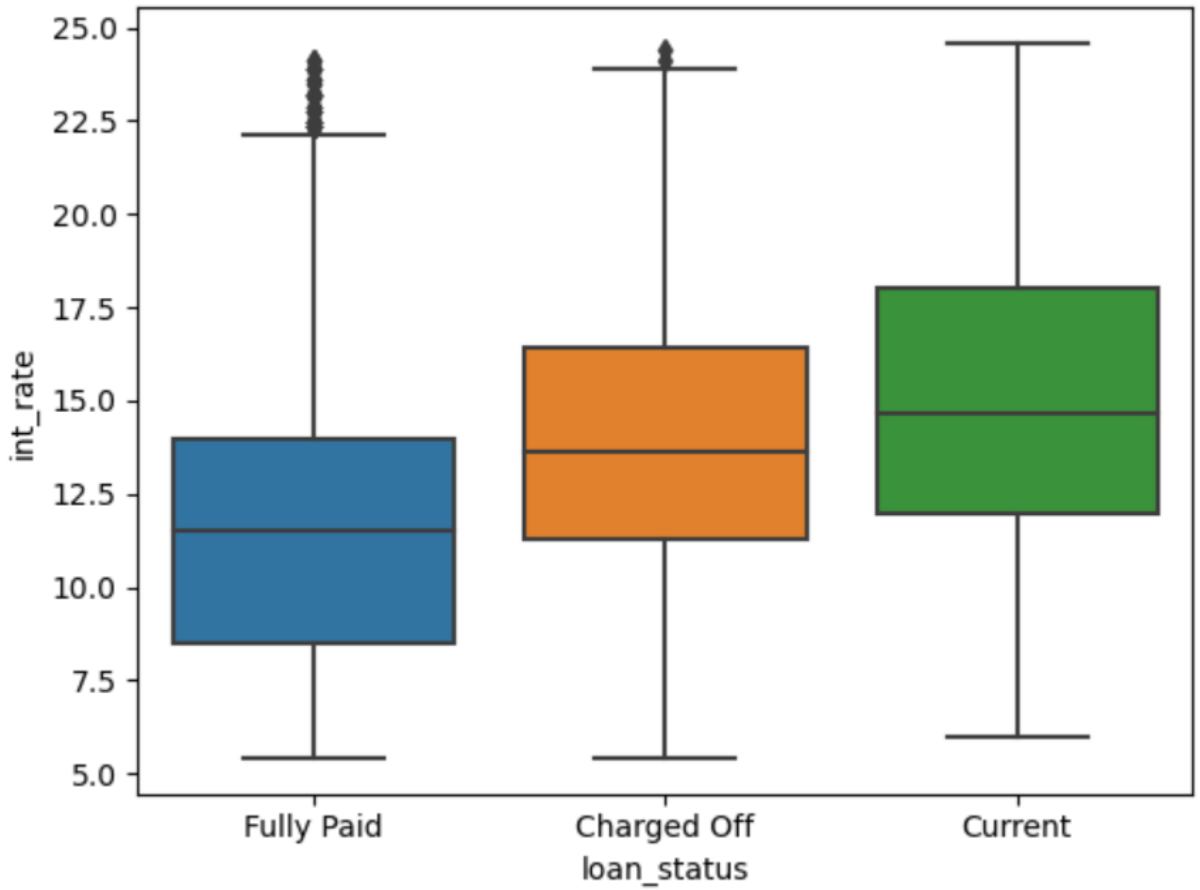
Identify risky loan applicants

Understand driving factors behind loan defaults

Highlights from the case study

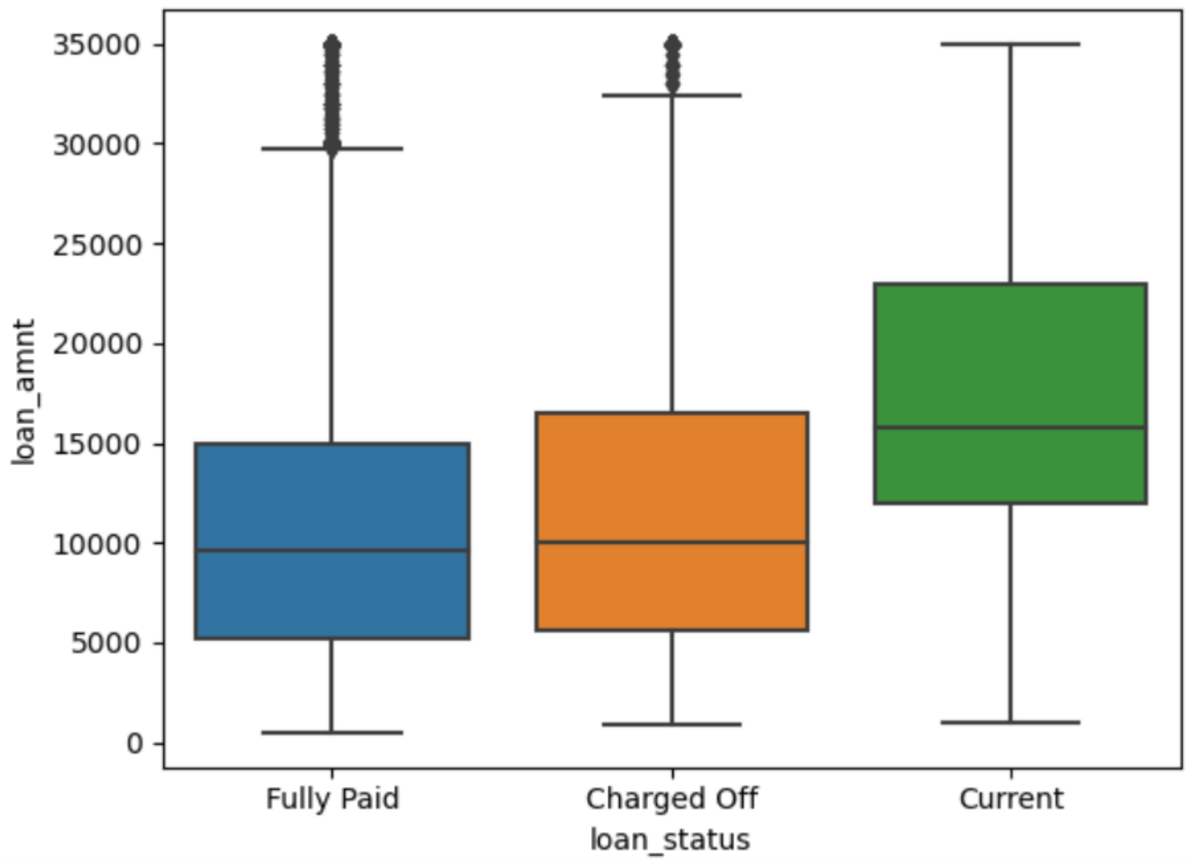
Interest Rates vs Loan Status

- For defaulted loans, average interest rate is higher than the ones for fully paid loans
