LENDING CLUB CASE STUDY

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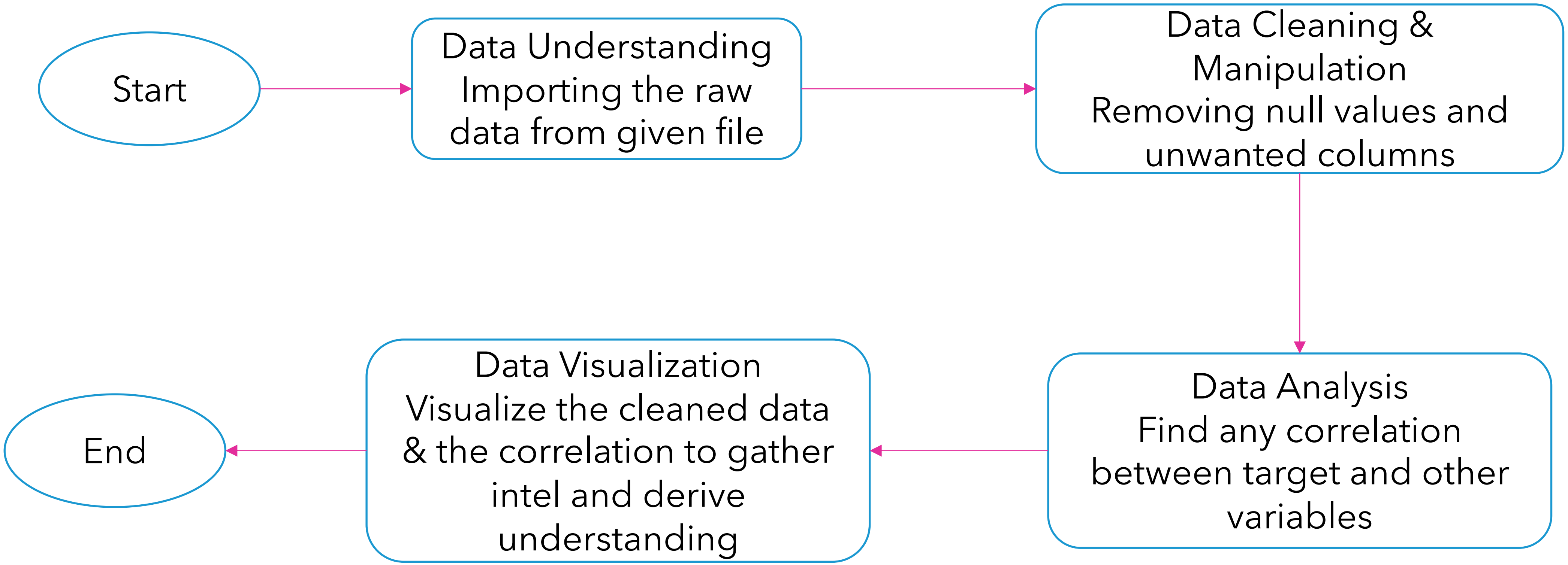
Lending Club Case Study

Background:
• A Consumer Finance Company specializes in lending various types of loan to urban customers.
• Company decides on loan approval based on customer's profile
• **2 Major risks** associated with **approval decision**:
    - **Loss of Business**: Loan approved when Customer is likely to repay loan.
    - **Financial Loss**: Loan approved when Customer is not likely to repay loan i.e., likely to default
• **Loan Accepted** - 3 Scenarios occur :
    - **Fully Paid**: Principal and Interest Repaid.
    - **Current**: Ongoing Loan and Customer paying instalments. Loan Tenure not completed.
    - **Charged-off**: Instalments not paid in due time for a long time i.e., Customer Defaulted on Loan.
• **Loan Rejected** - No transactional history present & hence, data not available with the Company/in the used dataset

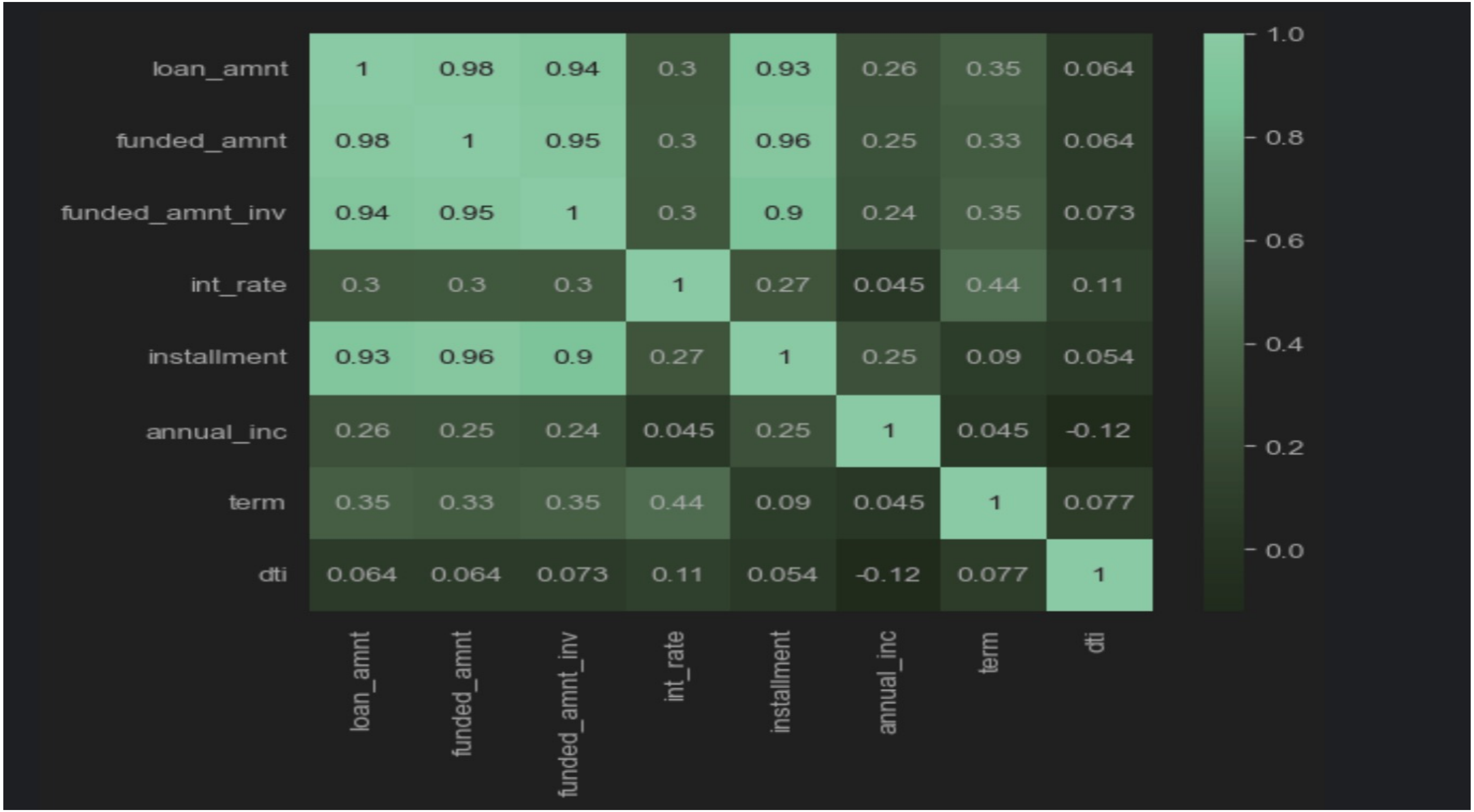
Objective (What):
• **Identify & Understand the Driving Factors/Variables** which are strong indicator of Loan Default to **reduce the Bad Loans**.

