LOAN CASE STUDY

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DATA EXPLORATION

There are 111 variables in the loan dataset.

Problem Statement: To find a solution to minimize the risk of losing money while lending to customers.

So we need to particularly concentrate on the charged off case.

DATA CLEANING AND MANIPULATION

Dealing with Missing values :

- In this dataset 54 variables contain all the observations as NA so they are removed.

- 14 columns have more than 70% of 0 so they are removed.

- Some columns are replaced with 0 in the place of NA.

- 4 columns from remaining has same data in column hence they were removed.
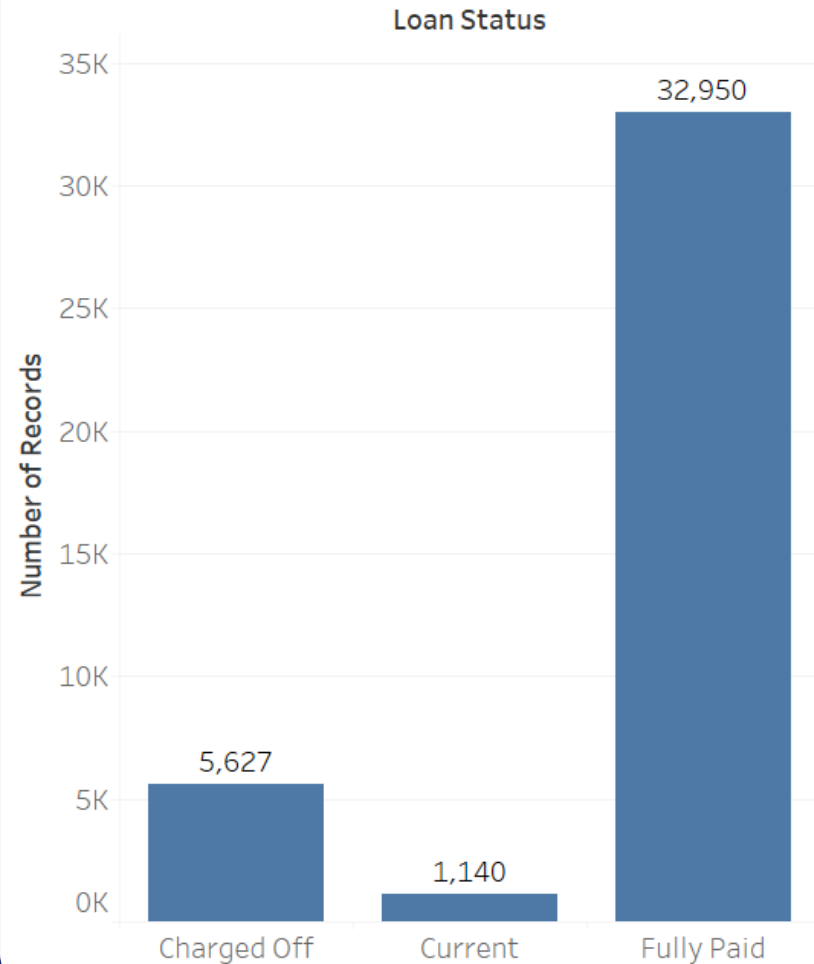
Others:

- Rounded of some numeric variables.

- Removed "months" from terms and "%" from some variables for visualization purpose.

ANALYSIS OF LOAN STATUS

- So out of 39717 loans granted 5627 were charged off.

- For 1140 members status is current.

Loan Analysis

Loan Status

(Bar chart, Number of Records vs Loan Status)
- Charged Off: 5,627
- Current: 1,140
- Fully Paid: 32,950

CHARGED OFF - HOME OWNERSHIP

- From the graph it is clear that in charged off case most of the members have rented and mortgage homes.

- 2839 people are living in rented home.
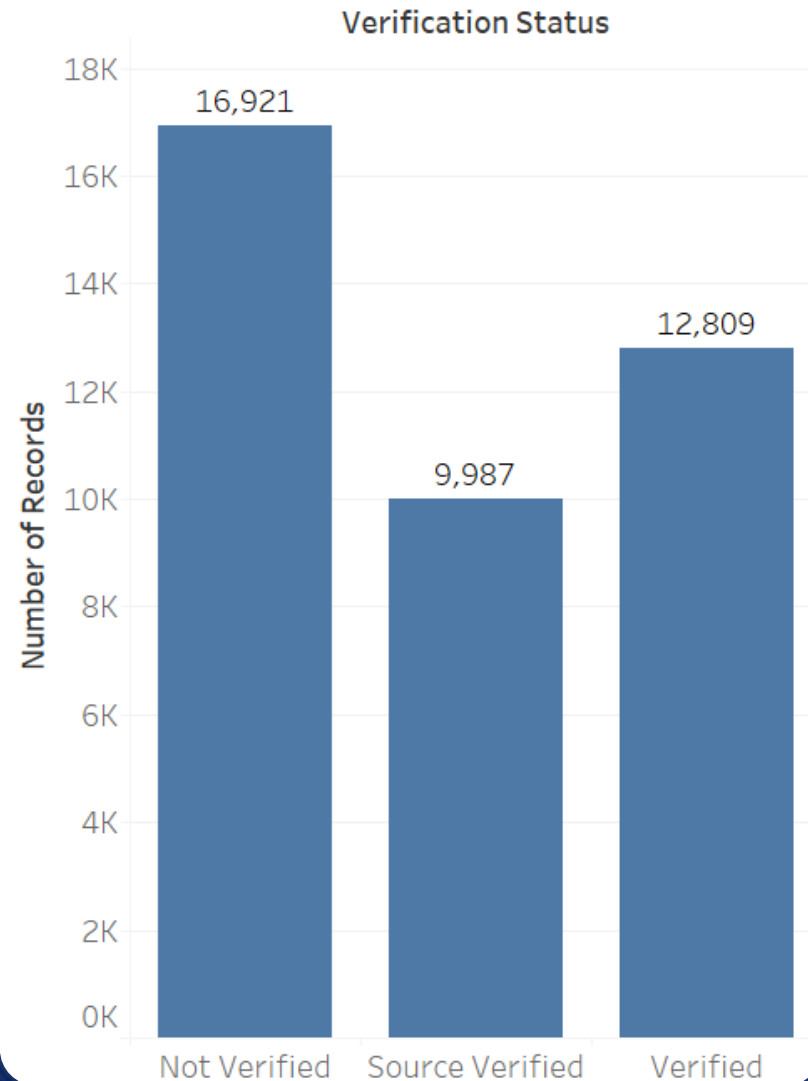
- 2327 people are already on a housing loan.