- Current loans that are active, loan amount is significantly higher. (This can can be linked to inflation)



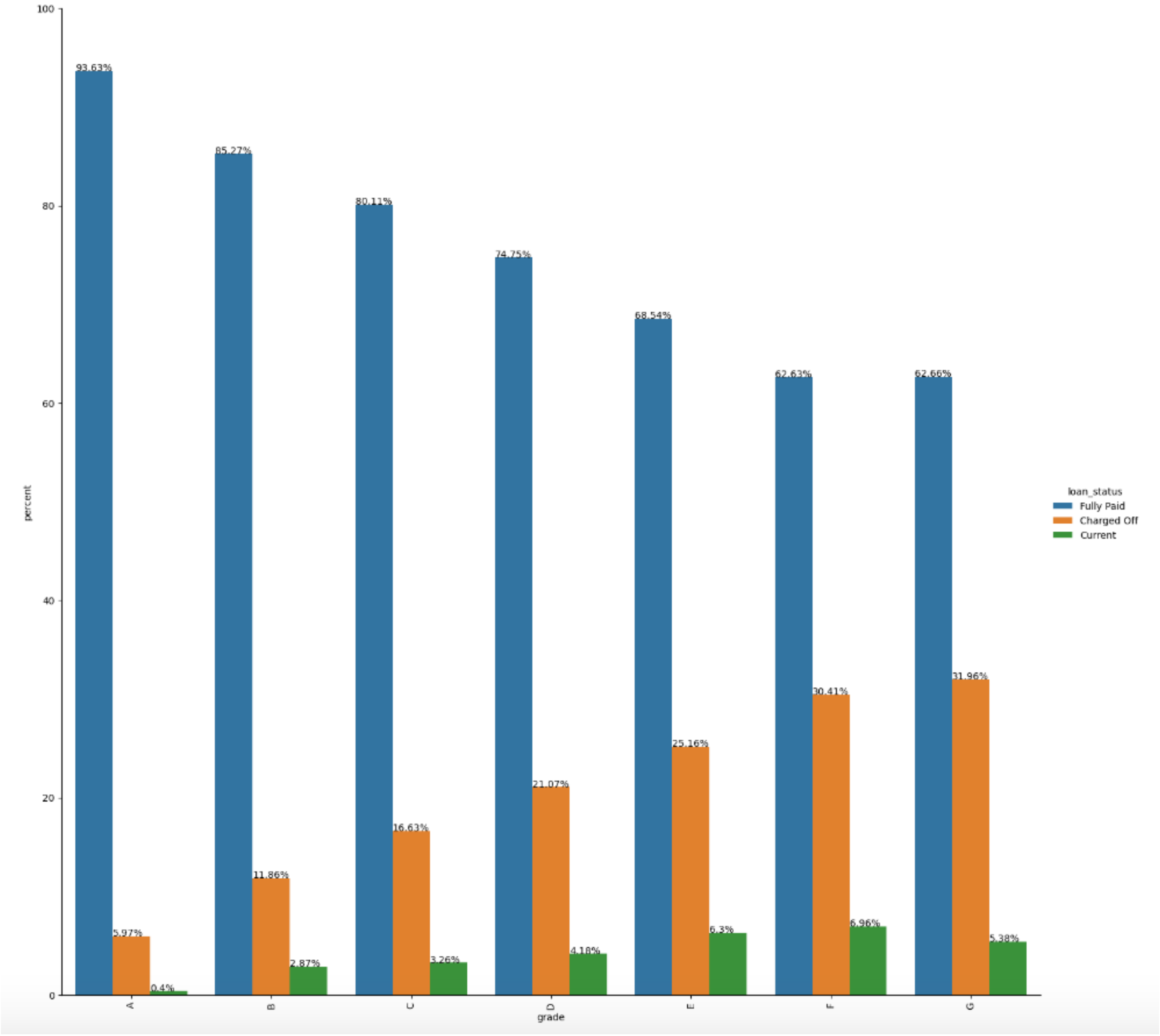
Loan Amount vs Loan Status

- Loan amount does not increase significantly higher for the defaulted loans than the loans that are fully paid
- Current loans that are active, loan amount is significantly higher(This can be linked to inflation)



