

Lending Club Case Study Assignment

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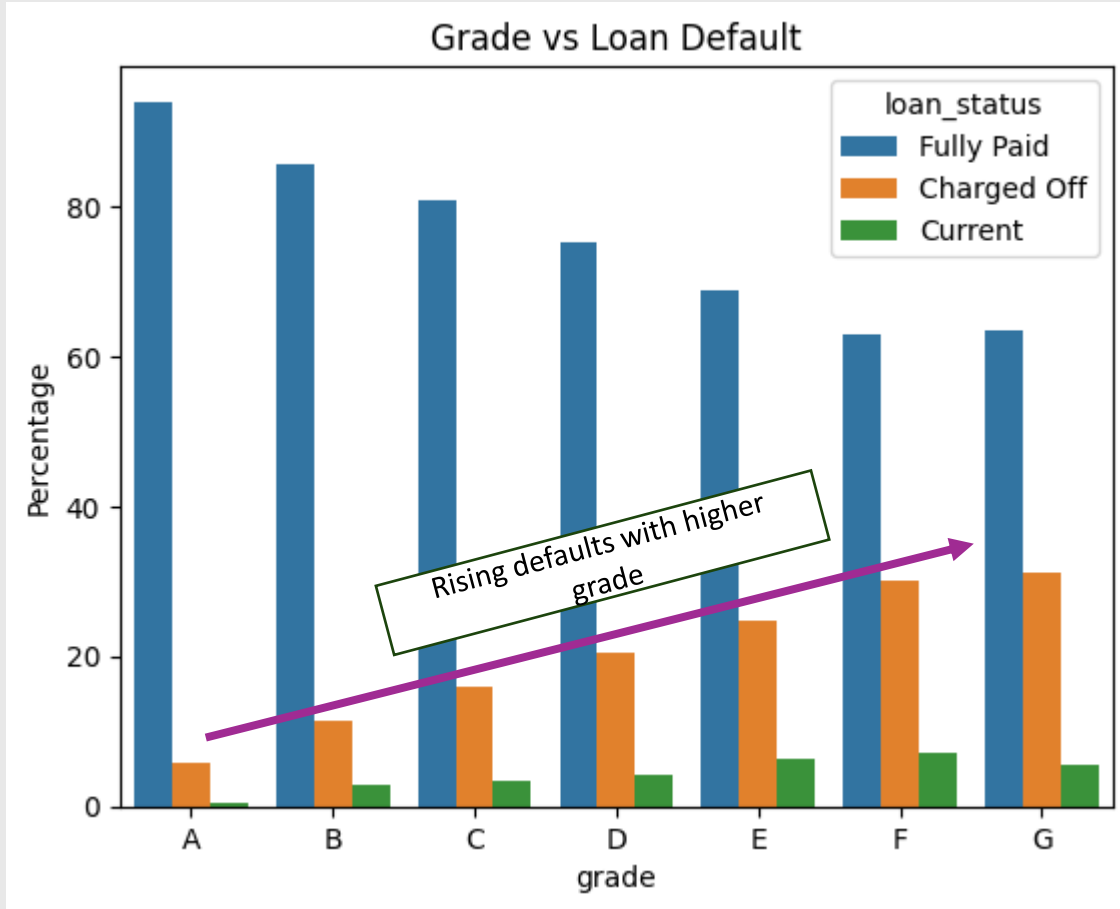