Reason (Why):
• Lending Loans to **Risky** applicants is largest source of **Credit Loss** (Money lost when Borrowers refused to pay or run away with money owed)
• The company can utilise this knowledge for its portfolio and risk assessment.

Basic Approach Followed



Correlation Analysis



Loan Status by Term

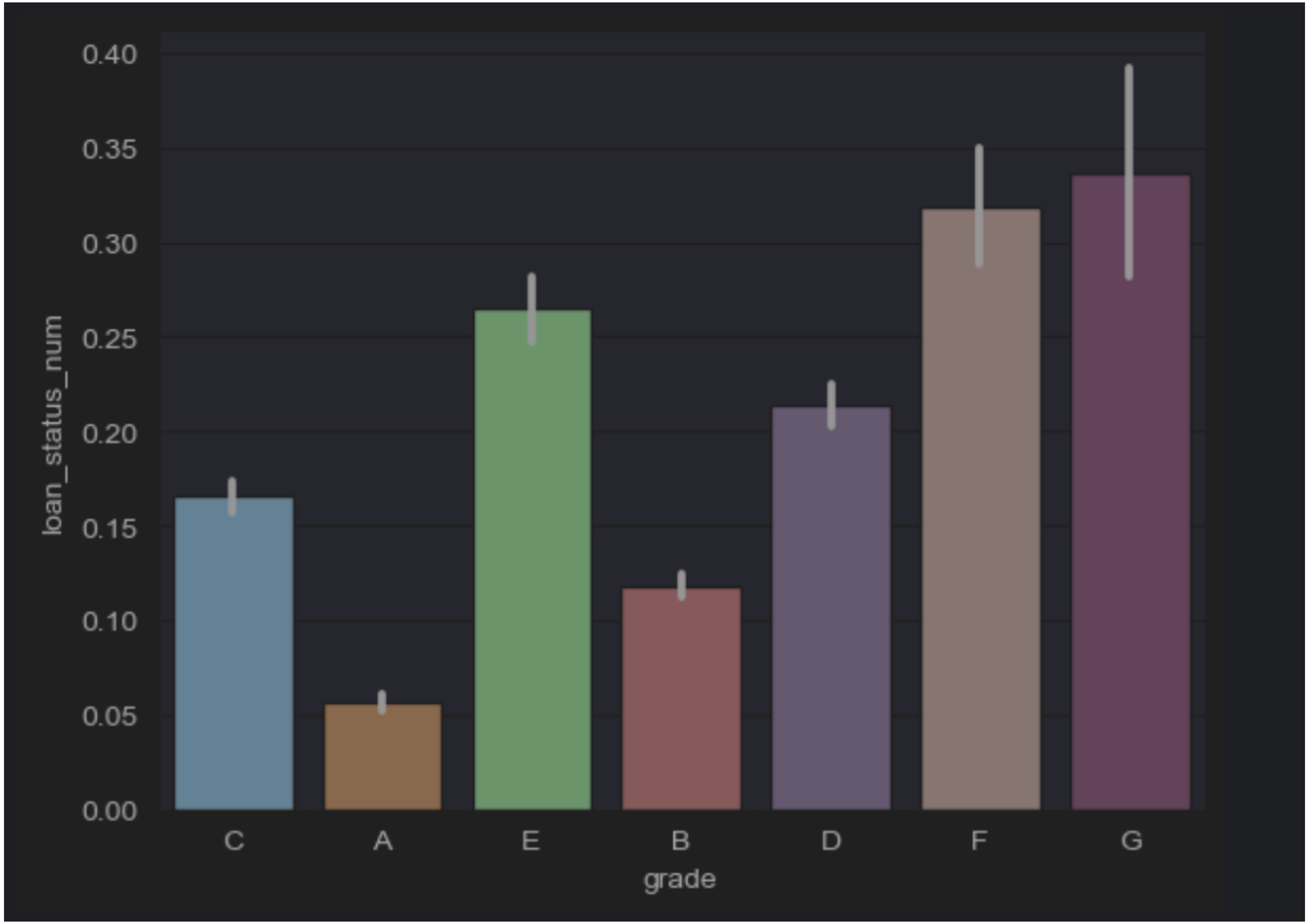
Loan Term	Status	Count
36 months	Fully Paid	17880
	Charged Off	1934
60 months	Fully Paid	5151
	Charged Off	1655

As seen in the table above, lesser loans defaulted when the term of the loan was 60 instead of 36.

One recommendation is that company should provide the loans for the longer term.