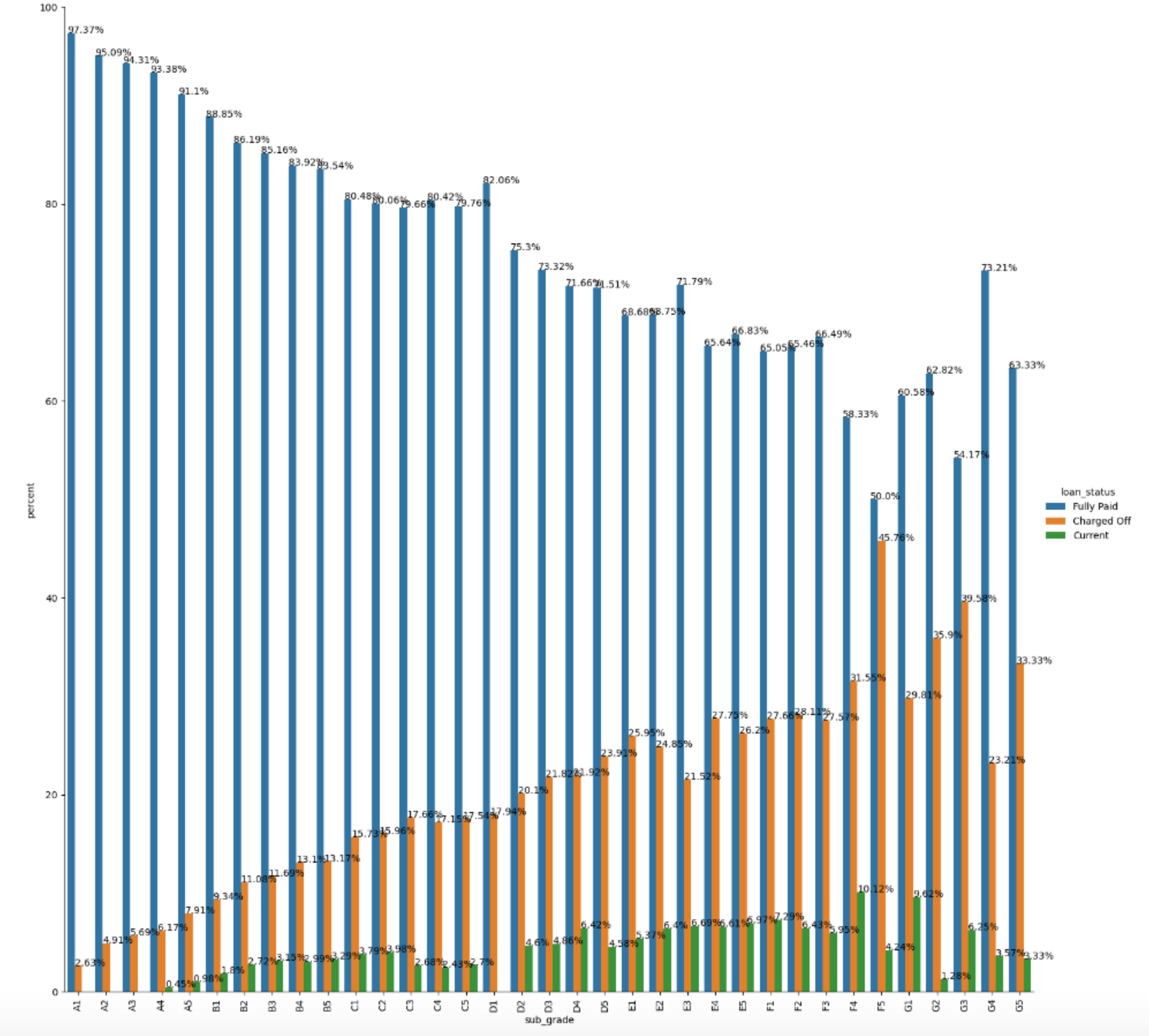
Grade vs Loan Status

- Employees with grade G have defaulted the most followed by employees with grade F.
- We see higher the grade (G being high and A being low), higher the chance of default.