Analysis

Key fields where the impact on Loan
Default Status is highest

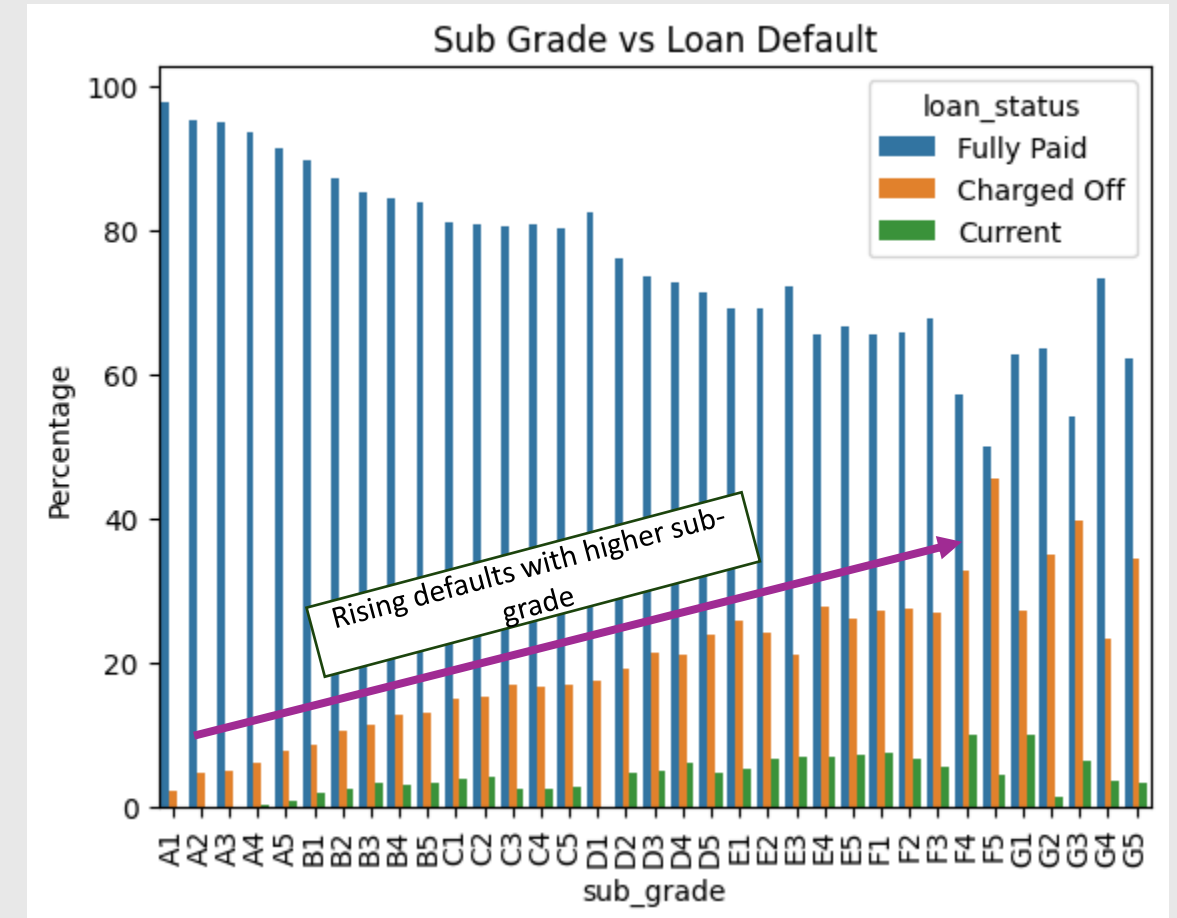


Impact of Grade & Sub-Grade on Loan Default

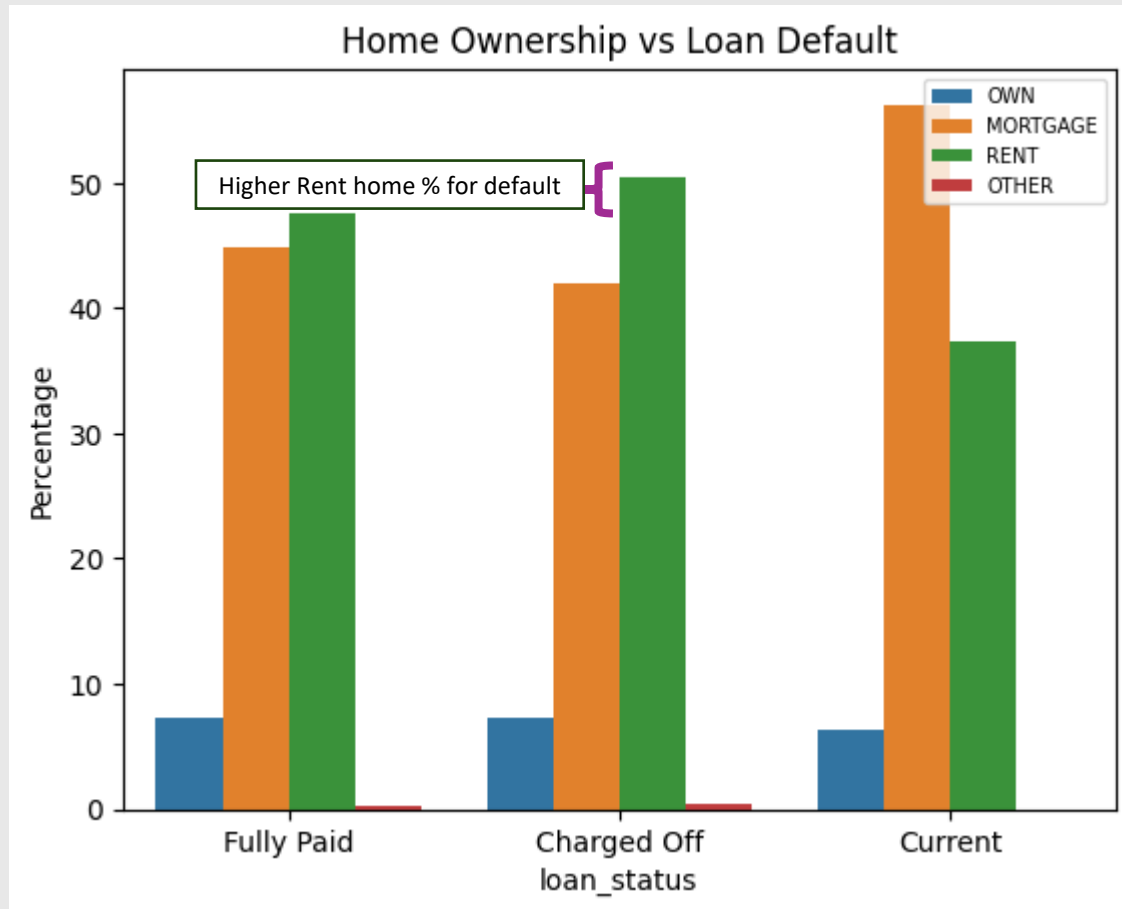


Interpretation:

- Grade and sub_grade: reflects LC assigned loan grade and sub grade
- As we can see, that the with grade and sub-grade increase the charged off % (loan default) is increasing
- So exiting system of grading is aligned to finding loan defaults, but can be improved