Home Analysis

Home Ownership

| Category	Number of Records
MORTGA..	17,659
OTHER	98
OWN	3,058
RENT	18,899
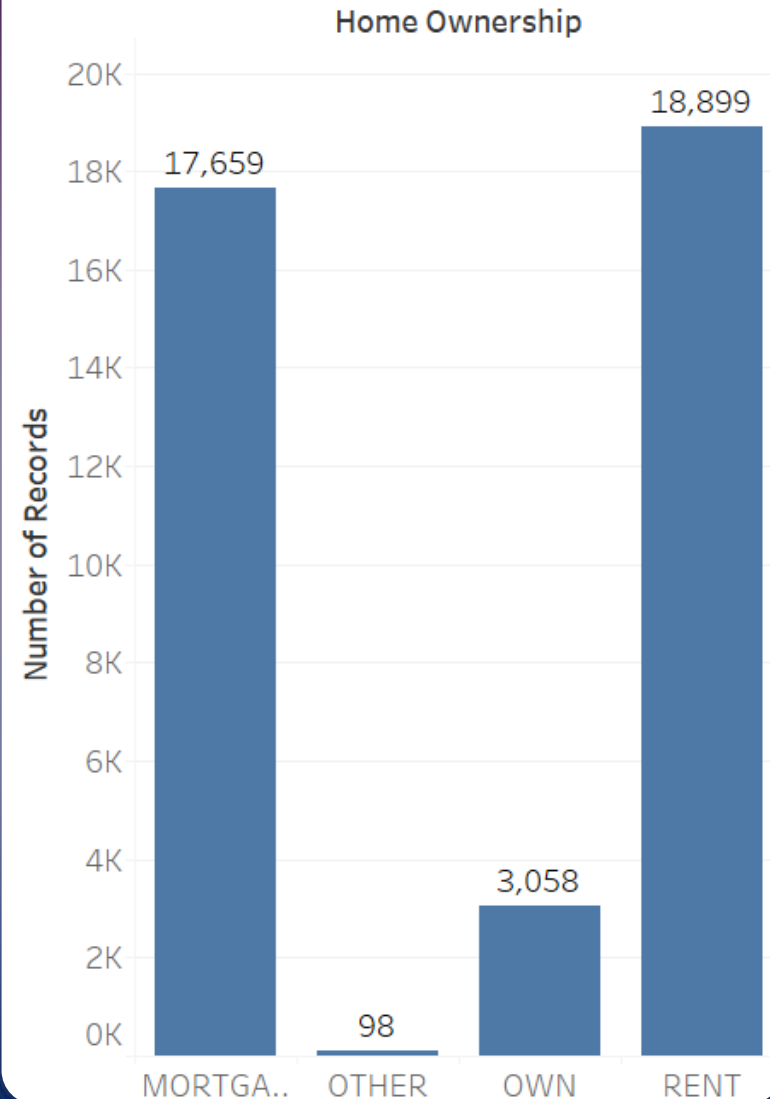
CHARGED OFF-VERIFICATION STATUS

- This analysis shows the bank's carelessness.

- With out verifying the income of the person they granted loans for 2142 members.

Verification Status

Verification Status — bar chart of Number of Records by verification status: Not Verified 16,921; Source Verified 9,987; Verified 12,809.

CHARGED OFF - STATE

California State has most number of cases which are charged off
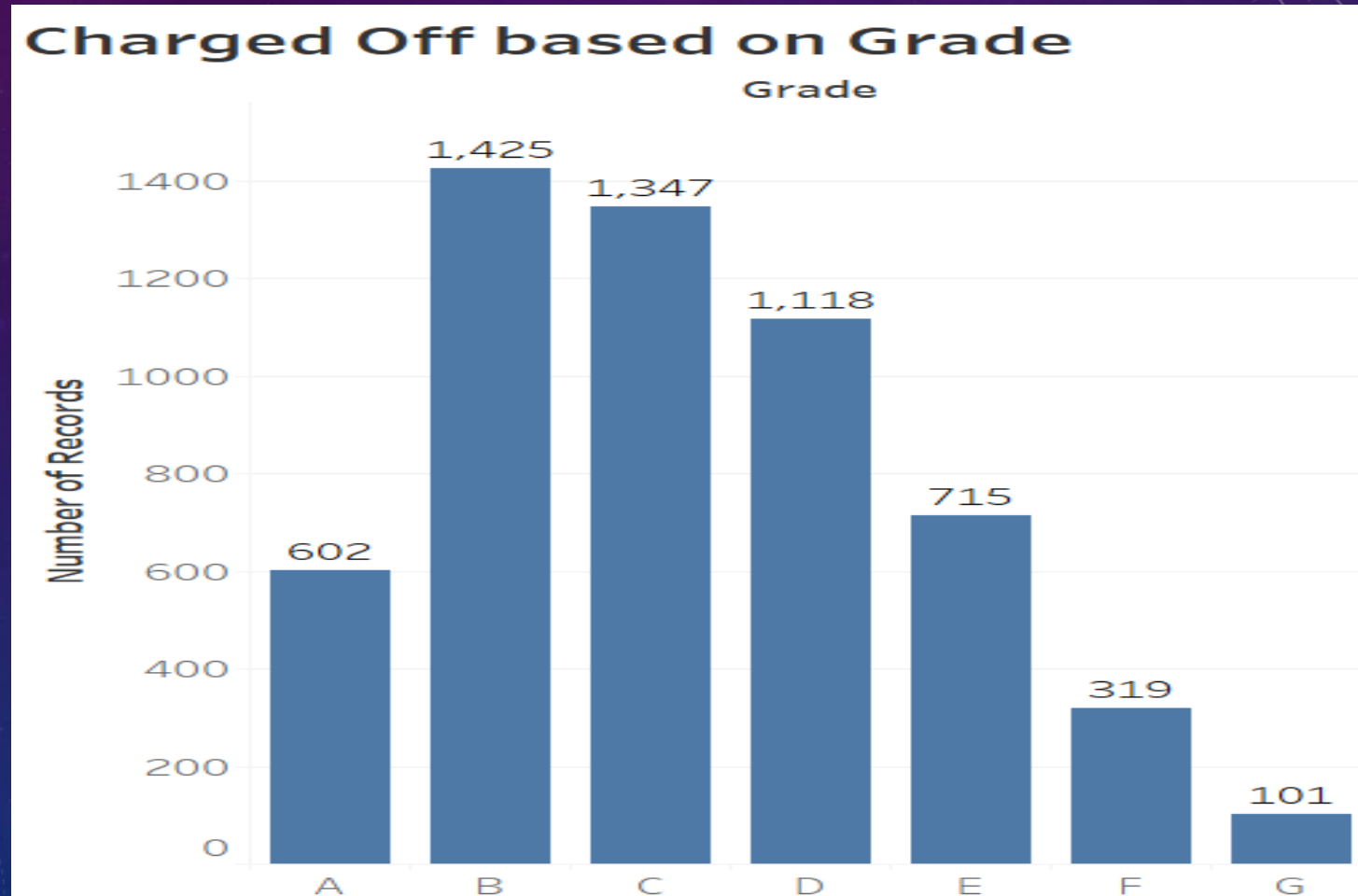