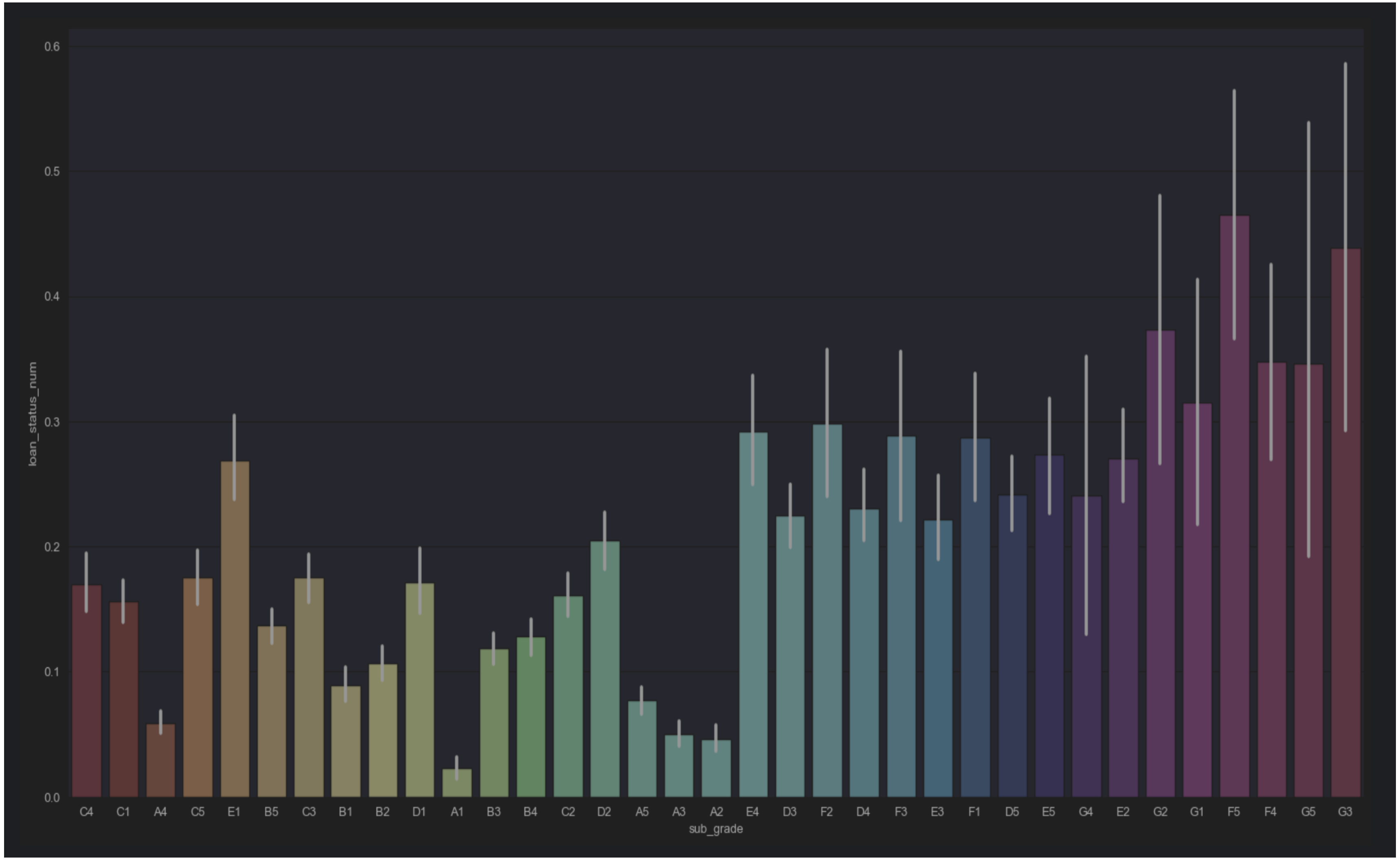
Loan Status by Grade

- Loan with Grade A has the lowest default rate.
- This rate gradually increase with respect to Grade
- Recommendation – More loans of type A should be considered.



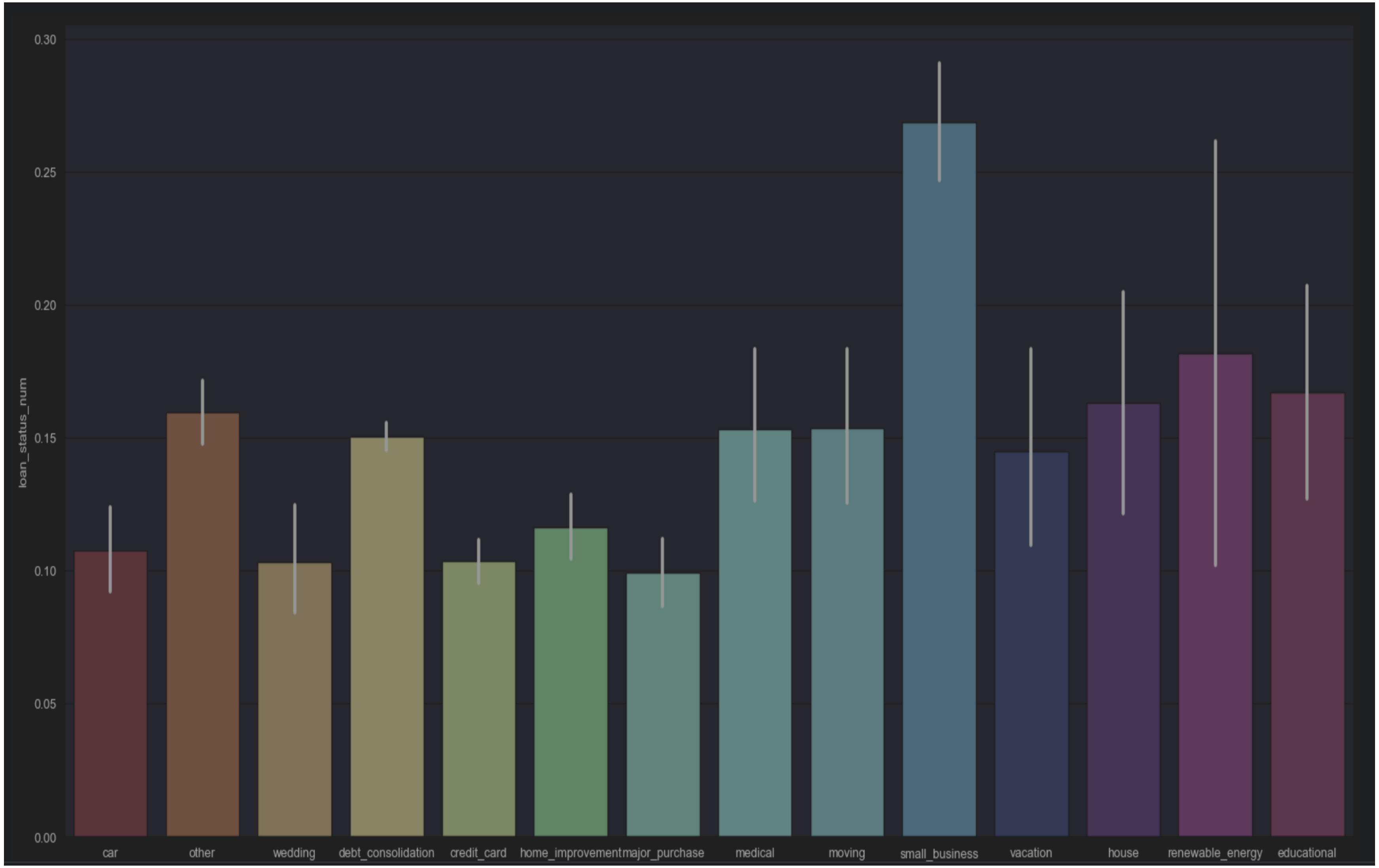
Loan Status by Sub-Grade

- As seen with grade, similar observation seen here.
- Recommendation – More loans of type A1/A2 should be considered.