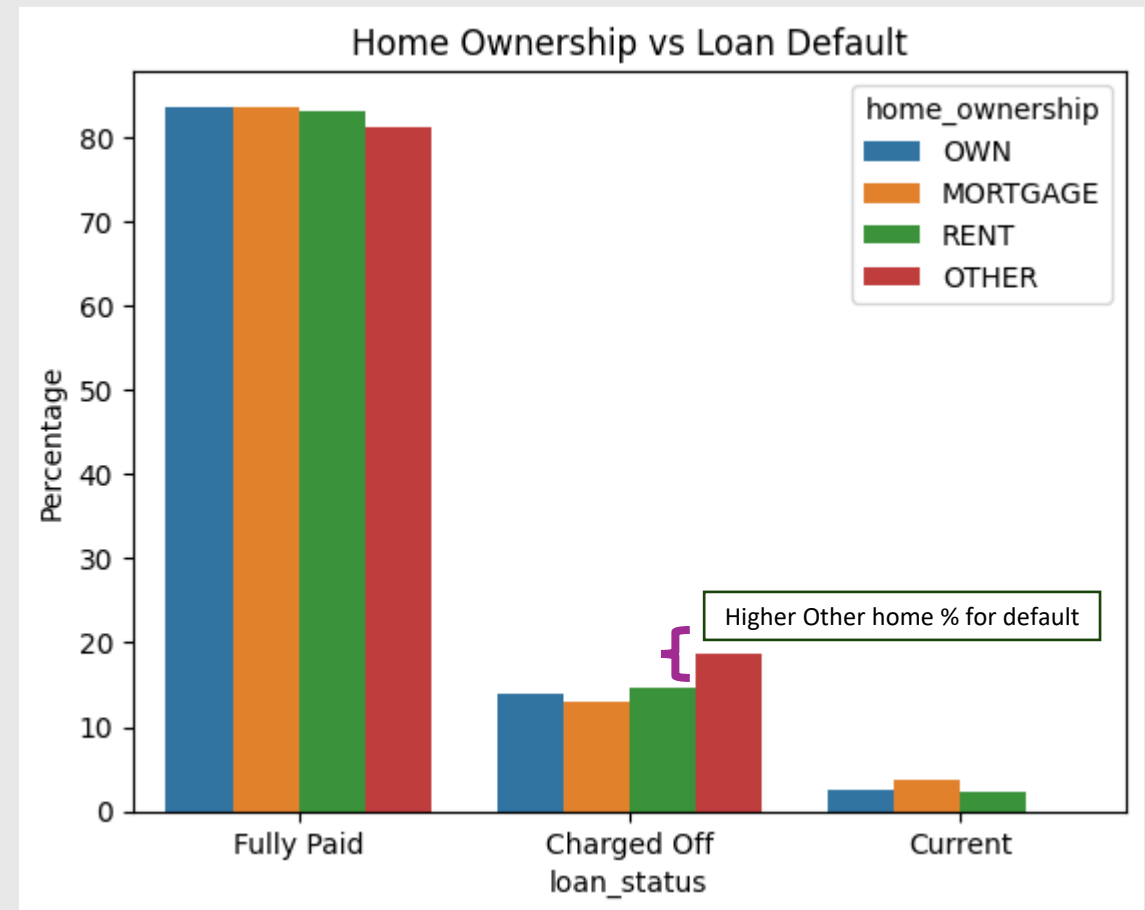


Impact of Home Ownership on Loan Default

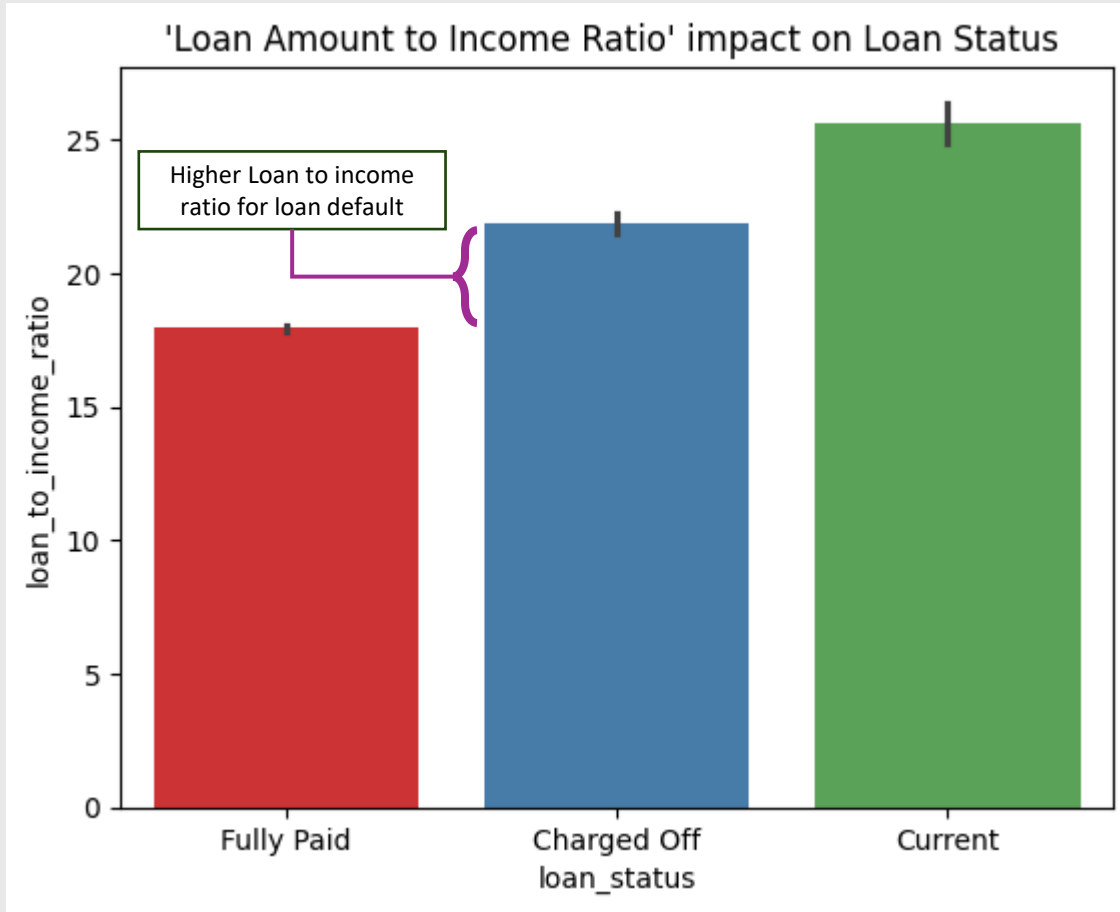


Interpretation:

- home_ownership field: reflects the type of home than the applicant has (owned, rented, mortgaged, others).
- This has some bearing to the Charged Off (Default) status where we see that **rental home application have a higher % in charged off (loan defaults)**
- Also, we notice that “Other” (which were the rows with empty value) have a high possibility of default



Impact of Loan Amount to Income Ratio and Revolving balance to income ratio

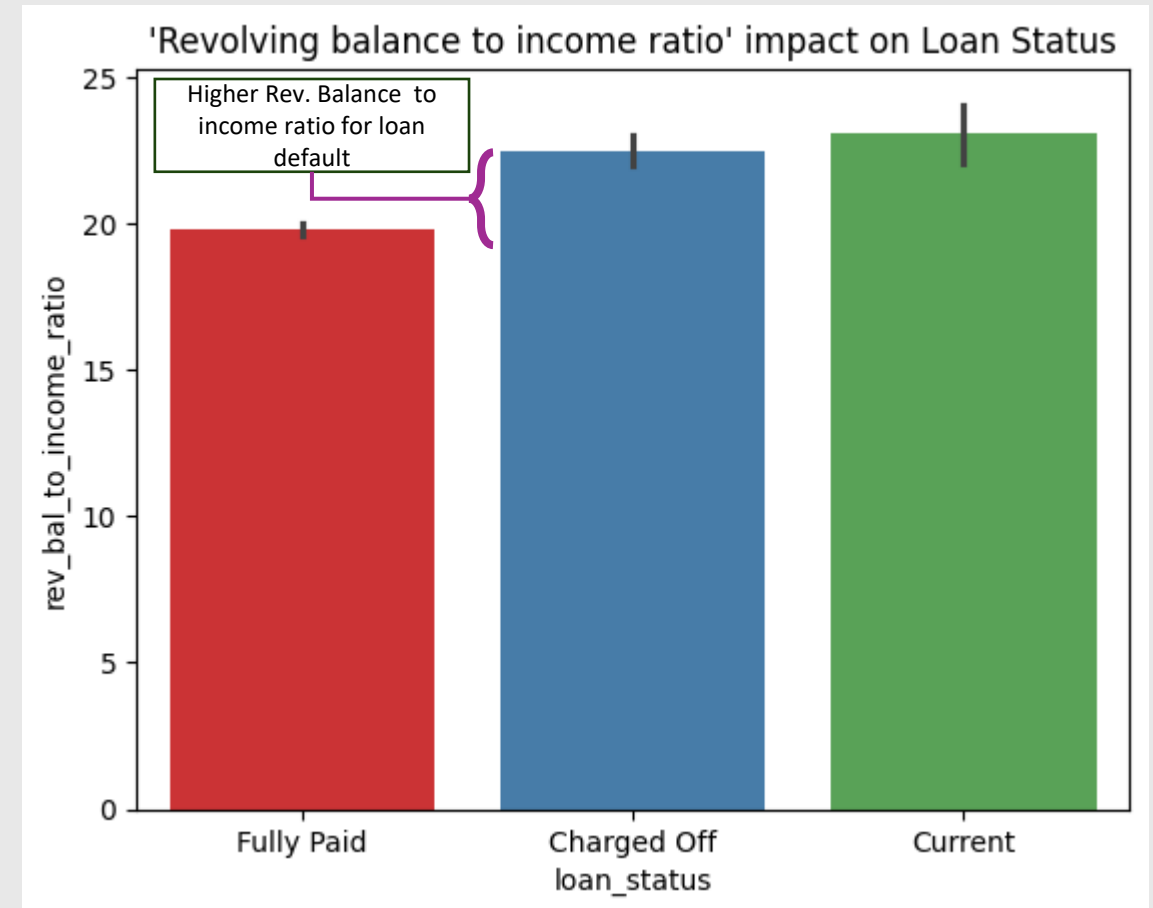


Interpretation:

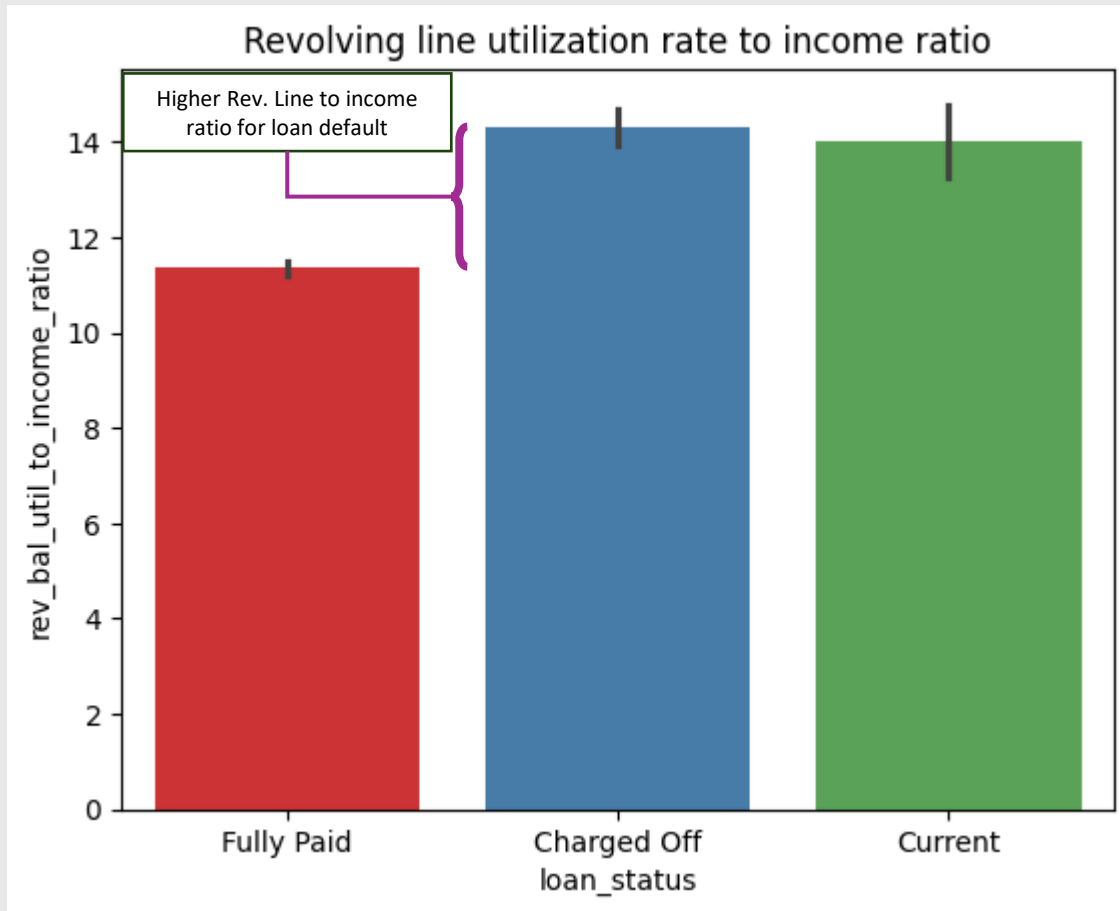
- Loan Amount to Income Ratio field: Reflects on the ability of the person to pay the loan amount in relation to the income
- We see that **this field has a strong bearing on the application having a higher % in charged off (loan defaults).**

Interpretation:

- Revolving balance to income ratio field: reflects on the ability of the person to pay the loan consider the "Total credit revolving balance" in relation to the income.
- We observe that **this field has a higher % in charged off (loan defaults)**



Impact of Revolving line utilization rate to income ratio and State impact

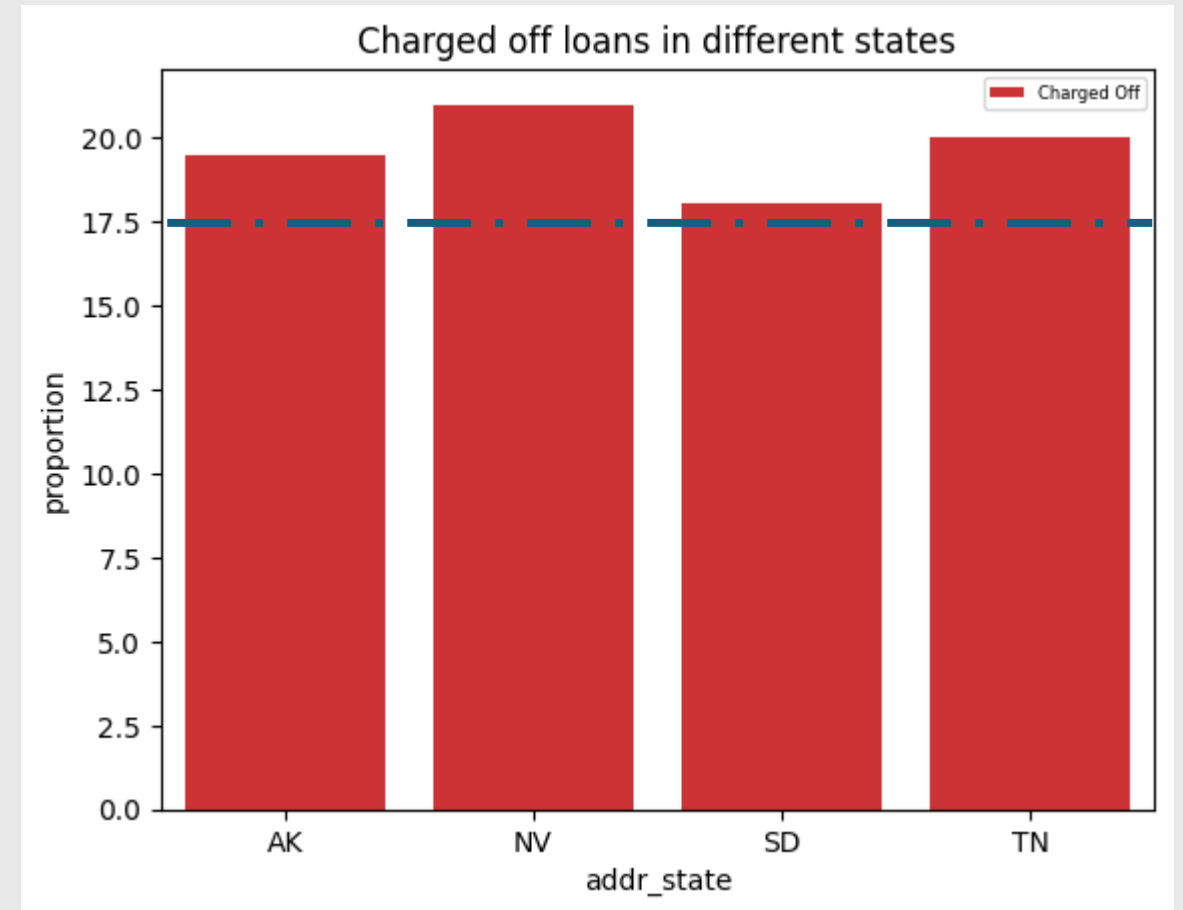


Interpretation:

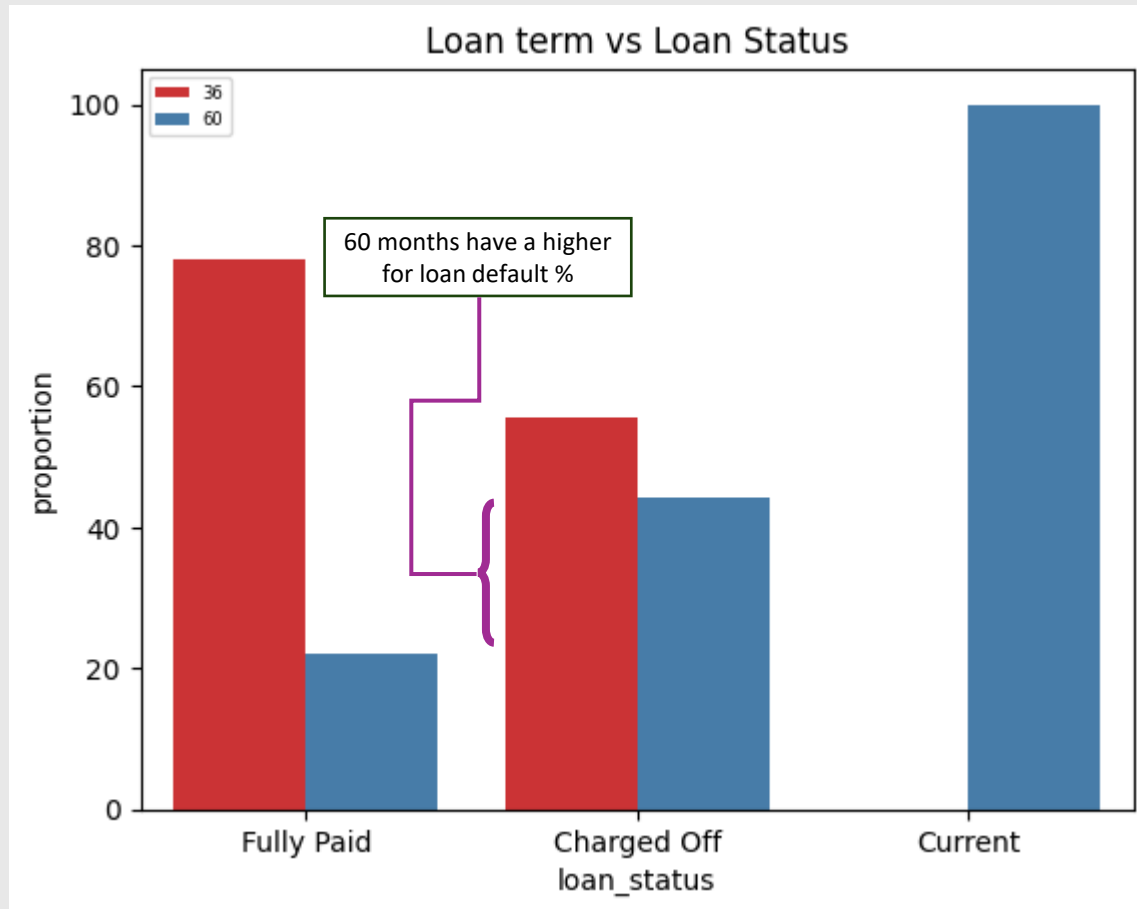
- Revolving line utilization rate to income ratio field: Reflects on the ability of the person to pay the loan consider the “Revolving line utilization rate” in relation to the balance and income.
- We see that **this field has a strong bearing on the application having a higher % in charged off (loan defaults).**