States Ratio with Charged Off Data
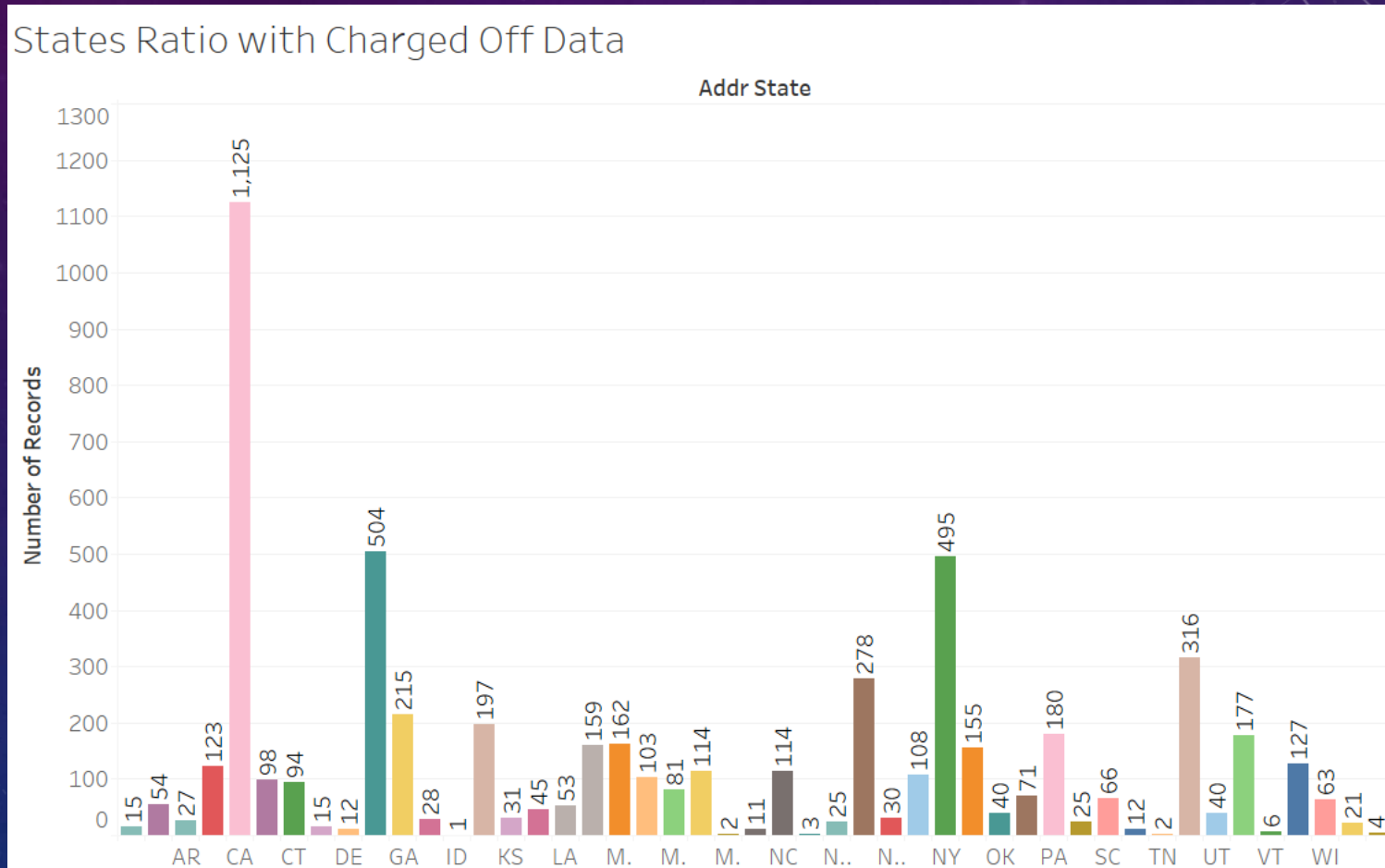
LOAN STATUS WITH STATE, NE NEBRESKA IS STATE WITH HIGHEST DEFAULT PERCENTAGE BUT ITS AN OUTLIER
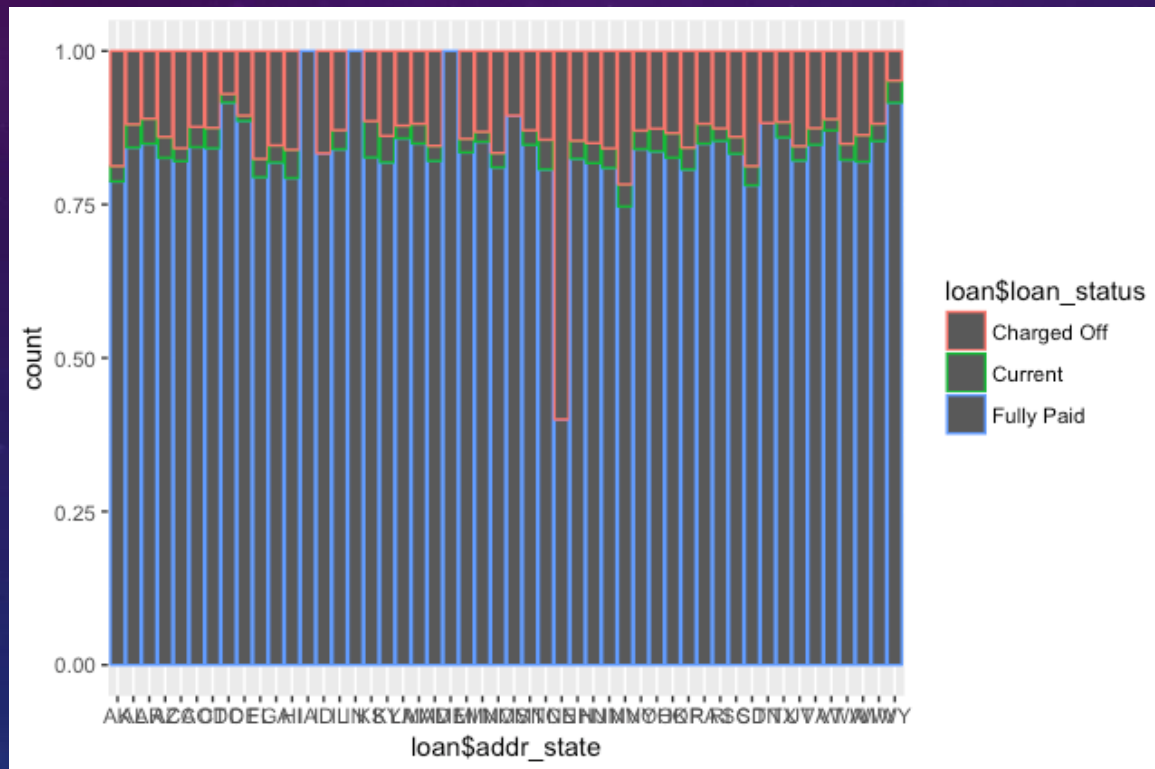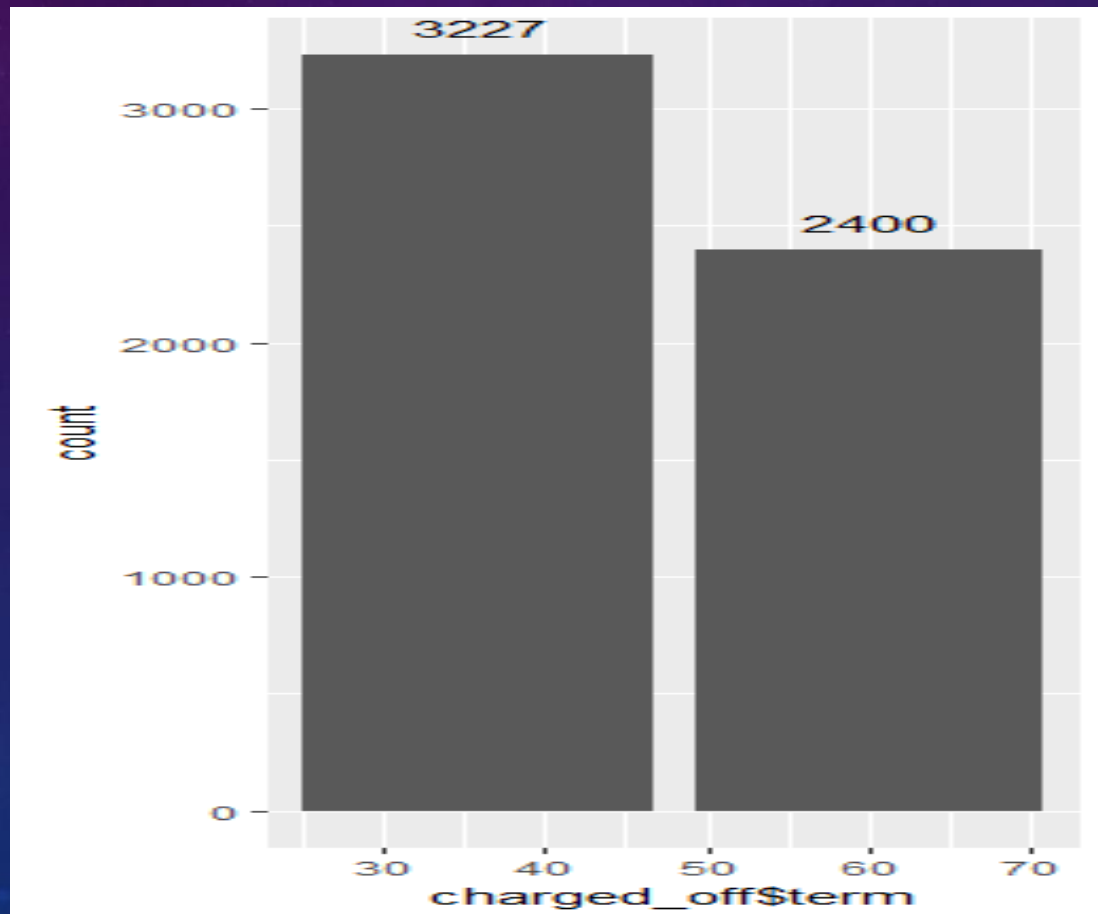
CHARGED OFF – GRADE