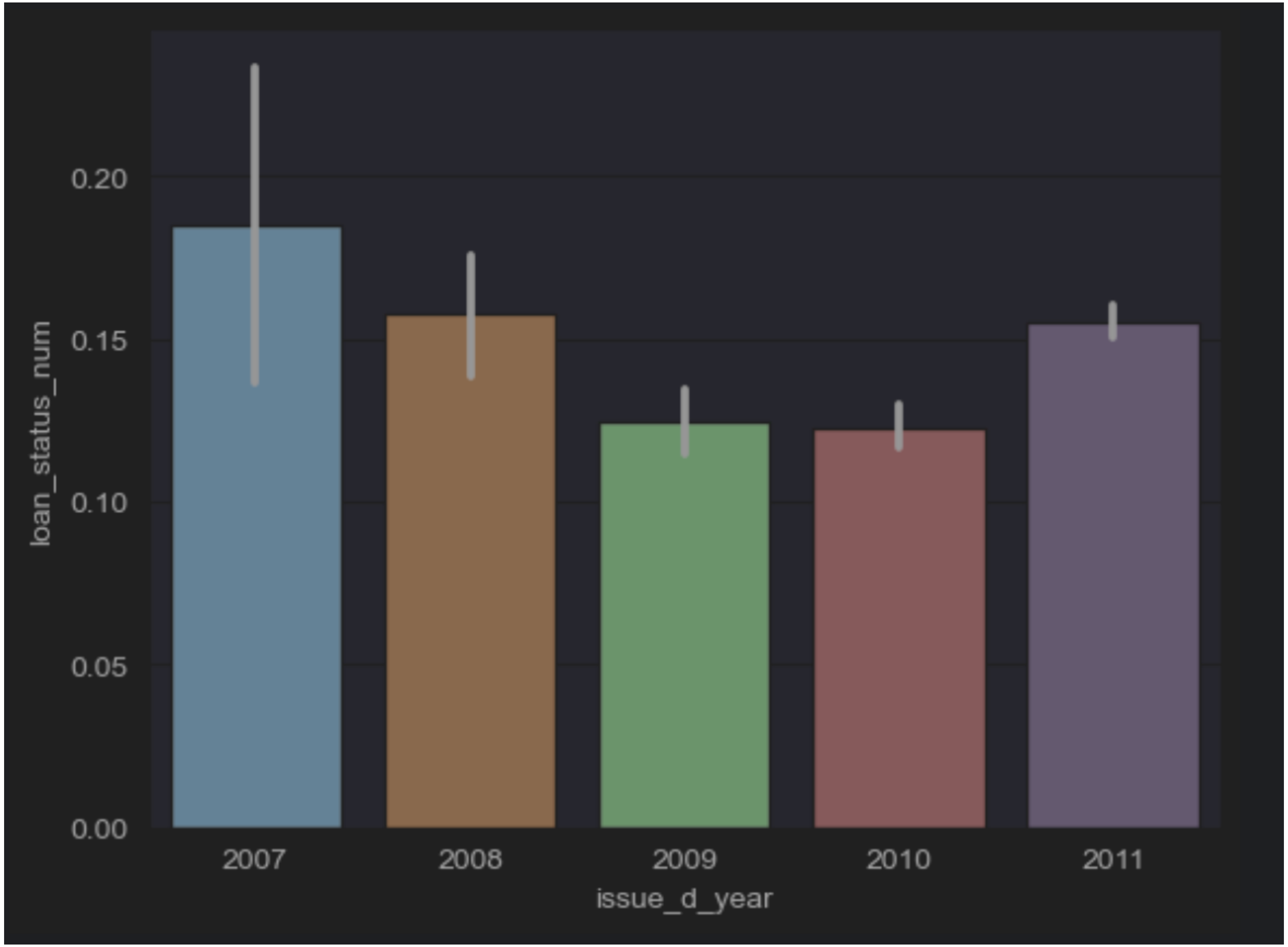
Loan Status by Purpose

- Small businesses have a very high frequency of defaulting compared to other purposes

