LENDING CLUB CASE STUDY

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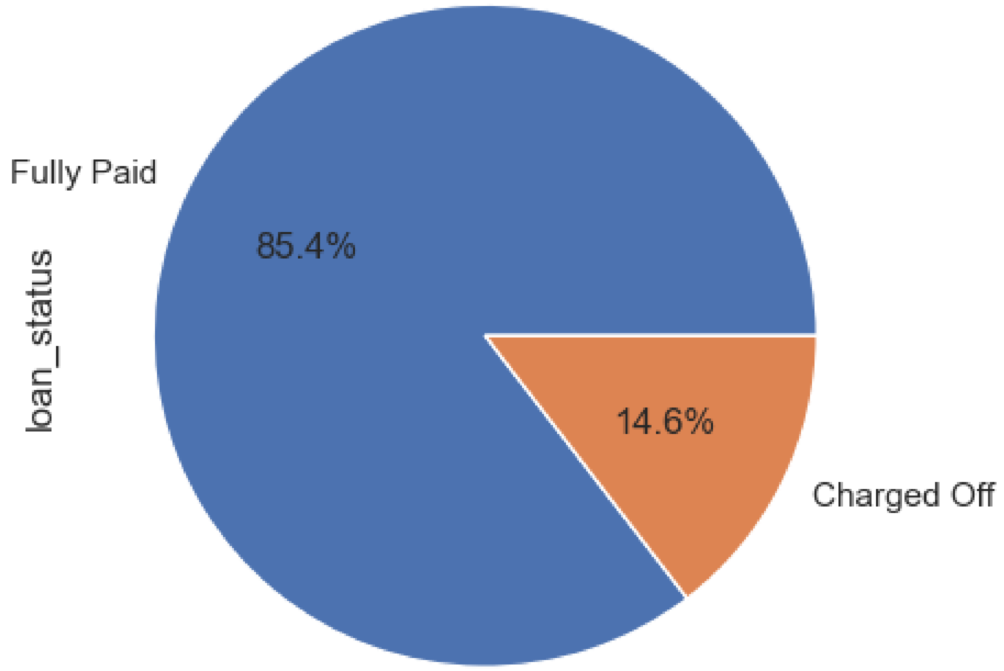
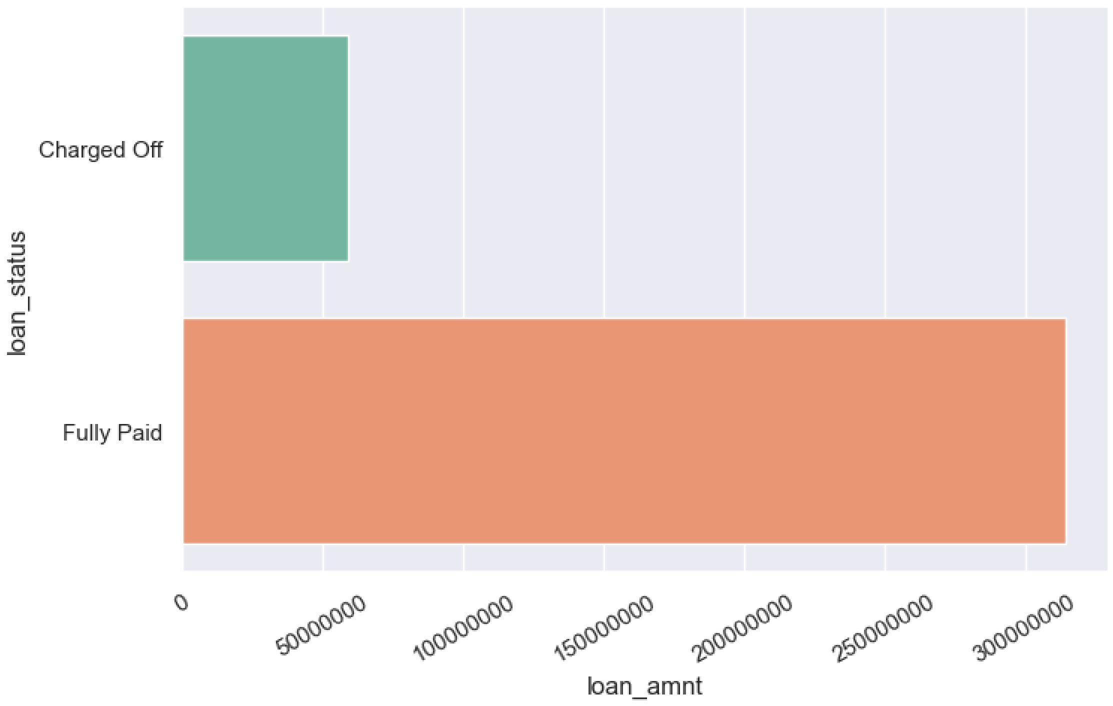
PROBLEM STATEMENT

A lending club is a peer to peer lending facility. Borrowers reach out directly to individuals lending money.

With any loan there is risk of default. This analysis seeks to highlight the biggest factors affecting loan repayment