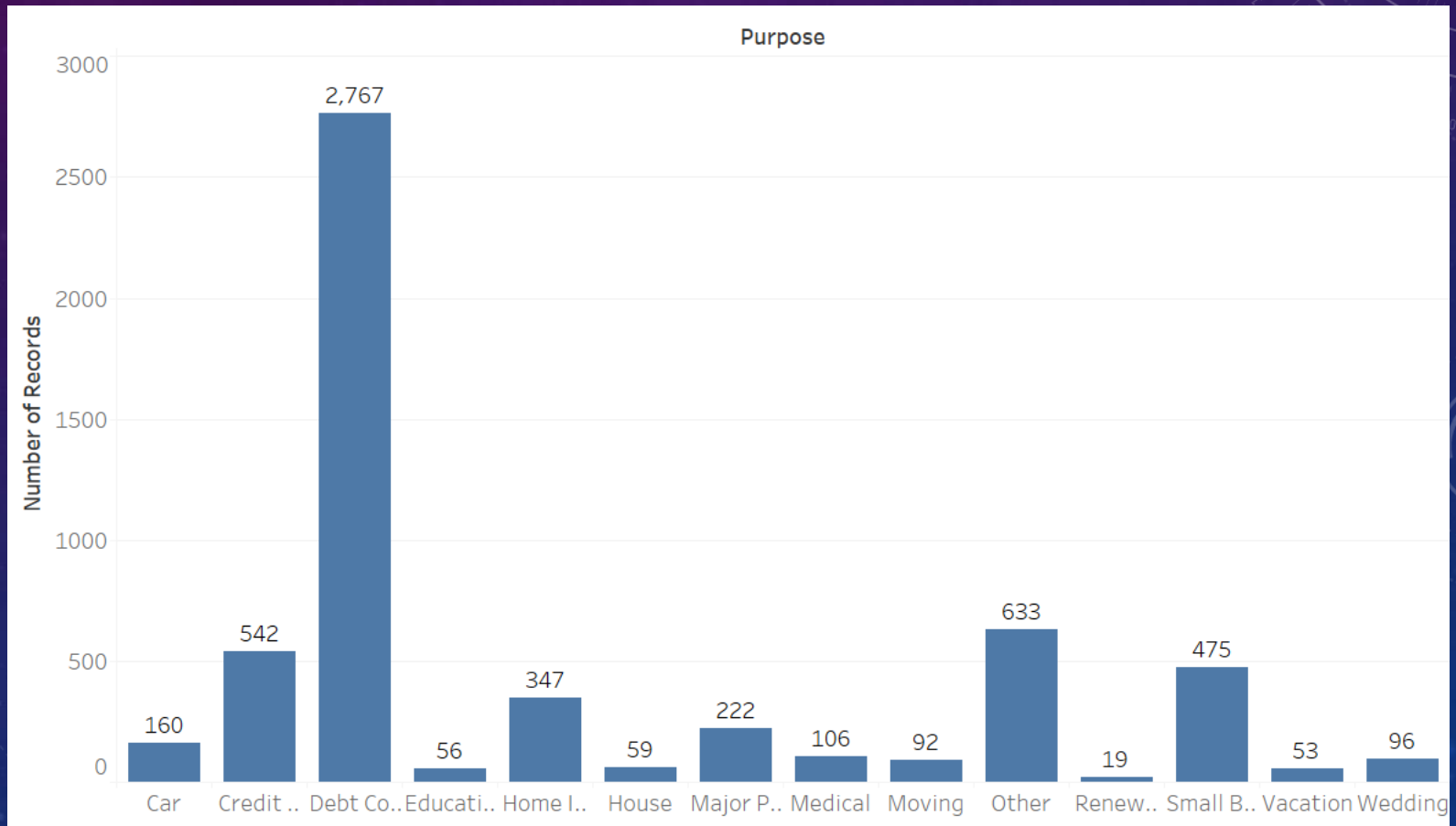Most of the charged off occurred in B, C and D grades of loans