Interpretation:

- State field: Looks at the % of “charged off” across all states. The below reflect 4 states where the proportion of loan default is the highest.
- We observe that **AK, NV, SD and TN, the loan defaults is highest.**



Impact of Loan Term and Publicly available bankruptcies on Loan Default

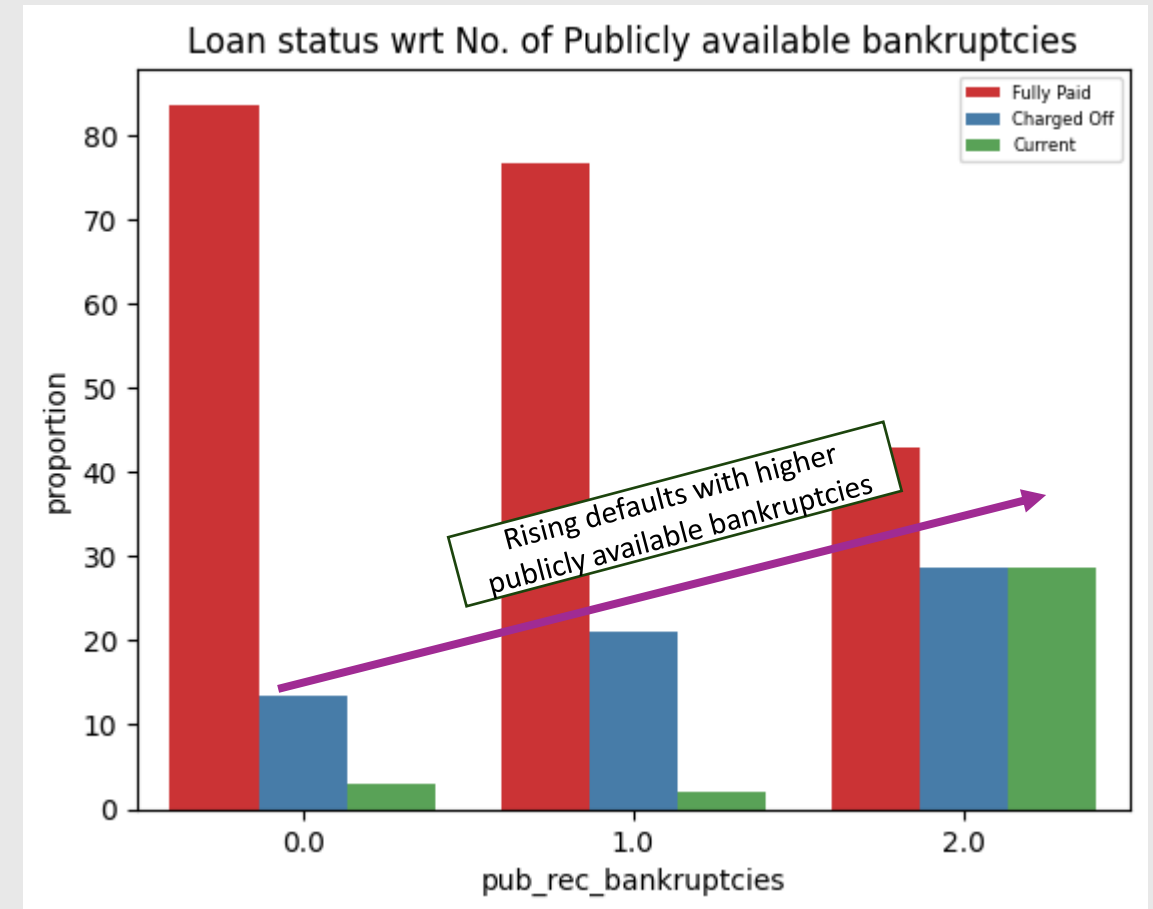


Interpretation:

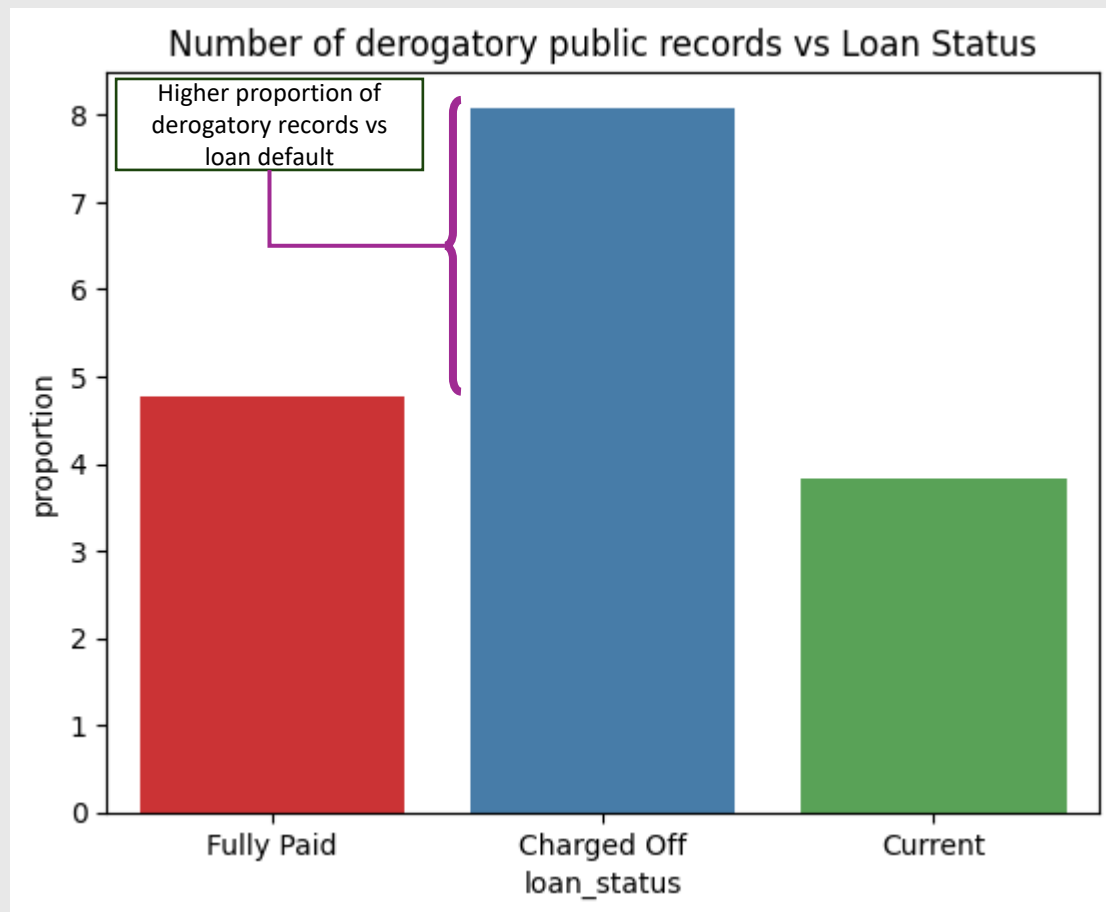
- Loan Term field: Reflects the duration of the loan
- Logically, longer it is, the probability of the loan default increases. We can observe that 36 months has a lower % of defaults (Charged Off Status). 60 months has a higher likelihood of loan default