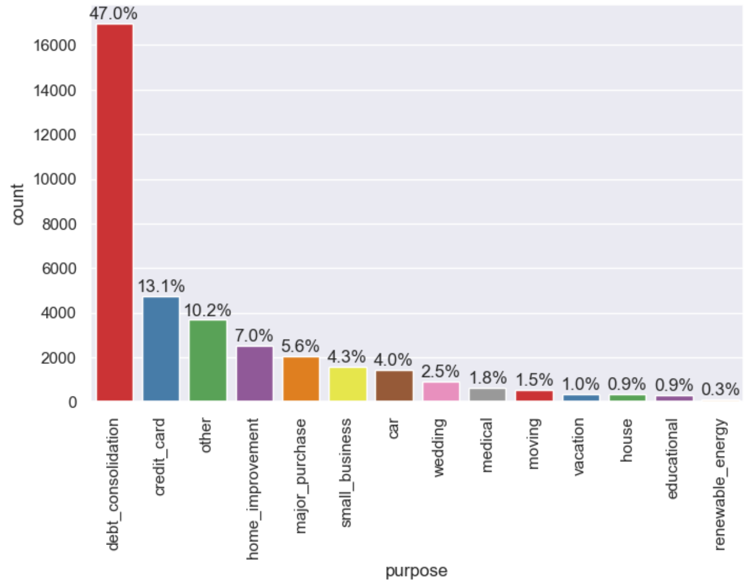
HOW PERVASIVE IS DEFAULT





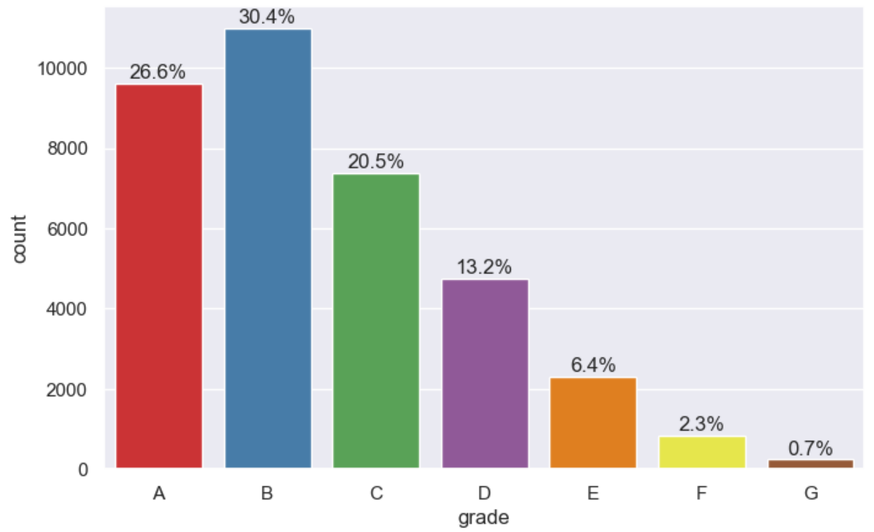
Nearly 15% of loans through the lending club are charged off (defaulted). This resulted in a total value loss of almost $60 million.

THE LOAN CHARACTERISTICS



More than 80% of loans are issued in just 5 categories with debt consolidation accounting for 47% of all provided reasons

Higher grade loans are more commonly issued to applicants with Grades A and B accounting for 57% of loans

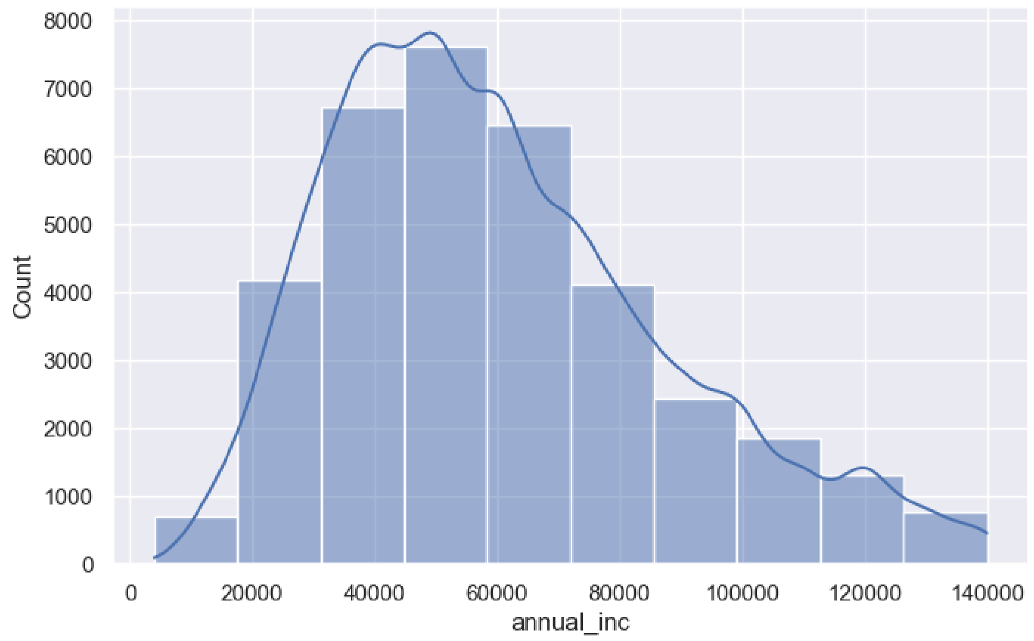


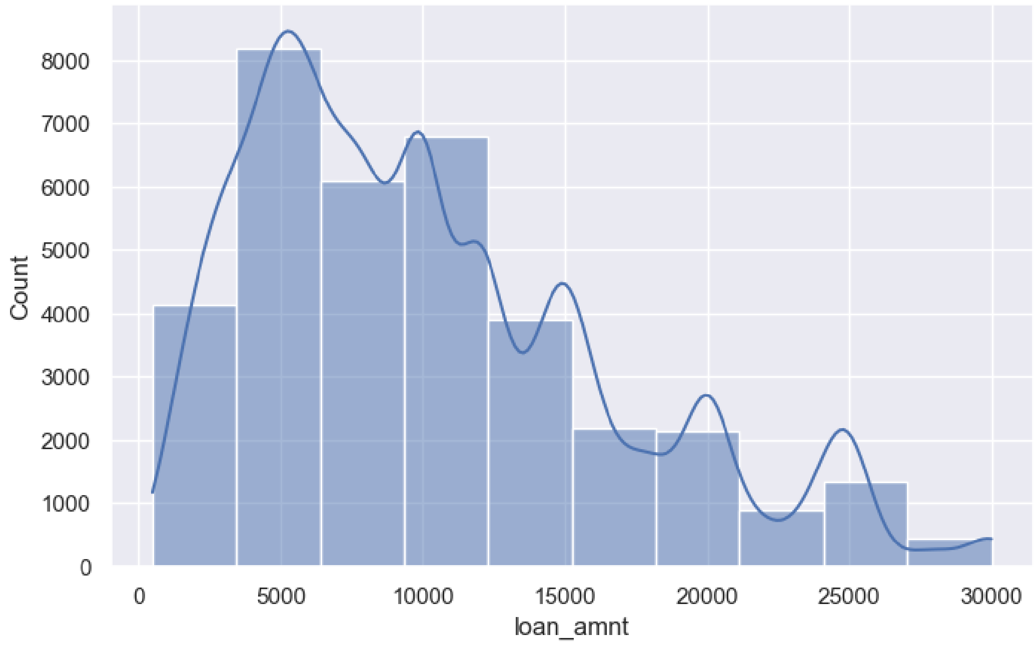
CHARACTERISTICS CONTINUED

Most applicants have incomes lower than the dataset average of $60K.