CHARGED OFF - TERM

The number of defaults are more for the people who have the term of 36 months
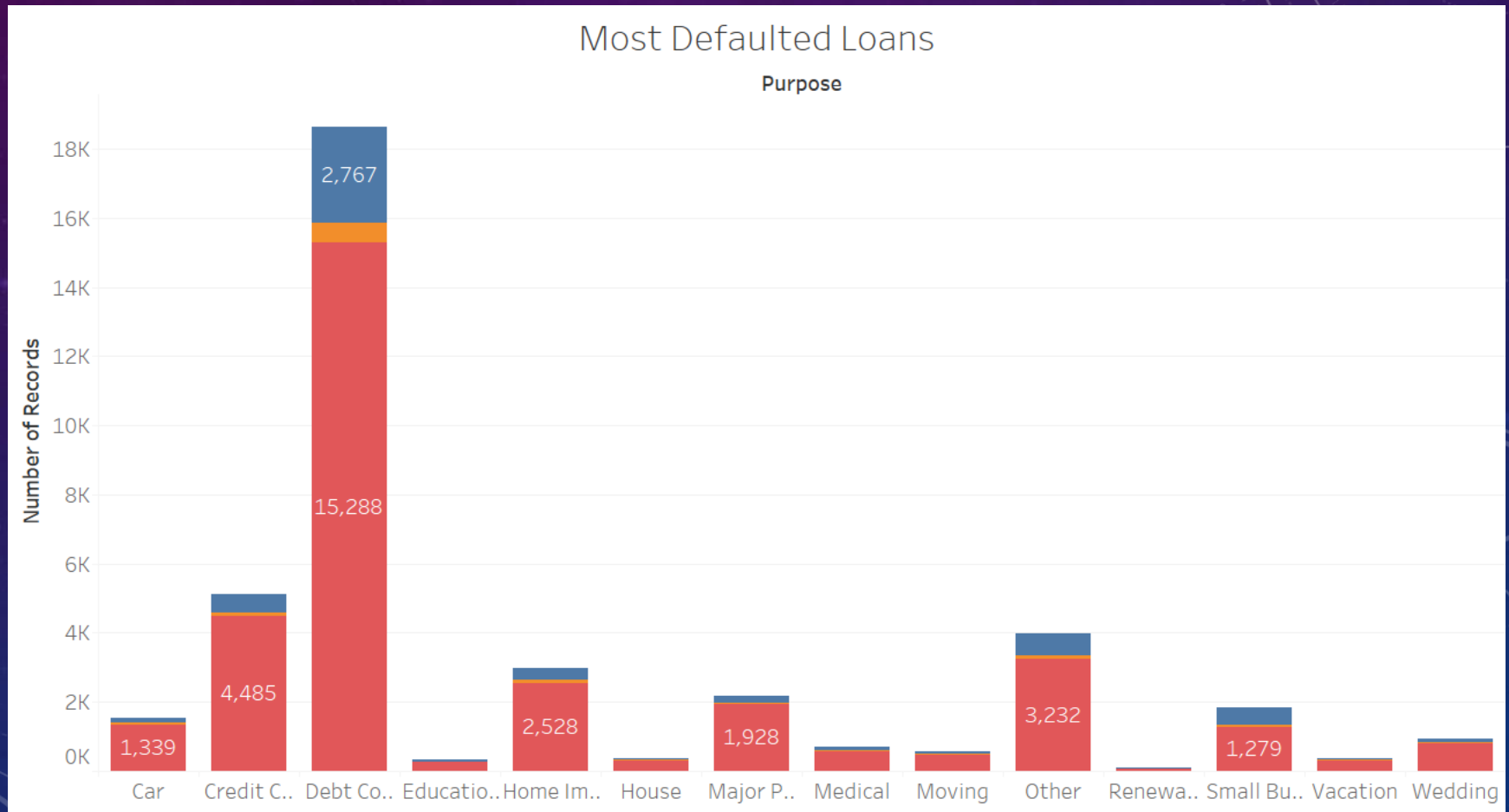
CHARGED OFF - PURPOSE