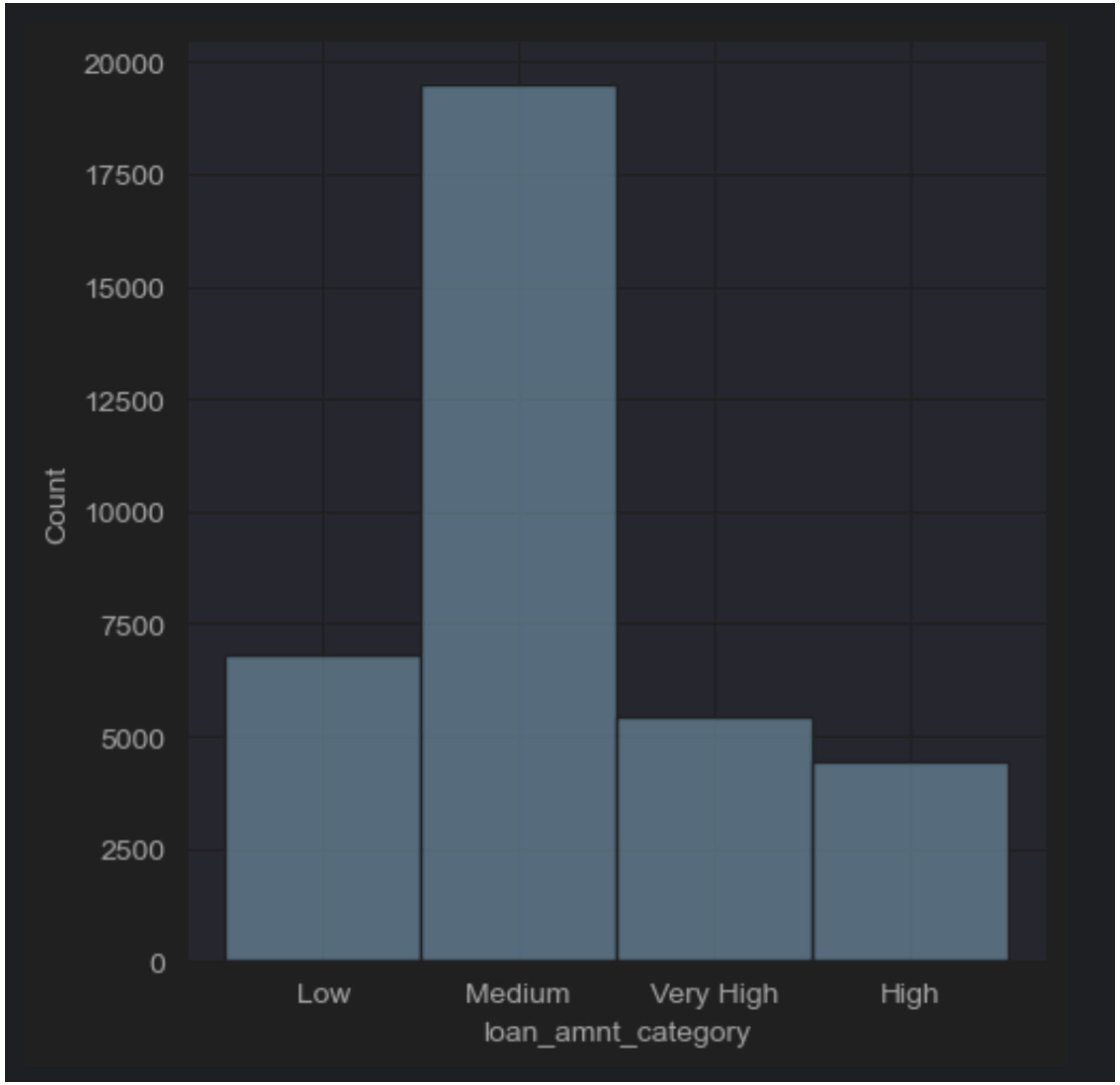


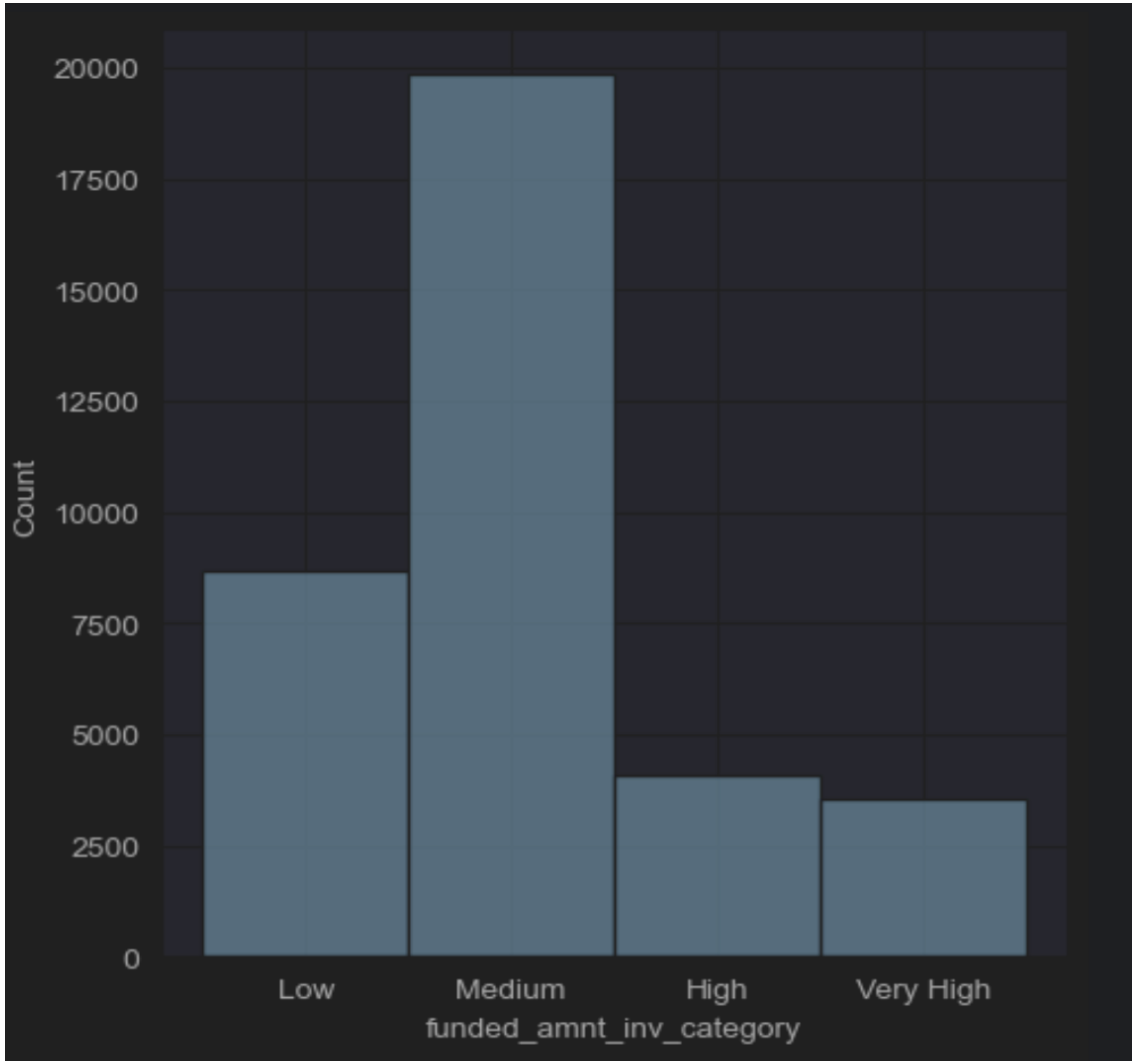
Loan Status by Issued year

- Loan Default was high in 2007 but it got at same levels between 2009 and 2010, reduced from 2007 peak
- Suddenly, in 2011, the load default rate again went up.