Loans $5K and 10K are most frequently requested

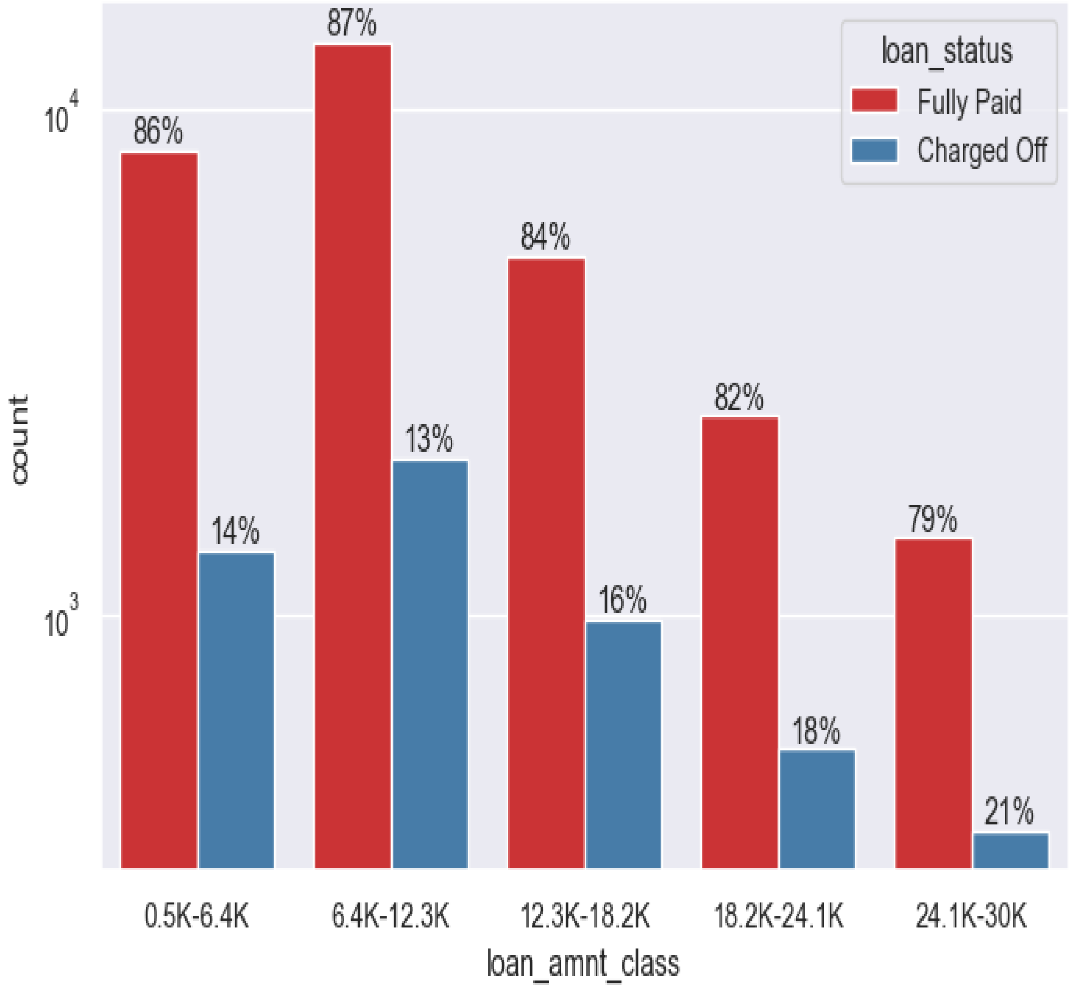
Significant loan values occur ever $5000



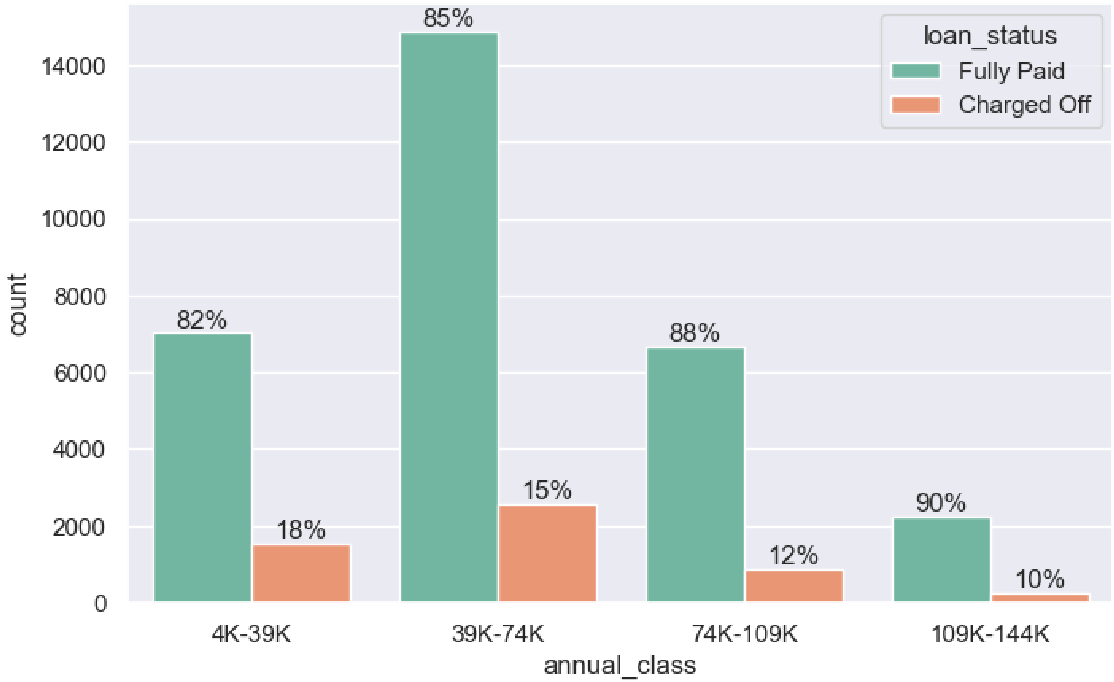


DEFAULT RISK FACTORS

While higher loan amounts are less common, borrowers who requested >$12.3K defaulted more frequently.