2767 Loan defaulted in Debt Consolidation purpose, followed by when purpose is not specified and is others
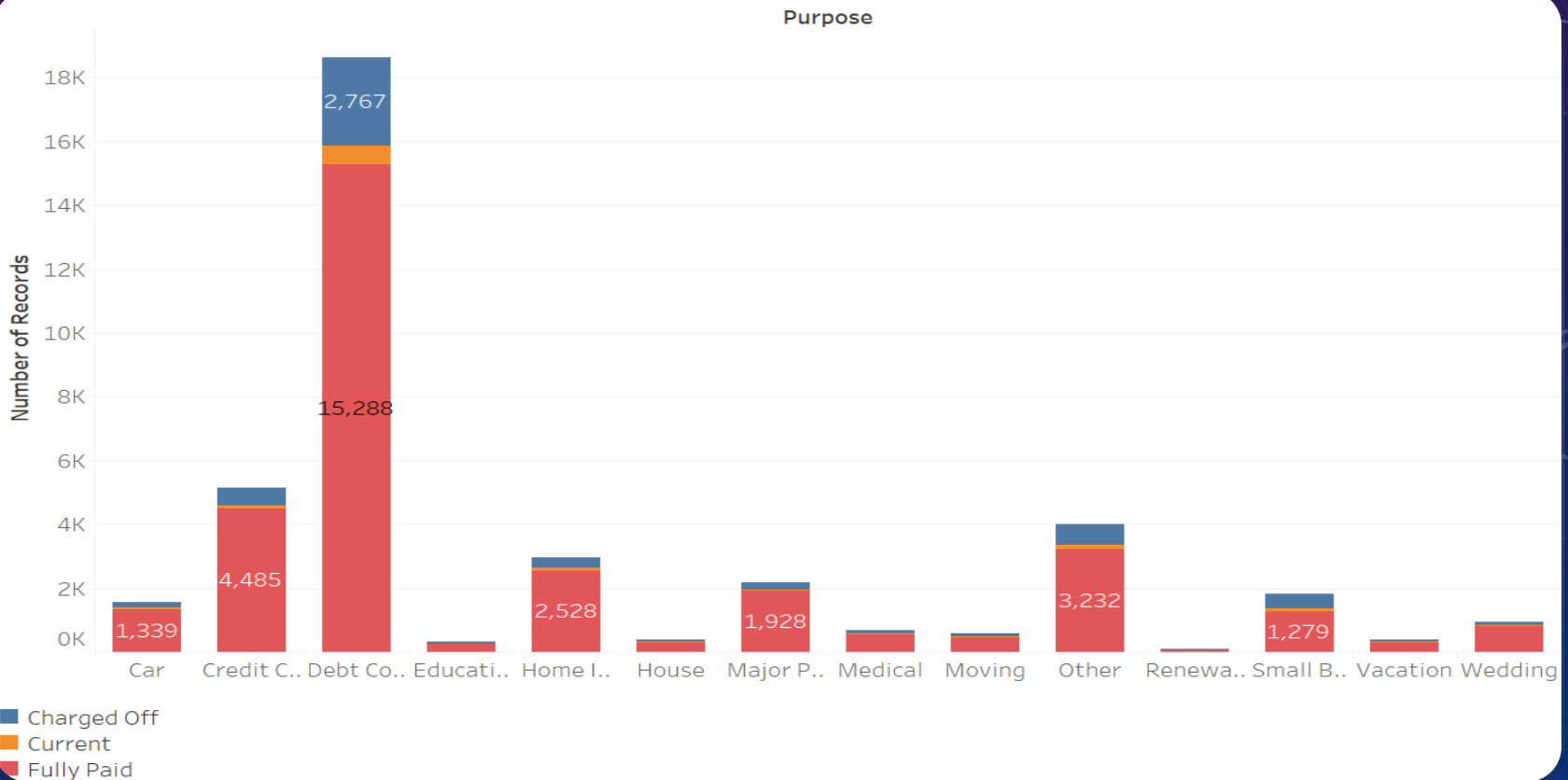
THE LOANS TAKEN FOR DEBT CONSOLIDATION ARE MORE DEFAULTED

Most Defaulted Loans

Purpose

REASONS FOR LOAN AND STATUS

• For overall Population of loan we see that higher % of people with purpose as small business as charged off. Overall Debt Consolidation then small Business

# CORRELATION BETWEEN LOAN AMOUNT AND FUNDED AMOUNT INVESTED IN DEFAULTED CASE

The correlation is 0.95 and clearly states that with increase in loan amount there is increase in funded amount invested