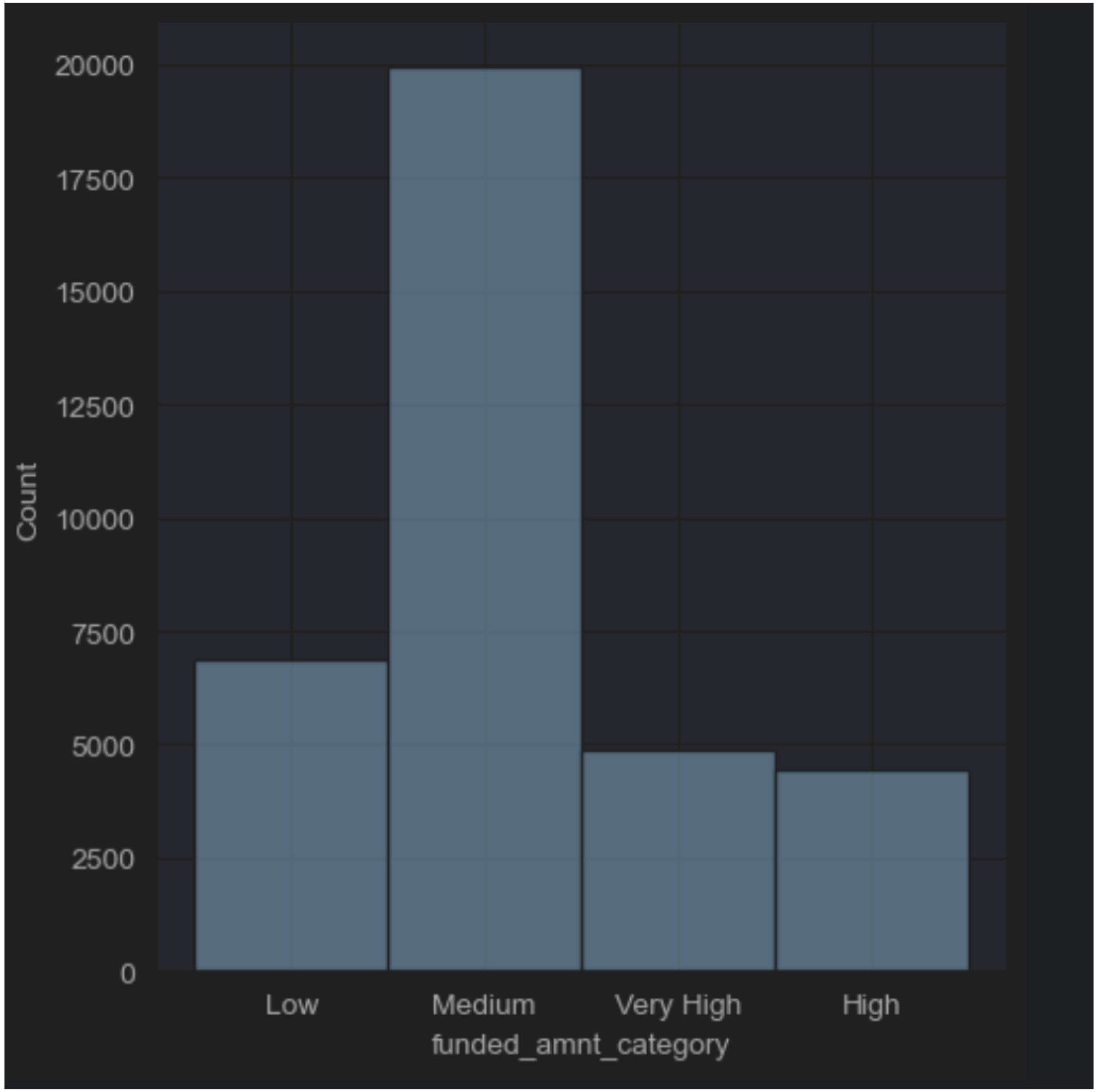


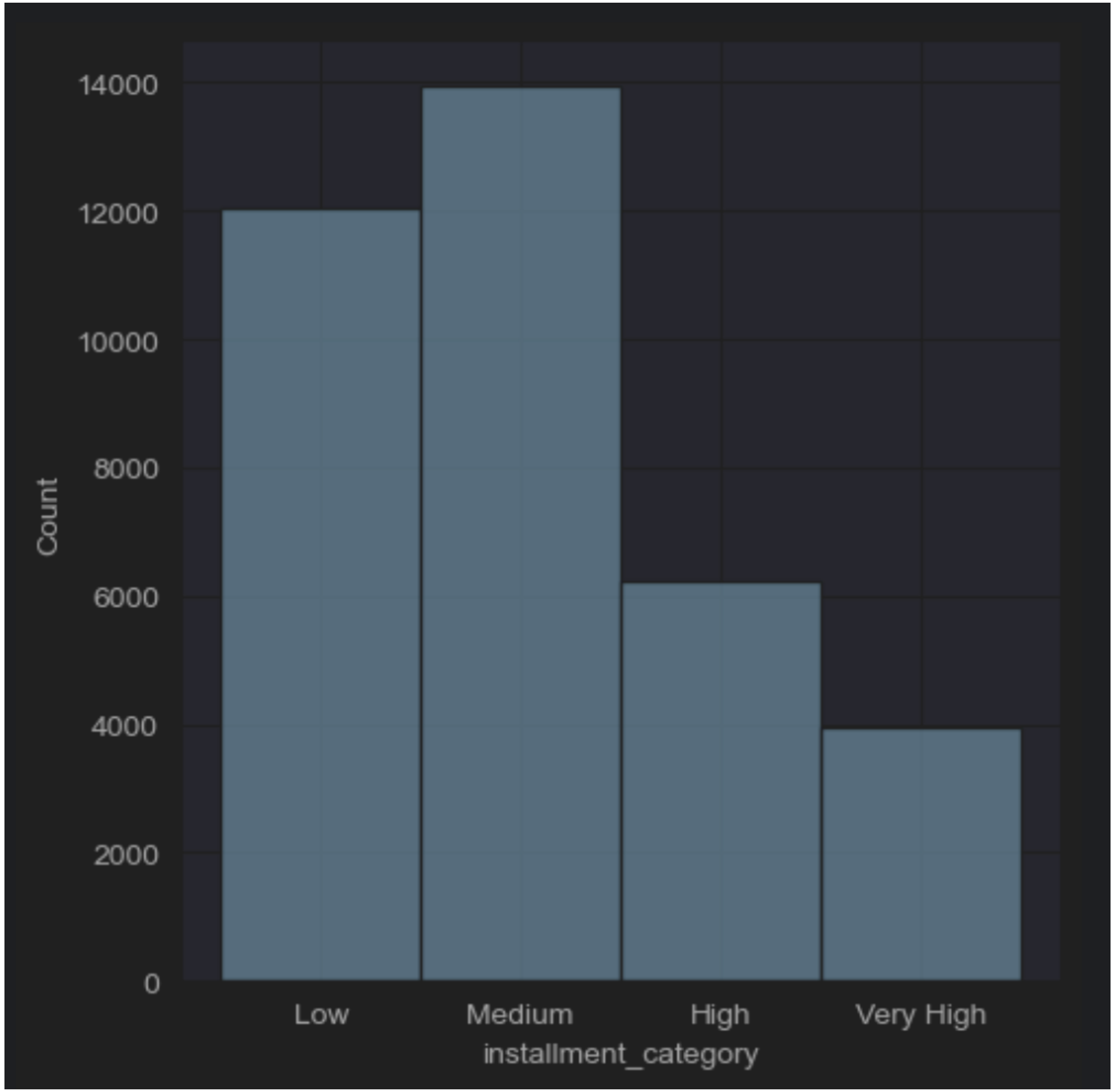
Understanding users – by loan amount and funded amount inv