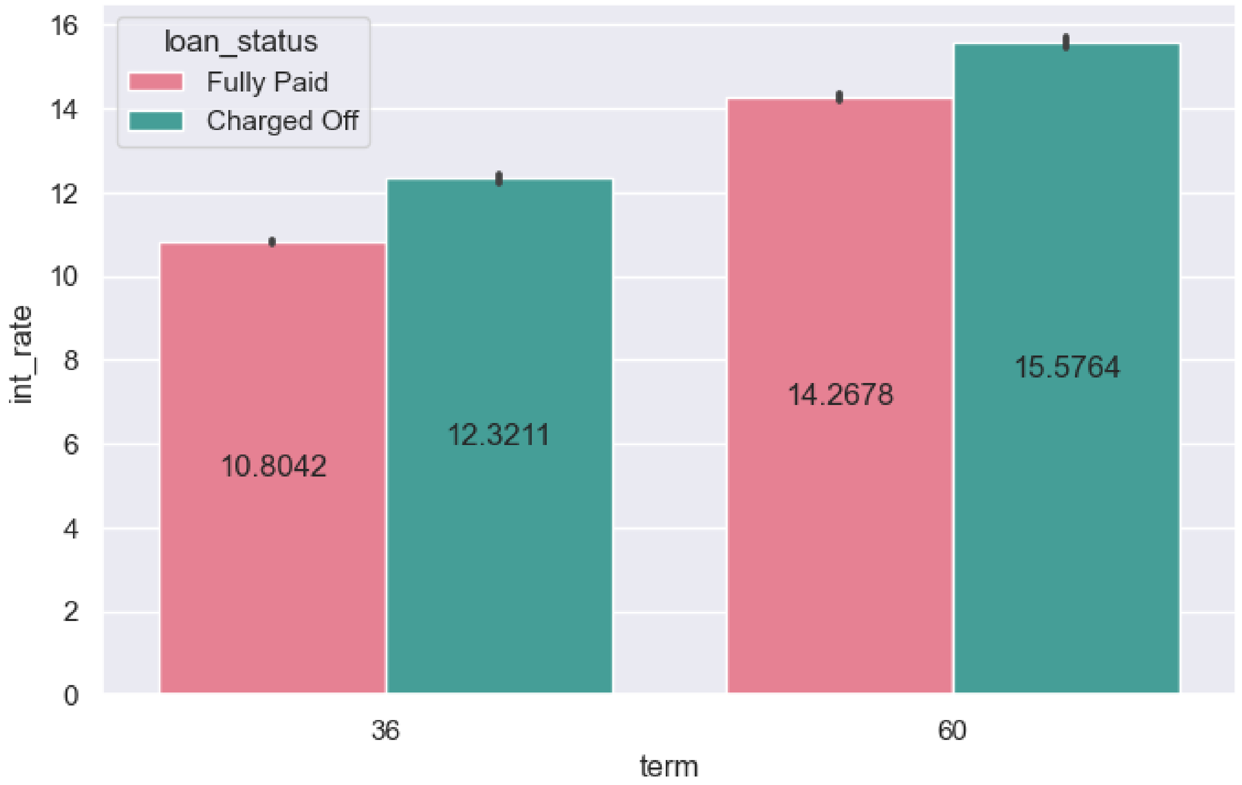
DEFAULT RISK FACTORS



As one would expect, loans issued to persons with a lower annual income tend to default more frequently.

- persons making less than $39K defaulted 18% of the time
- Persons making >$109K defaulted 10% of the time