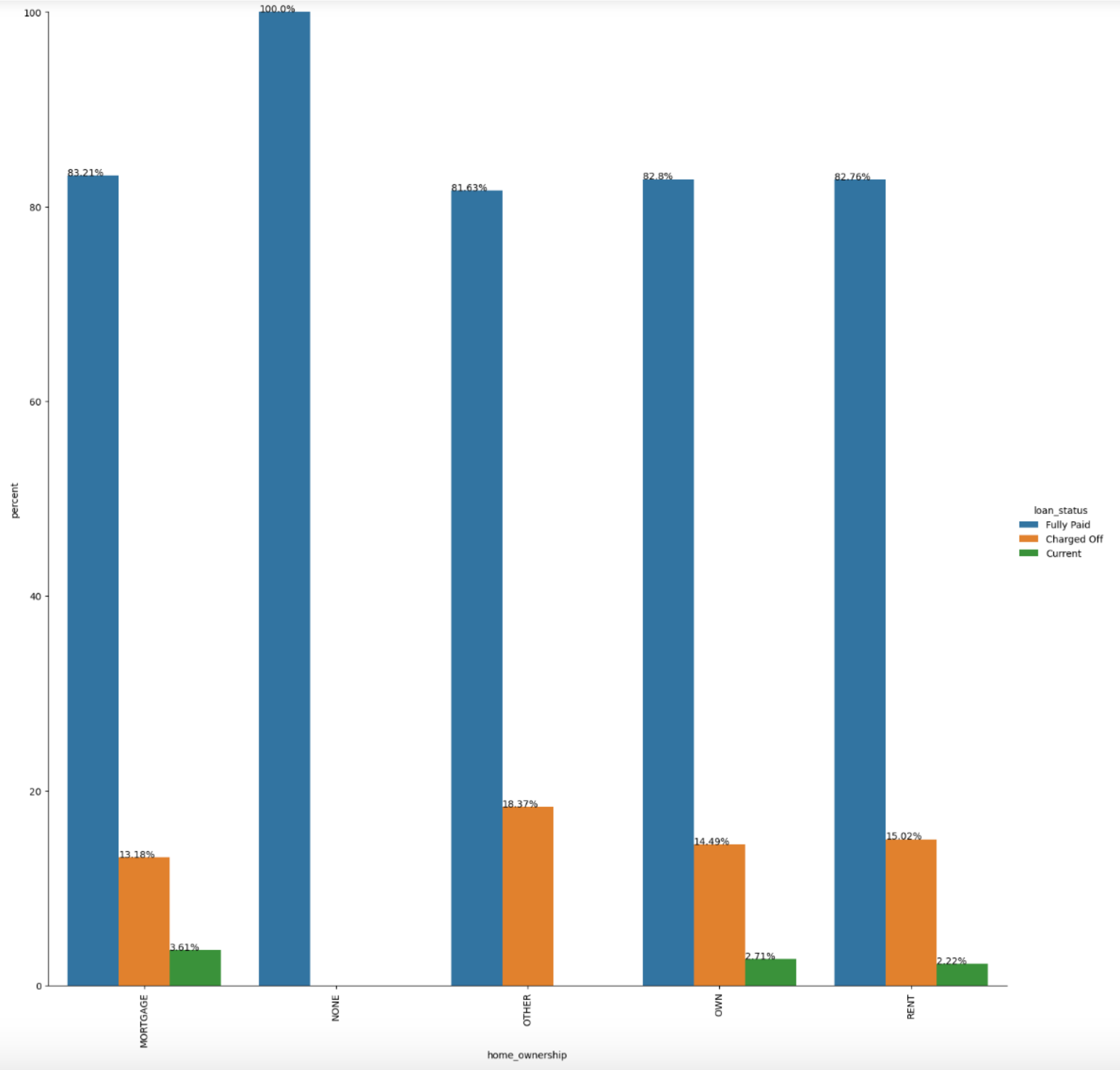
Sub-grade vs Loan Status

- Employees with subgrade F5, G3 and G2 have higher probability of defaulting.
- This ties in with the analysis of the grade and loan status