correlation between loan_amnt and funded_amnt_inv
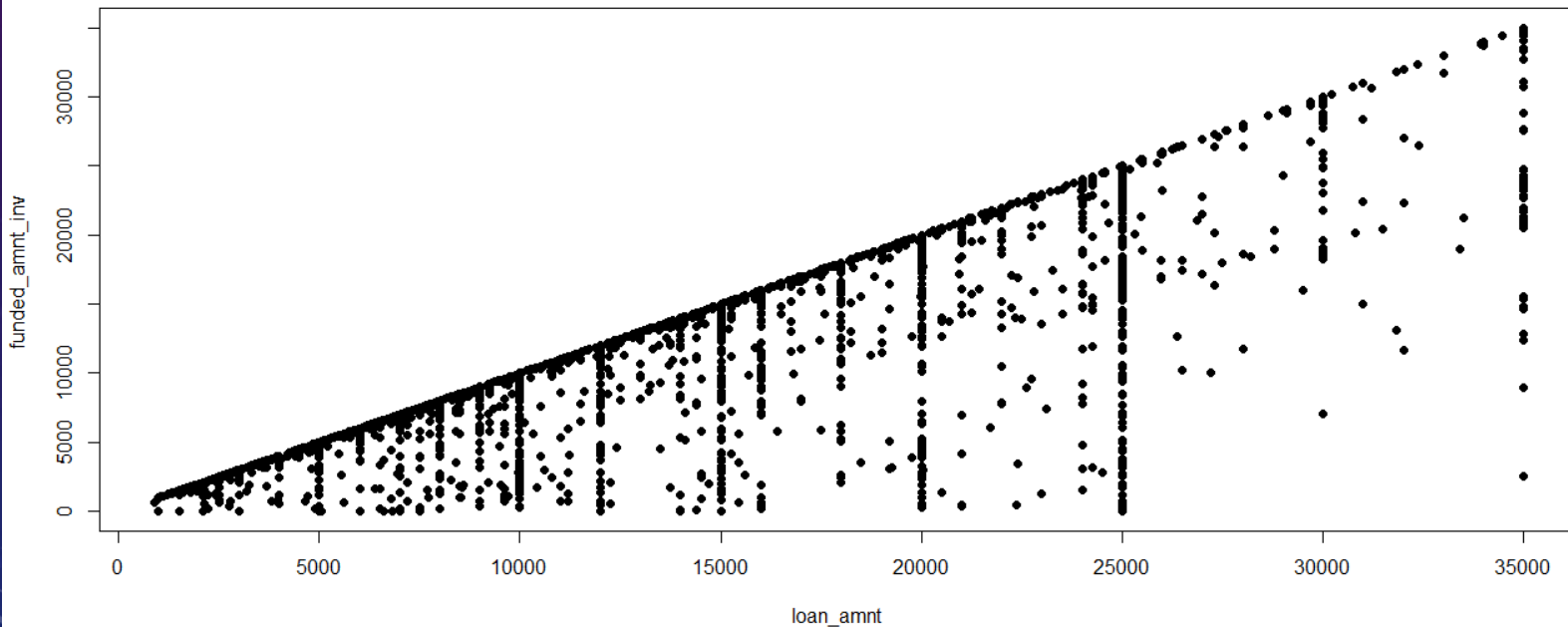
CORRELATION BETWEEN FUNDED AMOUNT INVESTED AND INSTALLMENT IN DEFAULTED CASE

The correlation is 0.9 and clearly states that with increase in funded amount invested the installment increases.
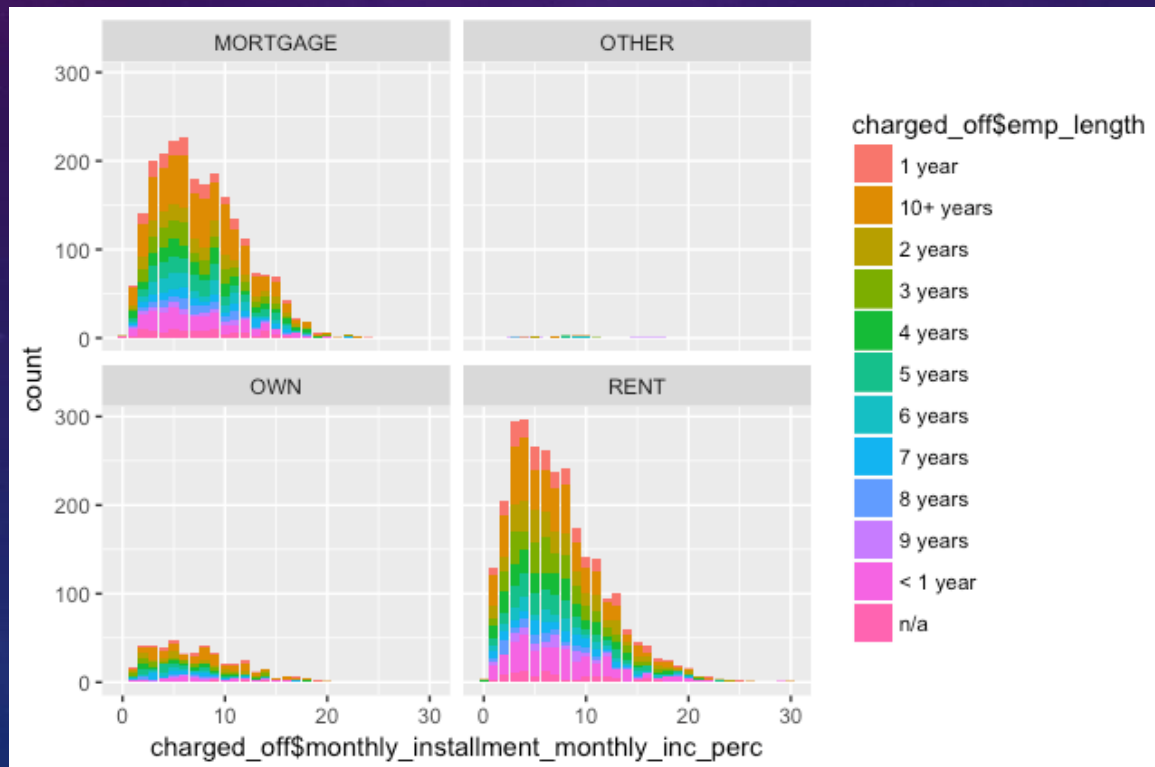