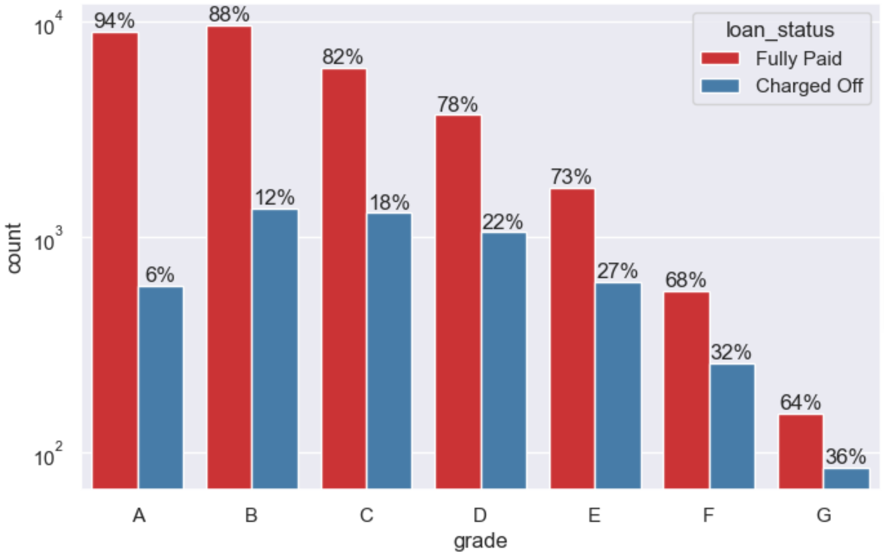
DEFAULT RISK FACTORS



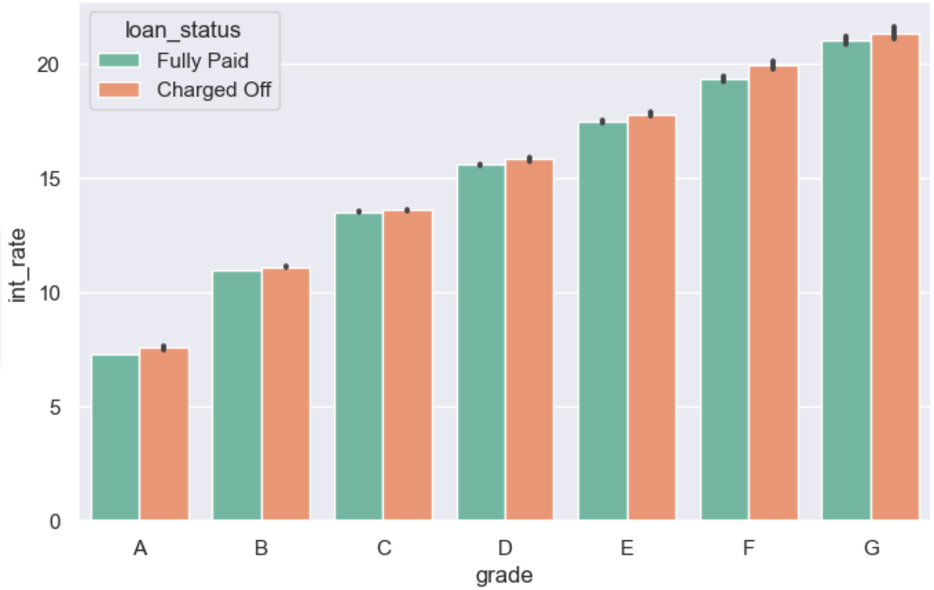
When loan term and interest rate is considered.

- 36 Month term loans with interest >11% default more frequently
- 60 Month term loans with interest >14% as well

DEFAULT RISK FACTORS



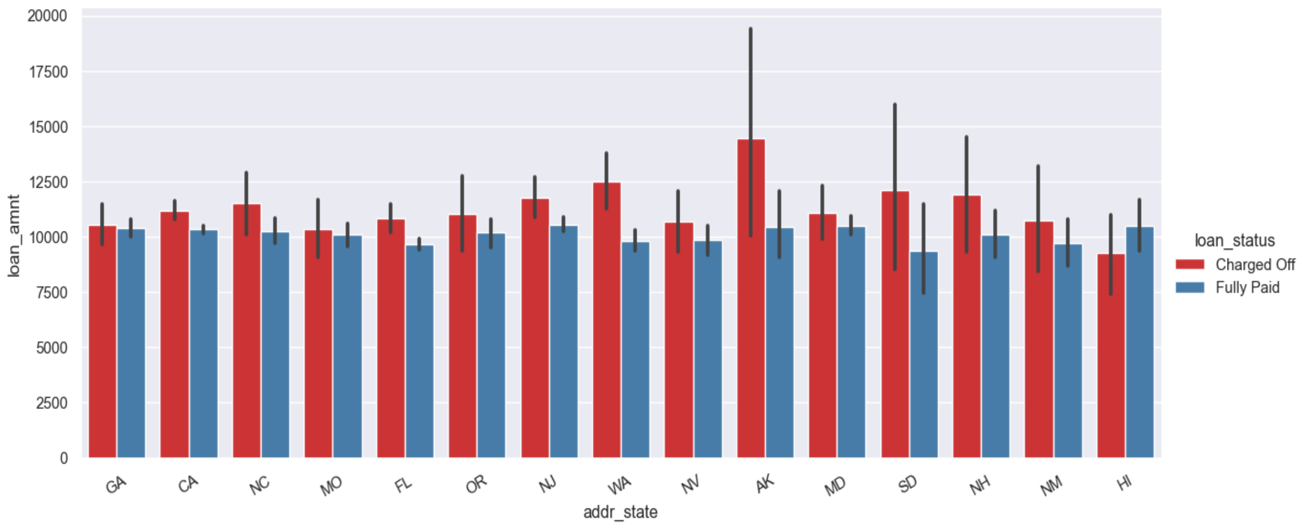
Default risk increases as the loan grade decrease.



- Lower grade loans also tend to have higher interest rates.
- Lower graded applicants are those with an already raised default risk and higher interest rates may further this risk.

DEFAULT RISK FACTORS

loan_status	Charged Off	Fully Paid	Overall_Default_%
addr_state			
NV	98.0	351.0	21.826281
SD	12.0	50.0	19.354839
AK	13.0	55.0	19.117647
FL	474.0	2142.0	18.119266
HI	28.0	130.0	17.721519
MO	109.0	527.0	17.138365
NM	30.0	146.0	17.045455
OR	70.0	357.0	16.393443
CA	1048.0	5420.0	16.202845
NJ	260.0	1381.0	15.843998
GA	201.0	1070.0	15.814319
MD	150.0	800.0	15.789474
WA	122.0	654.0	15.721649
NC	110.0	593.0	15.647226
NH	23.0	129.0	15.131579