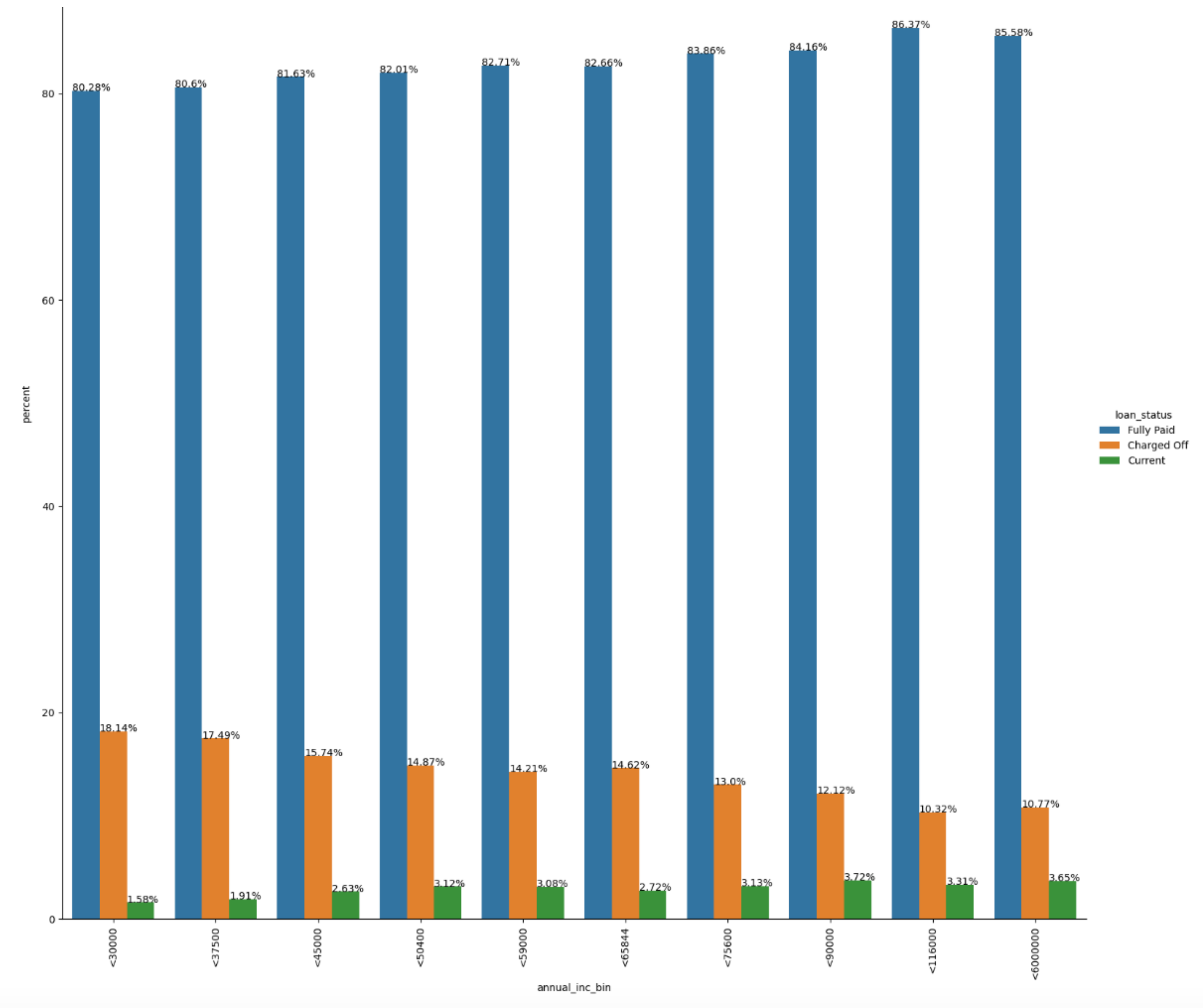
Home Ownership vs Loan Status

- Applicant with with ownership as 'RENT' or 'OTHER' have higher chances of default