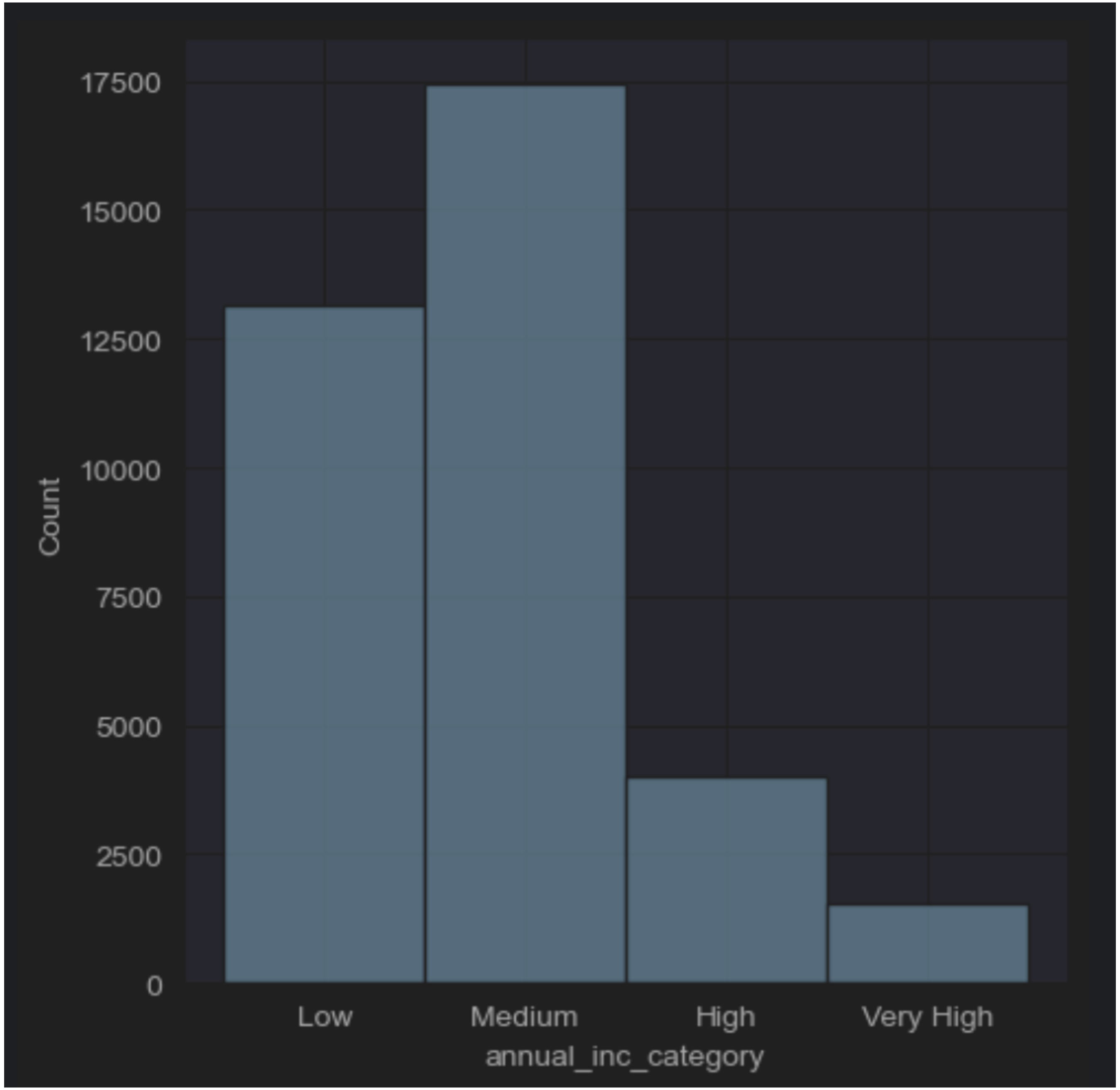


Understanding users – by Funded Amount and Installment



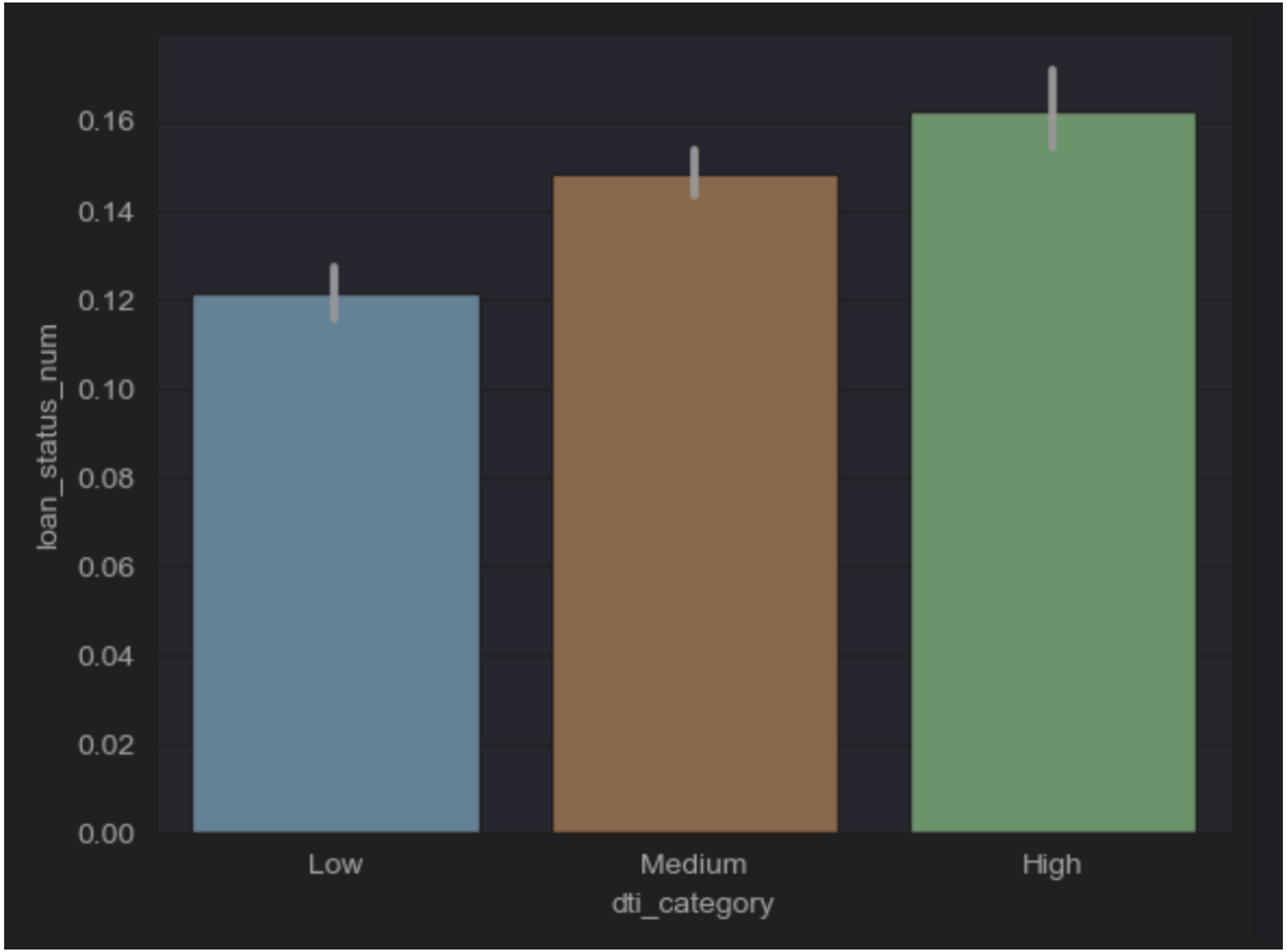


Understanding users – by Annual Income



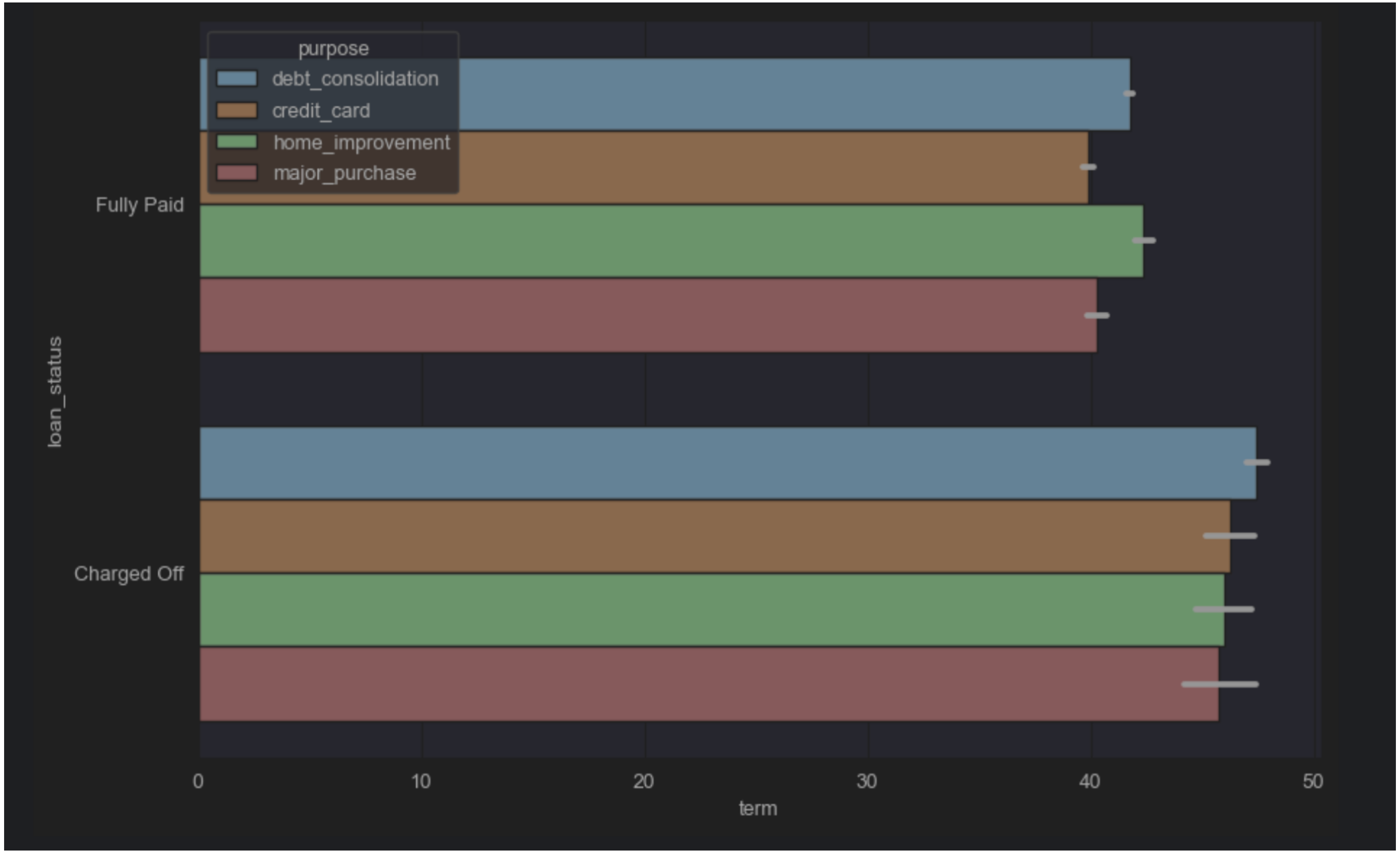
Debt to Income Ratio

- High DTI (debt to Income ratio) translates into higher default rates.



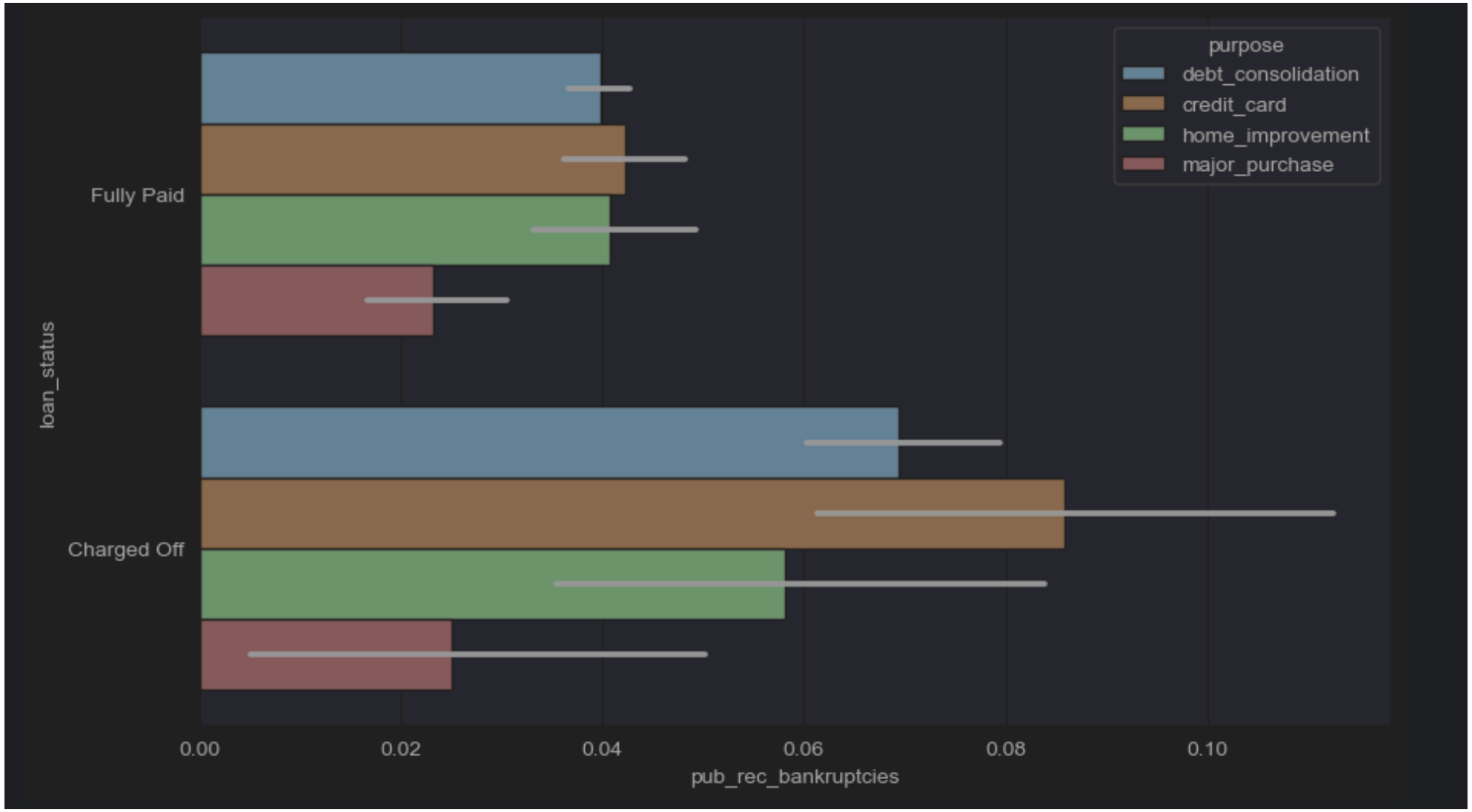
Understanding users – by Loan Fully Paid vs. Charged Off

- Debt collection seems to be the biggest contributor in both Fully vs Charged Off categories.



Loan Status by Publicly Known Bankruptcies of the users

- Credit card is the biggest contributor.
- Credit card has the highest “Charged Off” bucket followed by ”Debt Consolidation”



Conclusion

As per the analysis, I conclude that the below variables are driving factors for predicting the defaulting of loans –

1. Term → Shorter loan tenures are at a higher risk of defaulting
2. Grade → Lending Club should provide more Grade A loans. G Grade loans are at a much higher risk.
3. Purpose → Loans for Small businesses default more than any other purpose
4. Annual income classification → Explains which income group consumer can have more loan default
5. Loan Amount → Explains that medium loan amount usually has a higher loan default rate