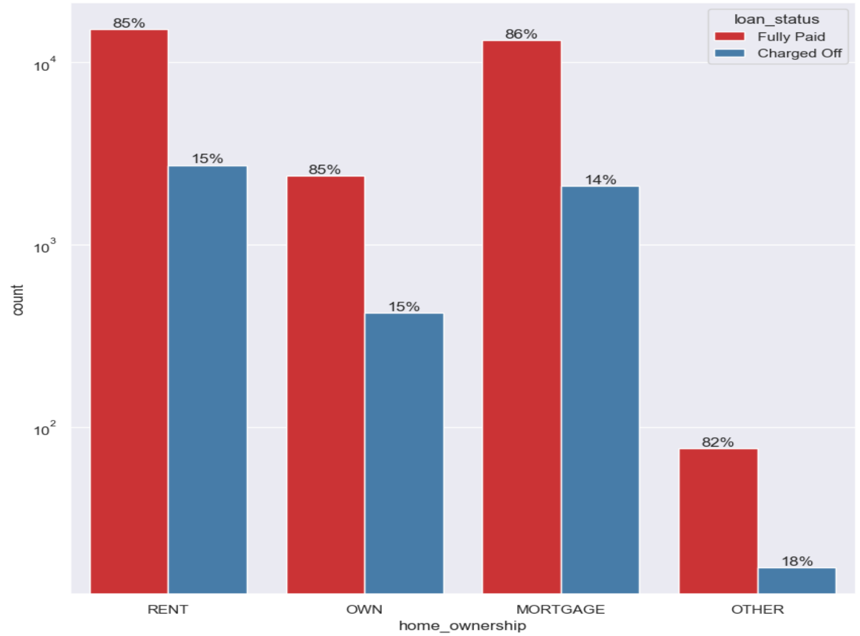


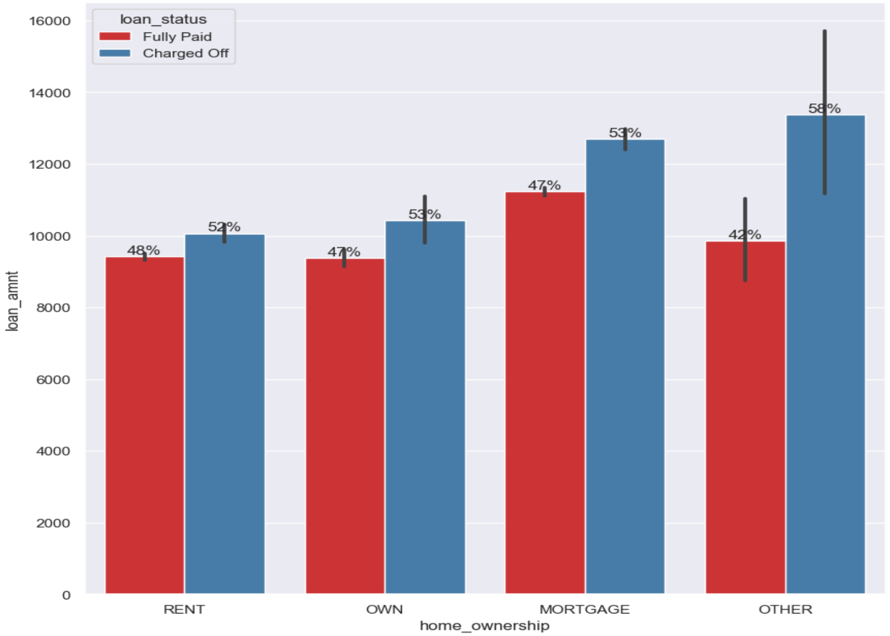
- Applicants from Nevada defaulted nearly 22% of the time.
- High default locations also tend to request amounts above the median of $9K

DEFAULT RISK FACTORS

- Persons classed as Other for home ownership default more frequently and also request higher loan amounts.

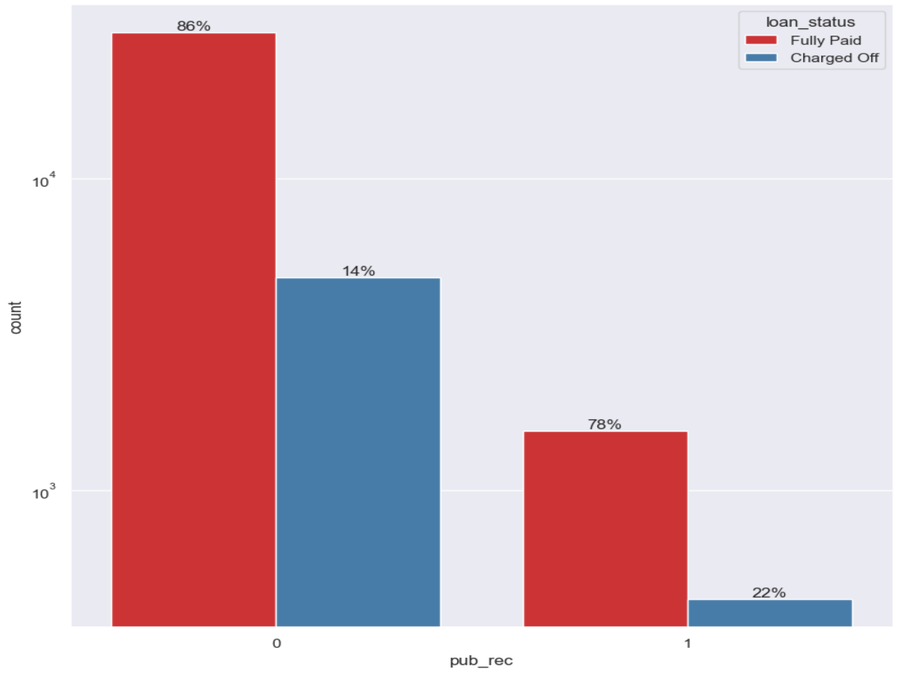
- Homeowners with a mortgages also take out larger loan amounts than all other groups but default less often.