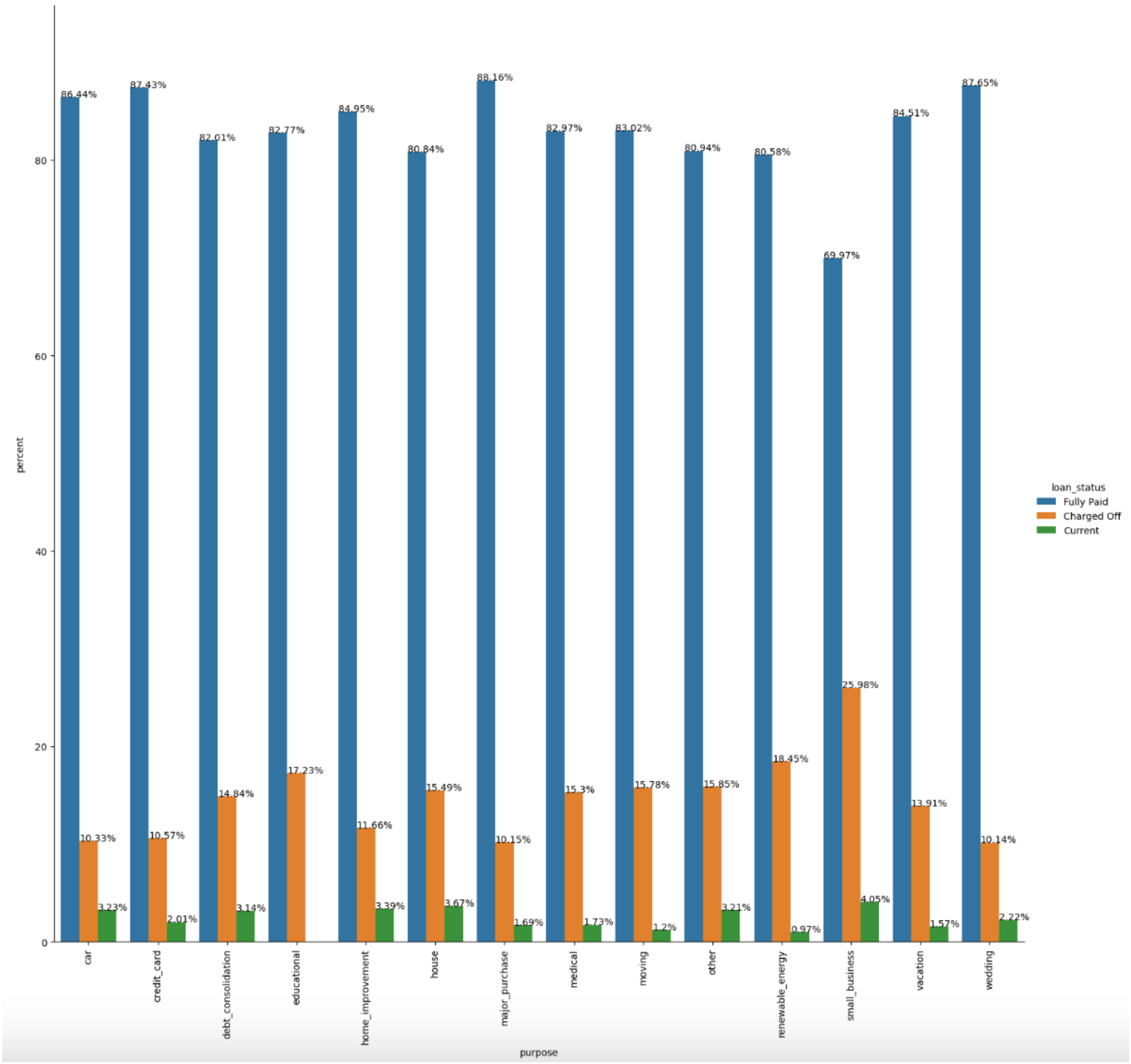
Annual Income vs Loan Status

- As and when the income bracket lowers, the chances of default go up



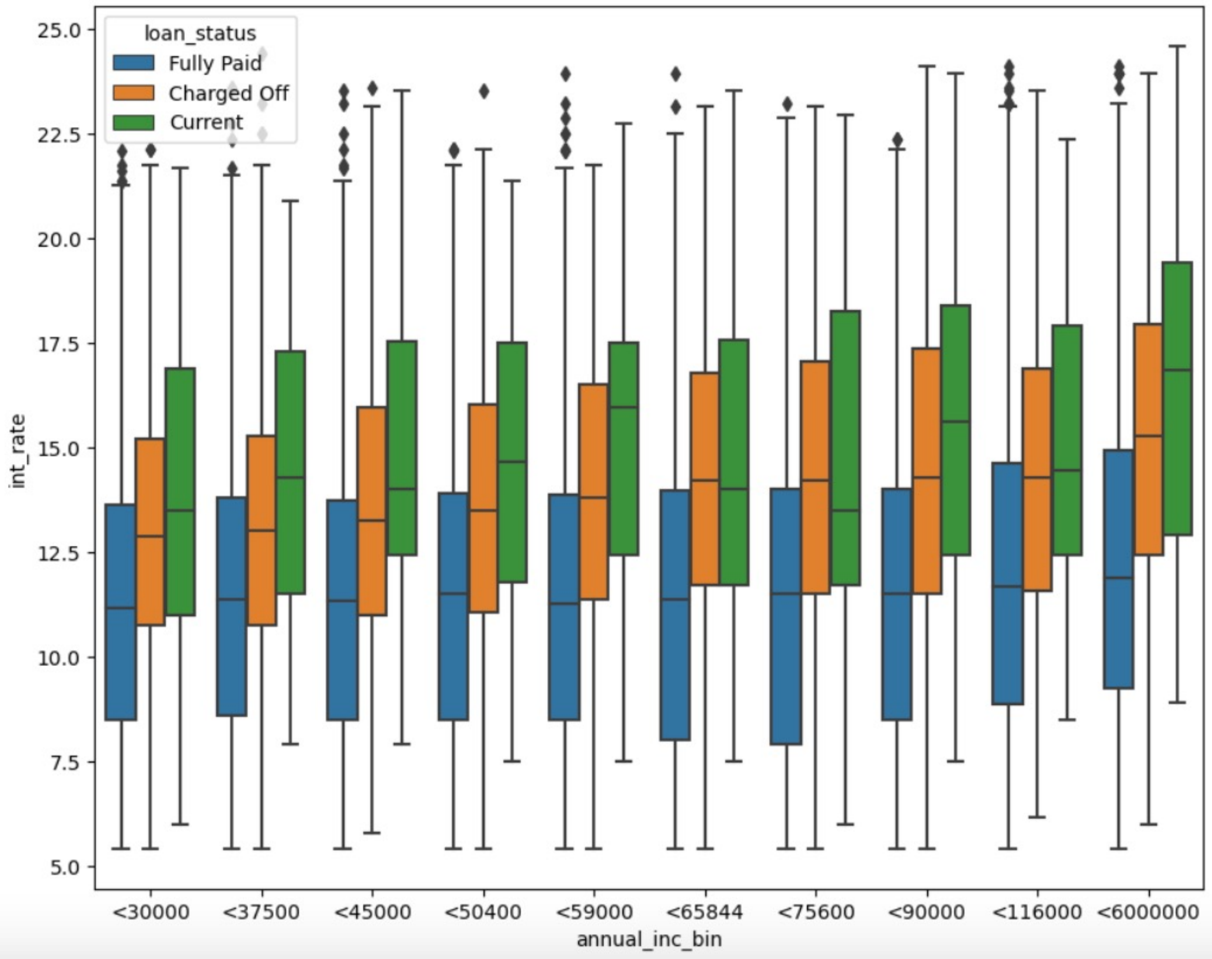
Purpose vs Loan Status

- Loans taken for small businesses have defaulted the most followed by loans for debt consolidations