Interpretation:

- Revolving balance to income ratio field: This field is publicly available bankruptcies details of the loan applicant
- We observe that **this field has a higher % in charged off (loan defaults). Meaning as the public records are increase the loan default is increasing.**



Impact of Derogatory public records and Inquiries in the last 6 months

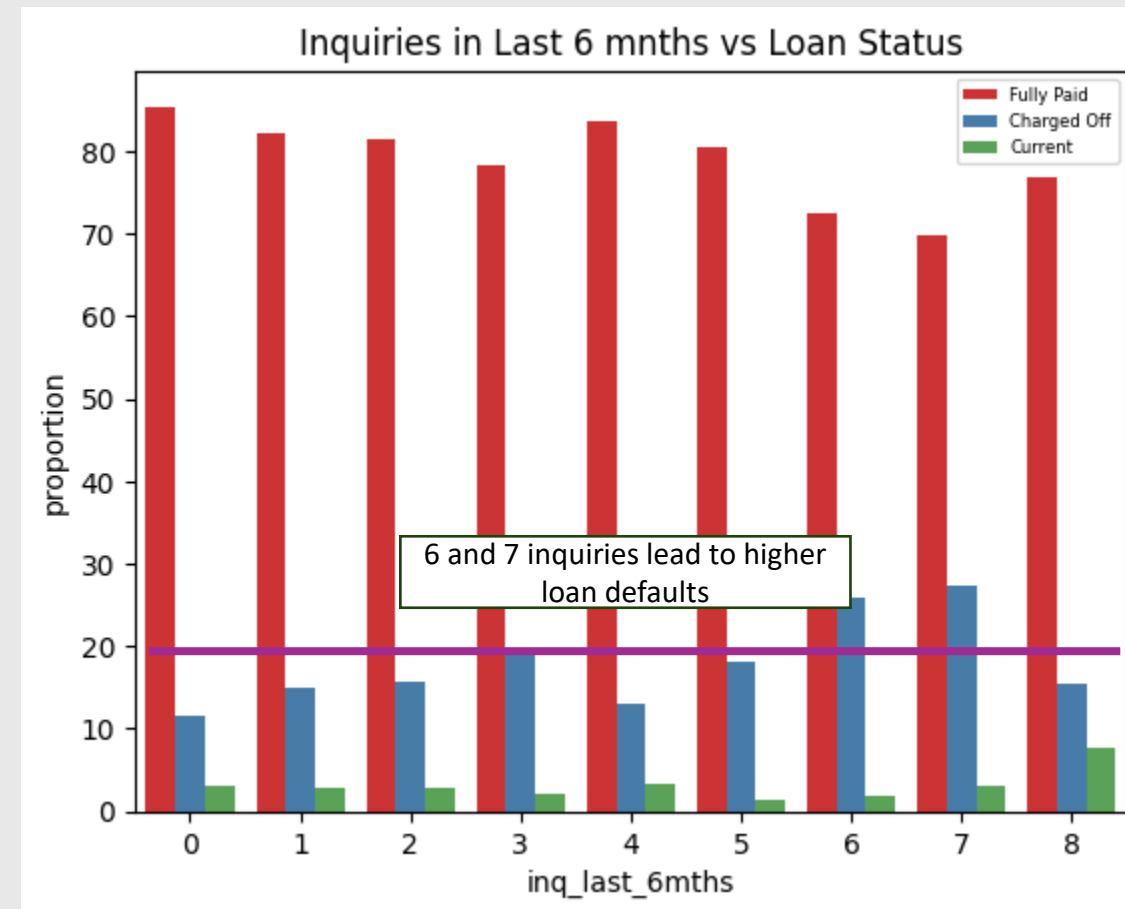


Interpretation:

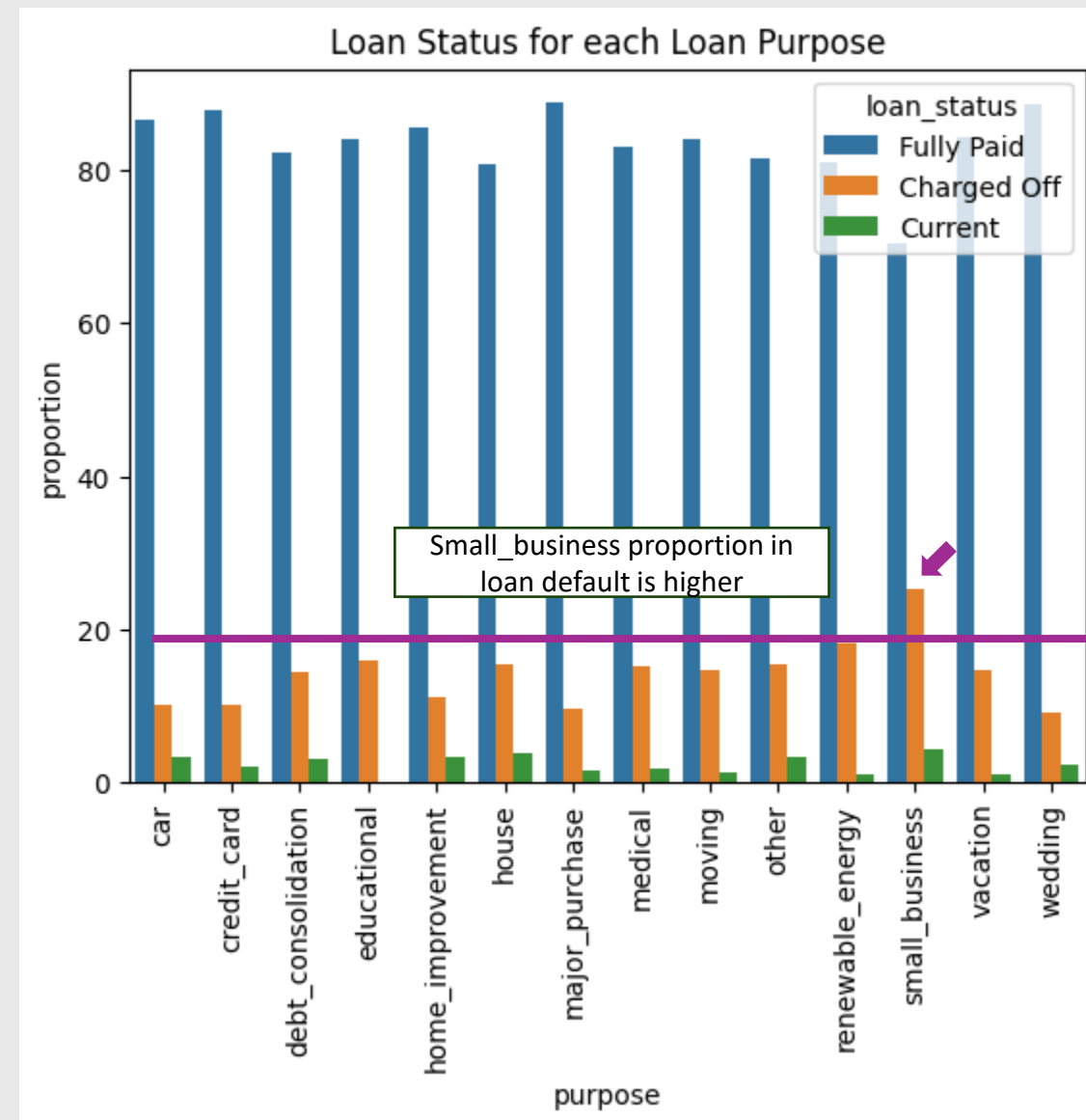
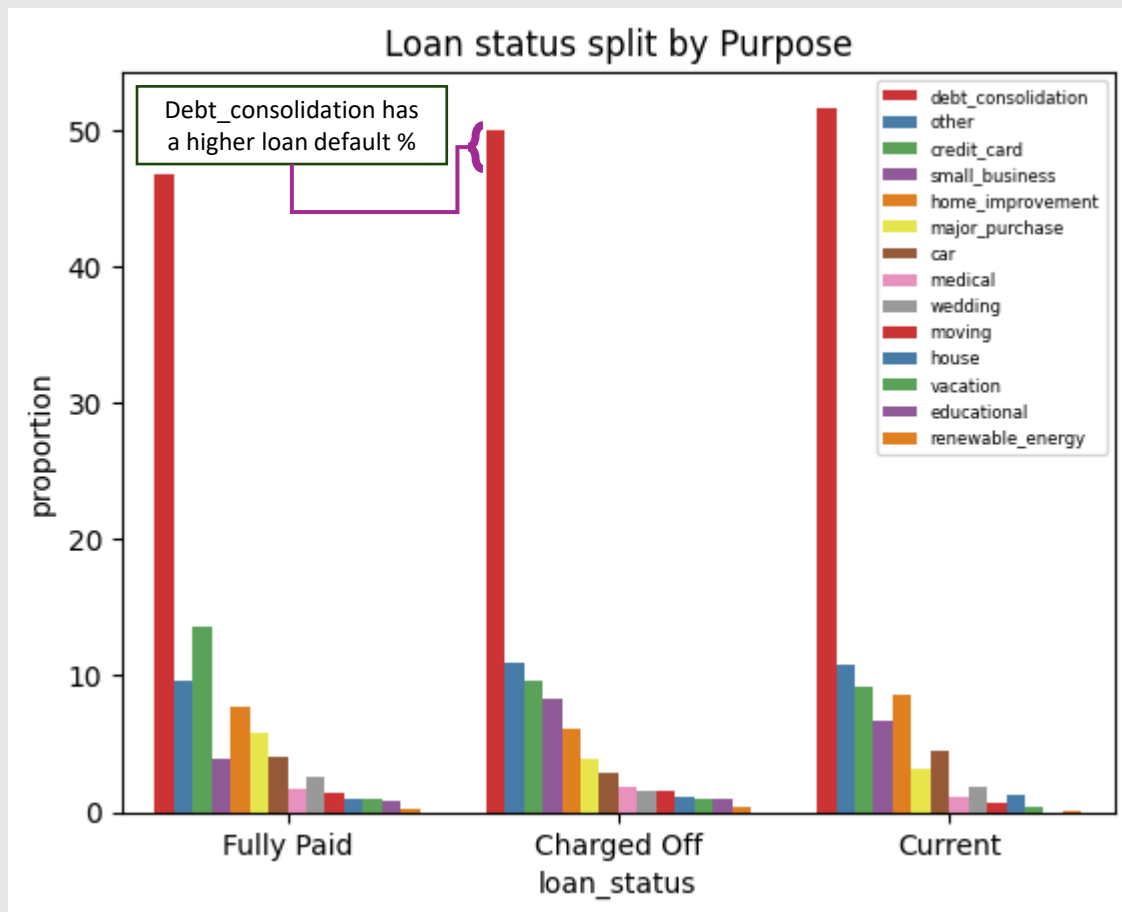
- pub_rec field: The number of Number of derogatory public records
- This higher proportion of this field means that loan default % is higher

Interpretation:

- inq_last_6mths field: This field is the number of inquiries made by applicant in past 6 month
- We observe that this field has a higher % in charged off (loan defaults) especially after 5 enquiries.



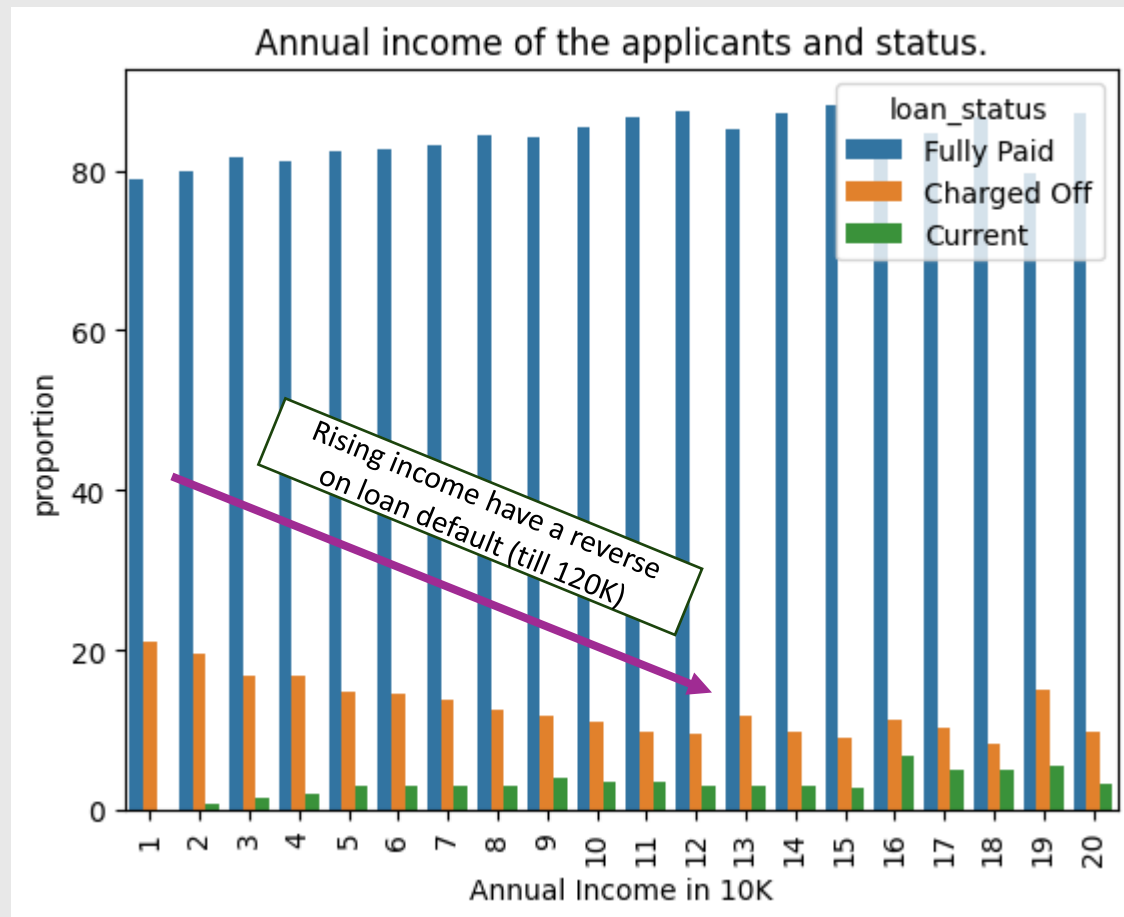
Impact of Purpose on Loan Default



Interpretation:

- Purpose field: This shows the purpose for which the loan was taken
- Debt consolidation is a high % of the Charged Off Status. Meaning if the purpose is Debt Consolidation, it has a higher default probability.
- In the right-hand graph, we observe that 'small_business' has a higher % of the Loan Defaults. This means that this category is to be flagged.

Impact of Annual Income and Open Credit Line in the last 6 months

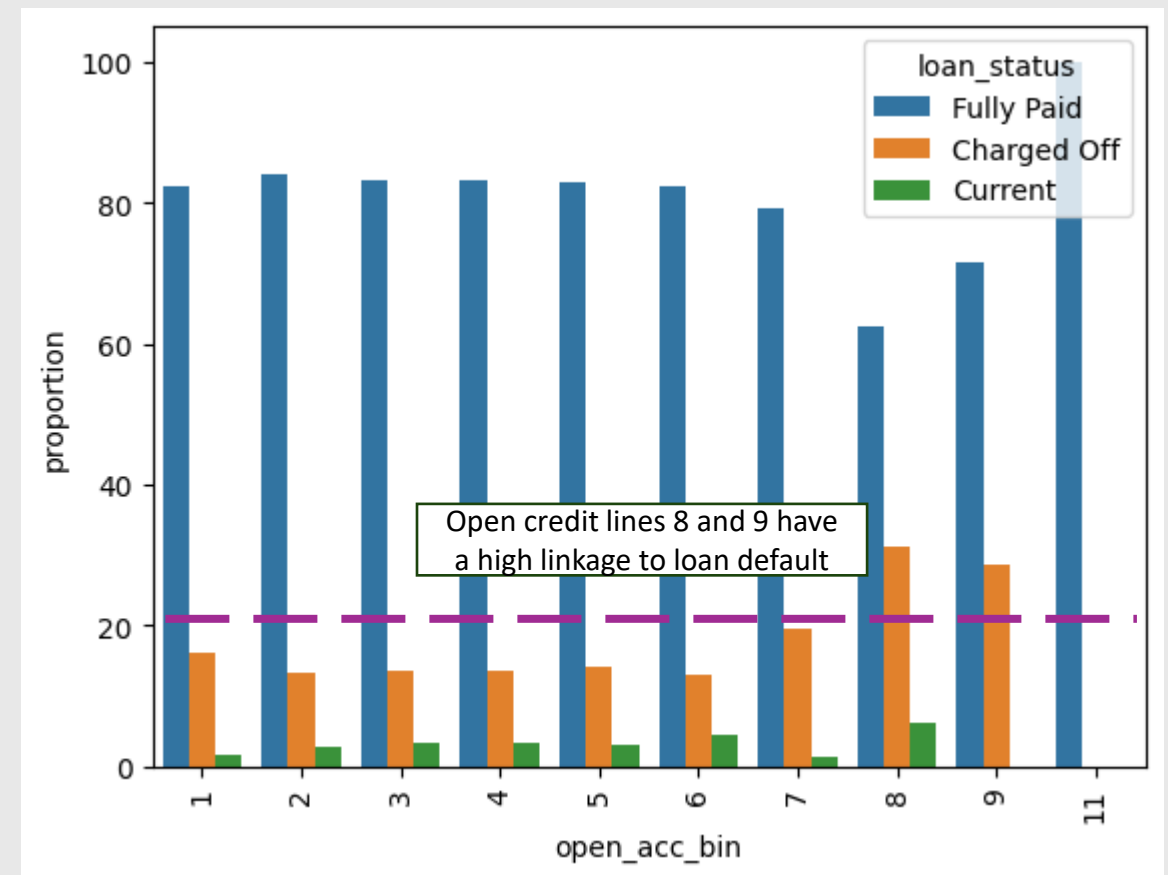


Interpretation:

- Annual Income field: The number of Annual Income of the applicant
- Observation is that loan defaults are decreasing with higher income till 120K i.e. default is Higher at lower income

Interpretation:

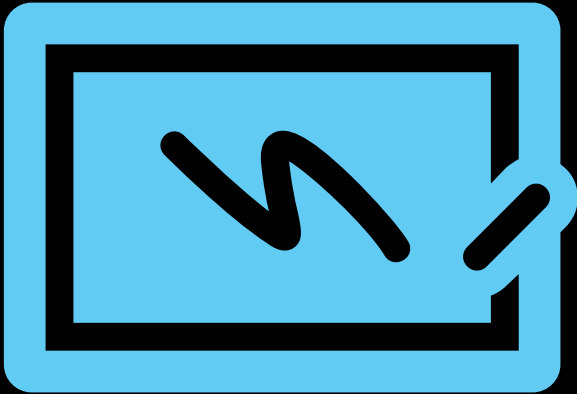
- Open Credit Line field: This field is the number of open credit lines in the borrower's credit file.
- We observe that after 7 open credit lines the default % rises sharply.





Recommendations

- Key Recommendations based on the above analysis



Recommendations: Consider the below additional parameters

- ✍ **Existing grading system** that the company is aligned to an extend to Loan Defaults. However, this can be **improved further**. So that the loan is either denied to based on additional criteria or the interest rate is increased in proportion to the risk.
- ✍ **Home ownership** has a clear bearing on the Loan Defaults with “**Rental**” home application have a higher % in charged off (loan defaults). Also, we notice that “**Other**” (which were the rows with empty value) have a high possibility of default
- ✍ Impact of “**Loan Amount to Income Ratio**”, “**Revolving balance to income ratio**” and “**Impact of Revolving line utilization rate**” on Loan default is very high. This need to be factored in while planning whether to give loans or interest rate charged.
- ✍ If the applicant is from **AK, NV, SD and TN states, the loan defaults is highest**. Hence the higher loan interest or higher rejection should be planned around that.
- ✍ Annual Income: Observation is that loan defaults are **decreasing with higher income** i.e., **defaults are Higher at lower income**
- ✍ Impact of Purpose on Loan Default:
 - ✍ Debt consolidation is a high % of the Charged Off Status. Meaning if **the purpose is Debt Consolidation, it has a higher default probability**.
 - ✍ In the right-hand graph, we observe that ‘**small business**’ has a higher % of the Loan Defaults. This means that this category is to be flagged.
- ✍ Impact of Loan Term: Logically, longer it is, the probability of the loan default increases. We can observe that 36 months has a lower % of defaults (Charged Off Status). **60 months has a higher likeliness of loan default.**
- ✍ **Open Credit Line in the last 6 months, Publicly available bankruptcies on Loan Default, Impact of Derogatory public records and Inquiries in the last 6 months** have a high bearing on the loan default. We need to consider these parameters to either plan for lower grade or reject the application.



Presentation End

Thank you.