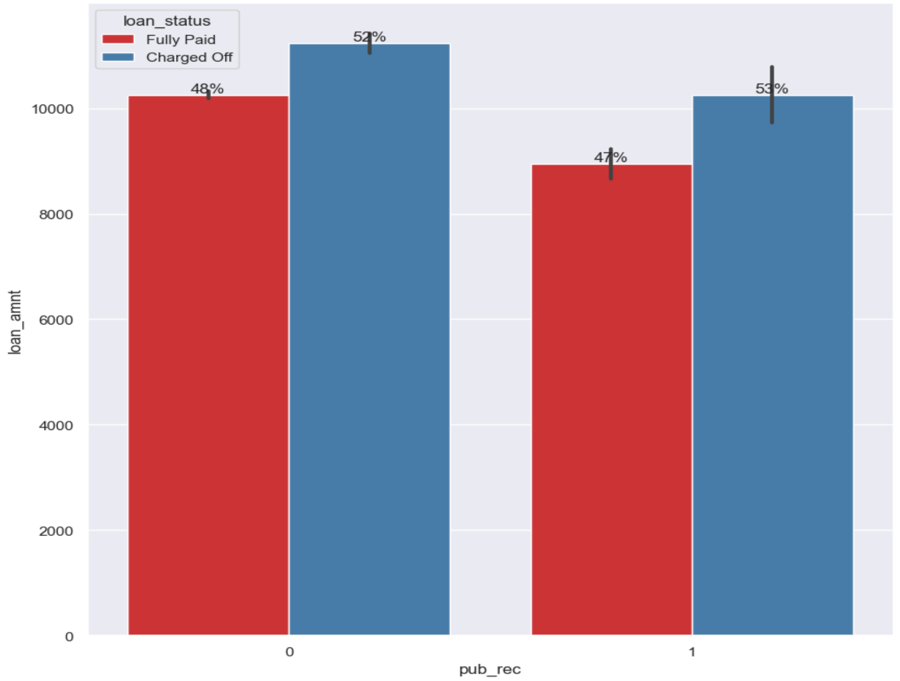




DEFAULT RISK FACTORS

- Those with at least 1 derogatory note in their public record defaulted 22% of the time versus 14% for those with none.
- Even though these borrowers tend to request lower amounts they still defaulted more often.

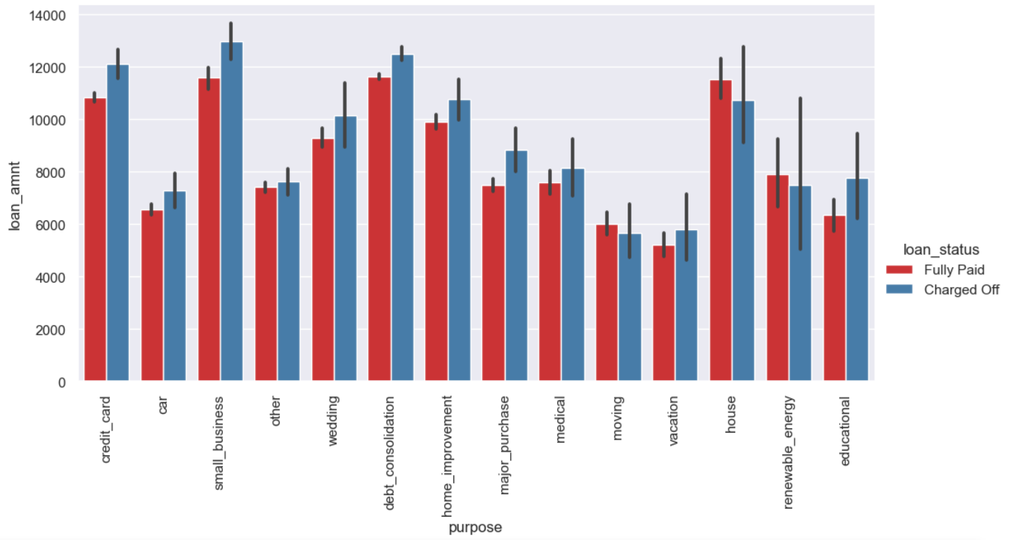




DEFAULT RISK FACTORS

loan_status purpose	Charged Off	Fully Paid	Default_%
small_business	425	1138	27.19
renewable_energy	18	76	19.15
educational	54	258	17.31
moving	90	459	16.39
other	599	3074	16.31
house	53	278	16.01
medical	102	536	15.99
debt_consolidation	2585	14395	15.22
vacation	52	313	14.25
home_improvement	314	2196	12.51
car	159	1289	10.98
credit_card	507	4220	10.73
major_purchase	216	1821	10.60
wedding	90	798	10.14

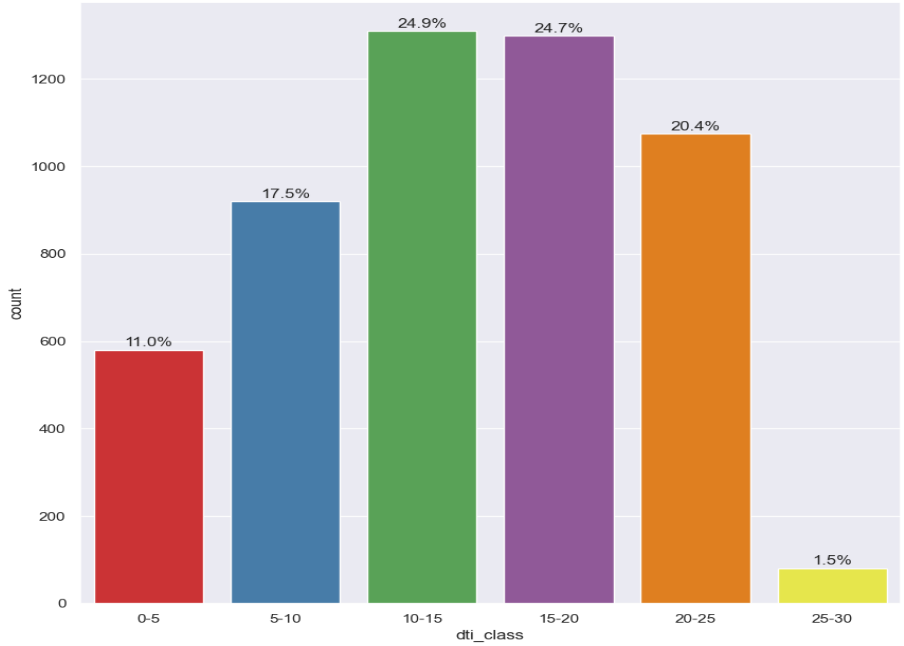
Small Business loans account for 27% of defaults even though they account for less than 5% of all loans.