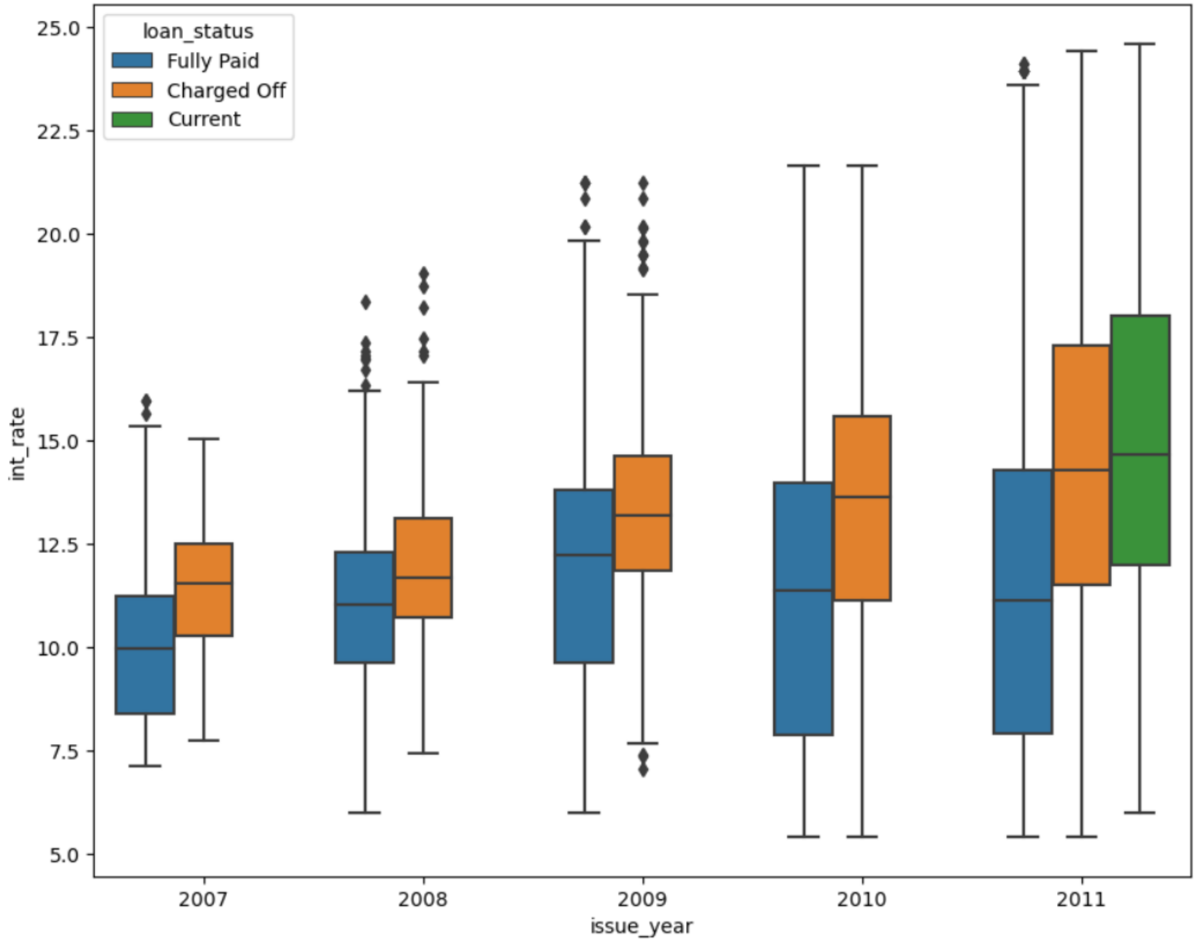
Annual Income vs Interest Rate

- Interest rates are higher for the 'Charged Off' loans across all income categories
- This could mean that bank is good at identifying risky loans and applying higher interest rates