- Of the top 5 most common reasons for taking a loan, only “other” default more than 15% of the time.
- Debt consolidation, credit card, major purchase and home improvement loans are safer than small business, renewable energy, educational and moving loans

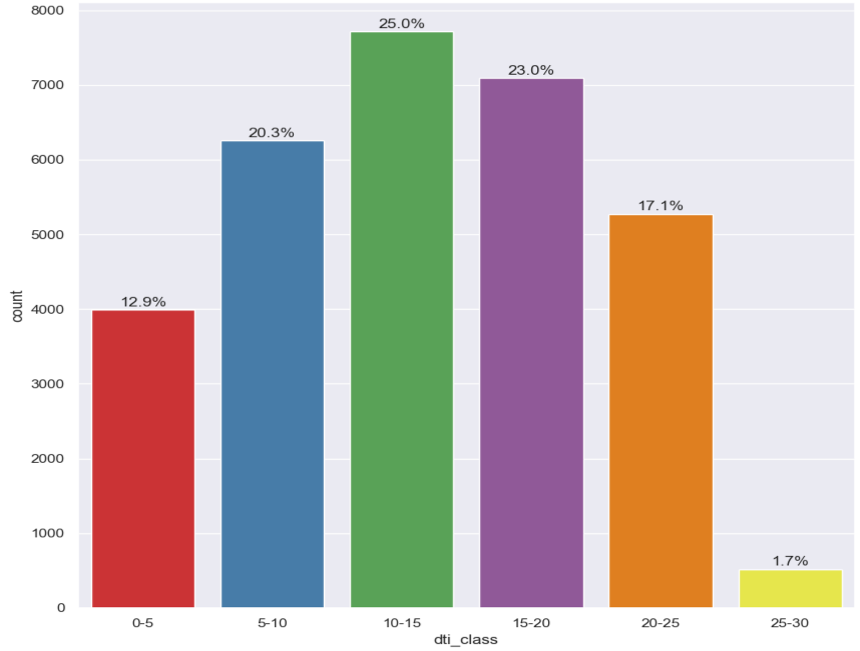
DEFAULT RISK FACTORS

DEFAULTERS TEND TO HAVE A DEBT TO INCOME RATIO OF 10-25%



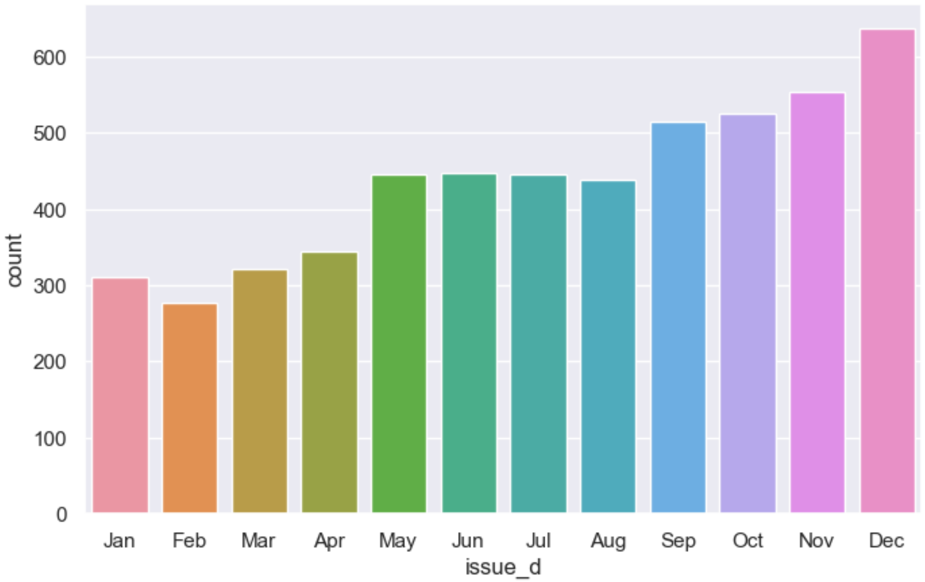
Lower Debt to Income ratios are more likely to repay loans

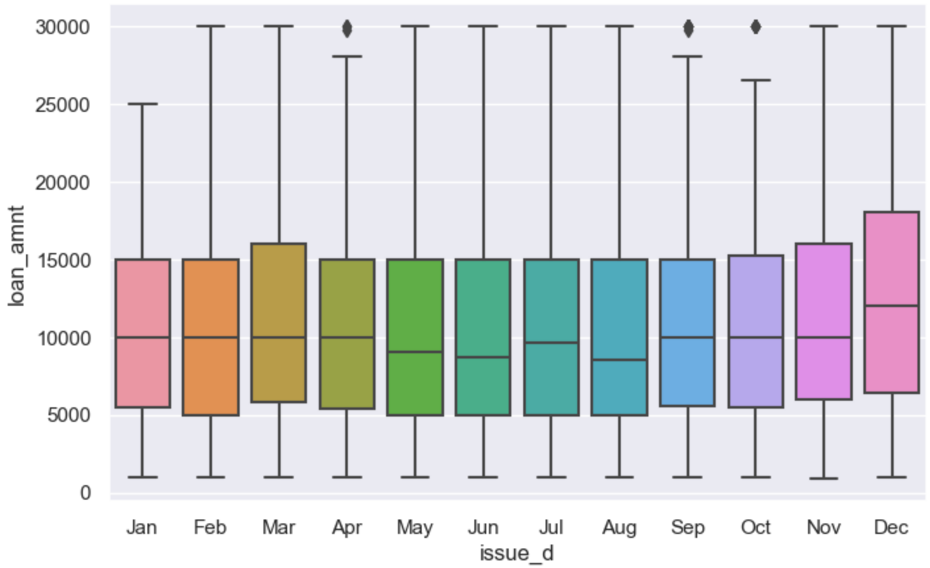
NON-DEFAULTERS TEND TO HAVE A DEBT TO INCOME RATIO OF 5-20%



DEFAULT RISK FACTORS

- Loans issued in December carry a higher mean value and default more frequently than loans issued in any other month.
- Holiday loans are risky





CONCLUSIONS

Default risk is lowered for applicants with:

- Loan amounts below $12.3K
- Income above 74K annually
- Interest rates below 11% and 14% for 36 and 60 term loans respectively
- Address outside of Nevada
- They own home, rent or pay mortgage
- Have no derogatory notes on their public record
- A loan issued outside of December
- A loan not issued for small business, renewable energy, moving, education or other