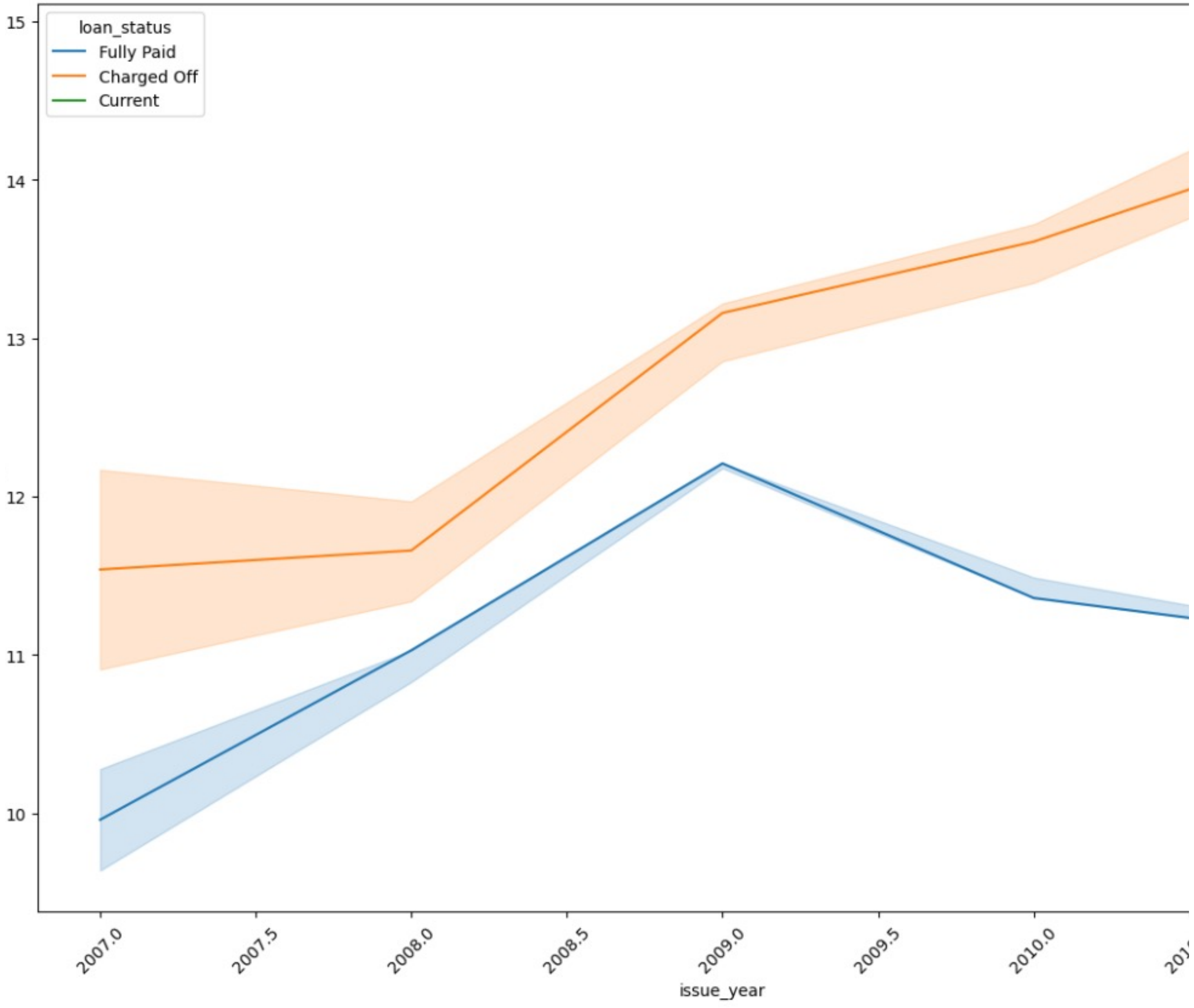
Issue year vs Interest rates

- Interest rates are going up as time progresses.
- Though average interest rate has not varied significantly



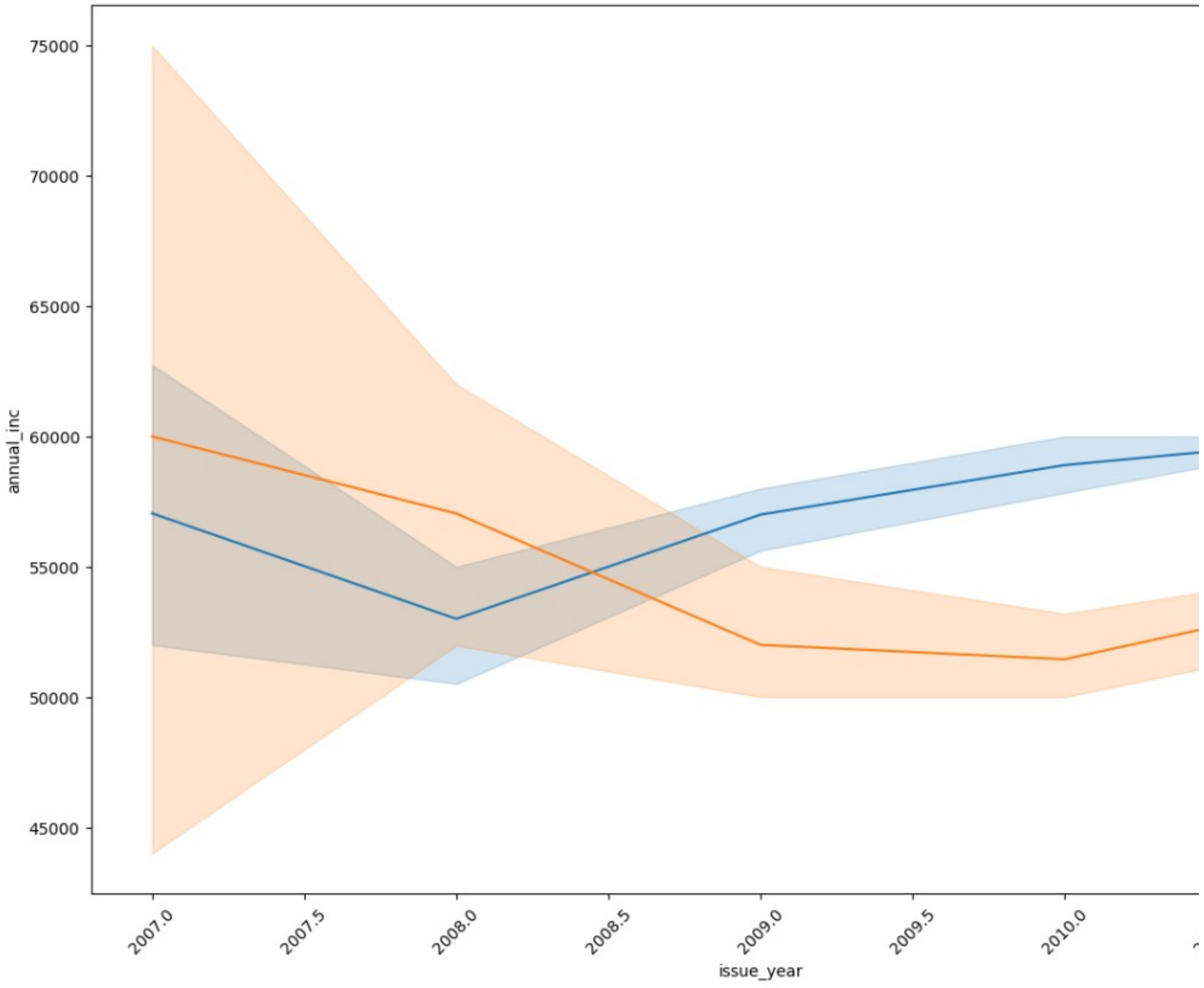
Issue year vs Interest rates

- For charged off loans, interest rates are higher than the fully paid loans



Annual income vs Issue Year

Annual income of the applicants who defaulted has downward trend as the time progresses.



Conclusions

As the annual income goes down for the chance of defaulting goes up

Applicants with Job Sub-Grade of F5, G2, G3 and G5 have more chances of defaulting

Loans taken for the purpose of small business have higher rate of defaults

Applicants from the states Nebraska, Nevada, Arkansas and South Dakota have more chances of defaulting the loan

Interest rate is always seen higher for the charged off loans. This could mean that business is better prepared identifying riskier loans and are offering them at higher interest rates.