correlation between funded_amnt_inv and installment
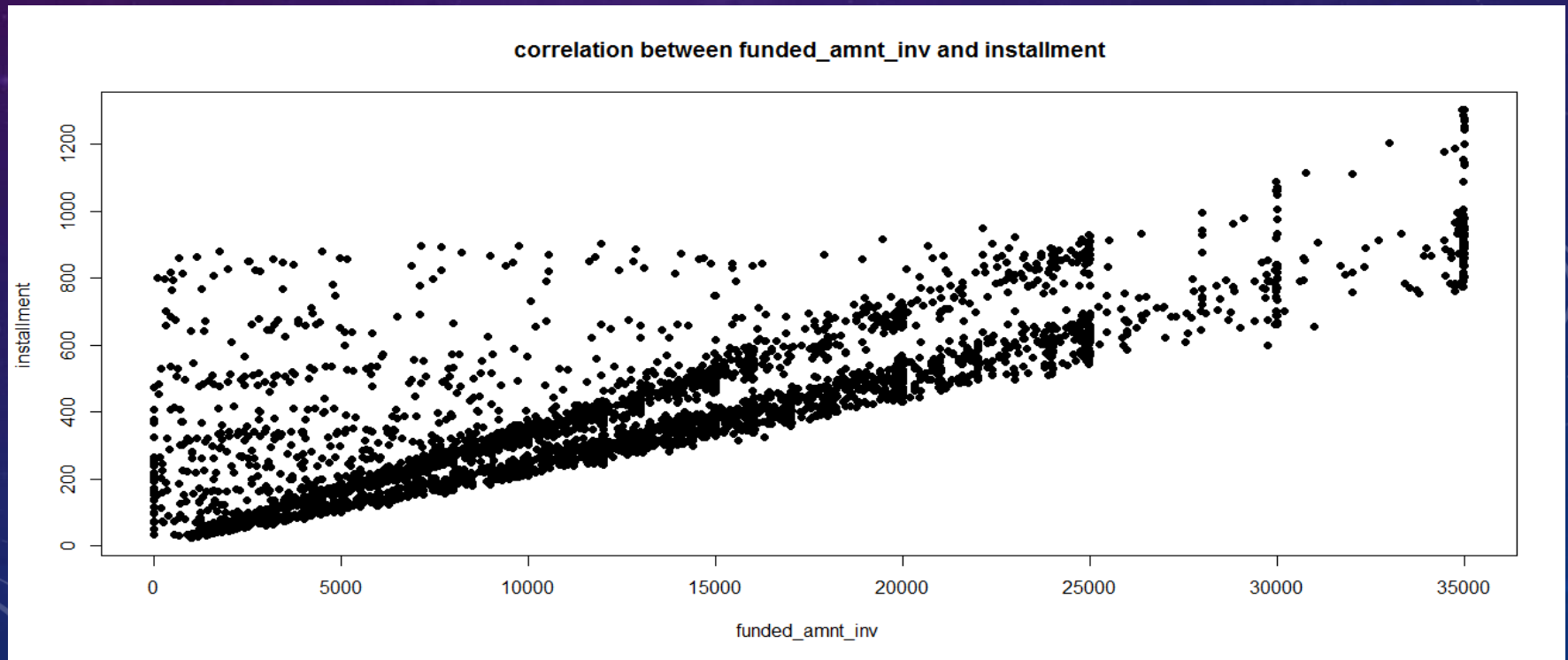
# LOAN STATUS WITH TERM TO EMPLOYEE LENGTH, HIGHER % WITH 10+ YEAR EMPLOYEE LENGTH
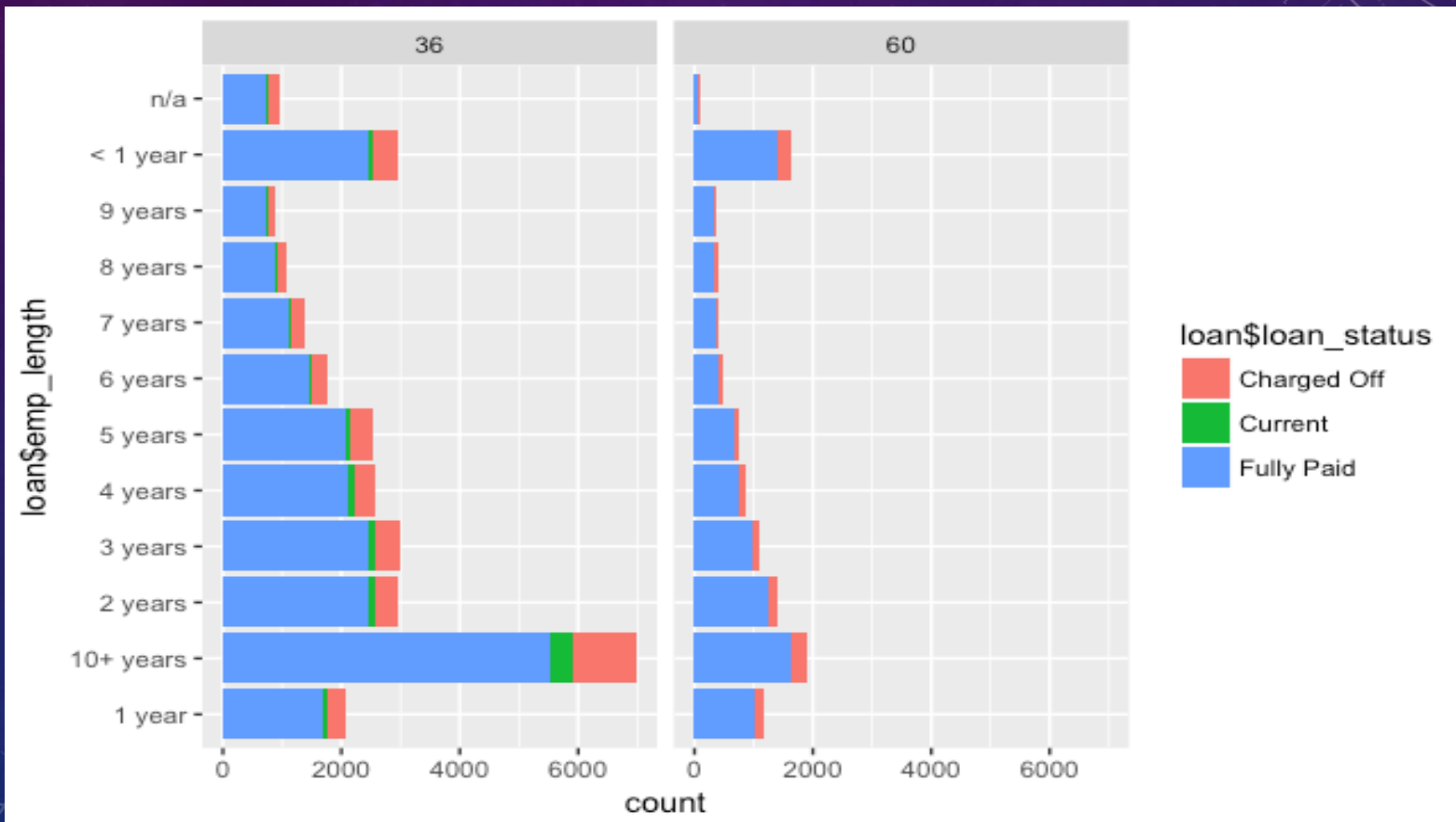
MONTHLY INSTALLMENT PERCENTAGE OF SALARY TO EMPLOYEE LENGTH AND OWNERSHIP

Monthly installment is around 5-10% of monthly income on Mortgage/Rent are high defaulters

NUMBER OF PEOPLE WITH LOANS AT VARIOUS GRADES

It clearly indicates that People with Grade B have applied for maximum loans and also with highest rate who have cleared loan
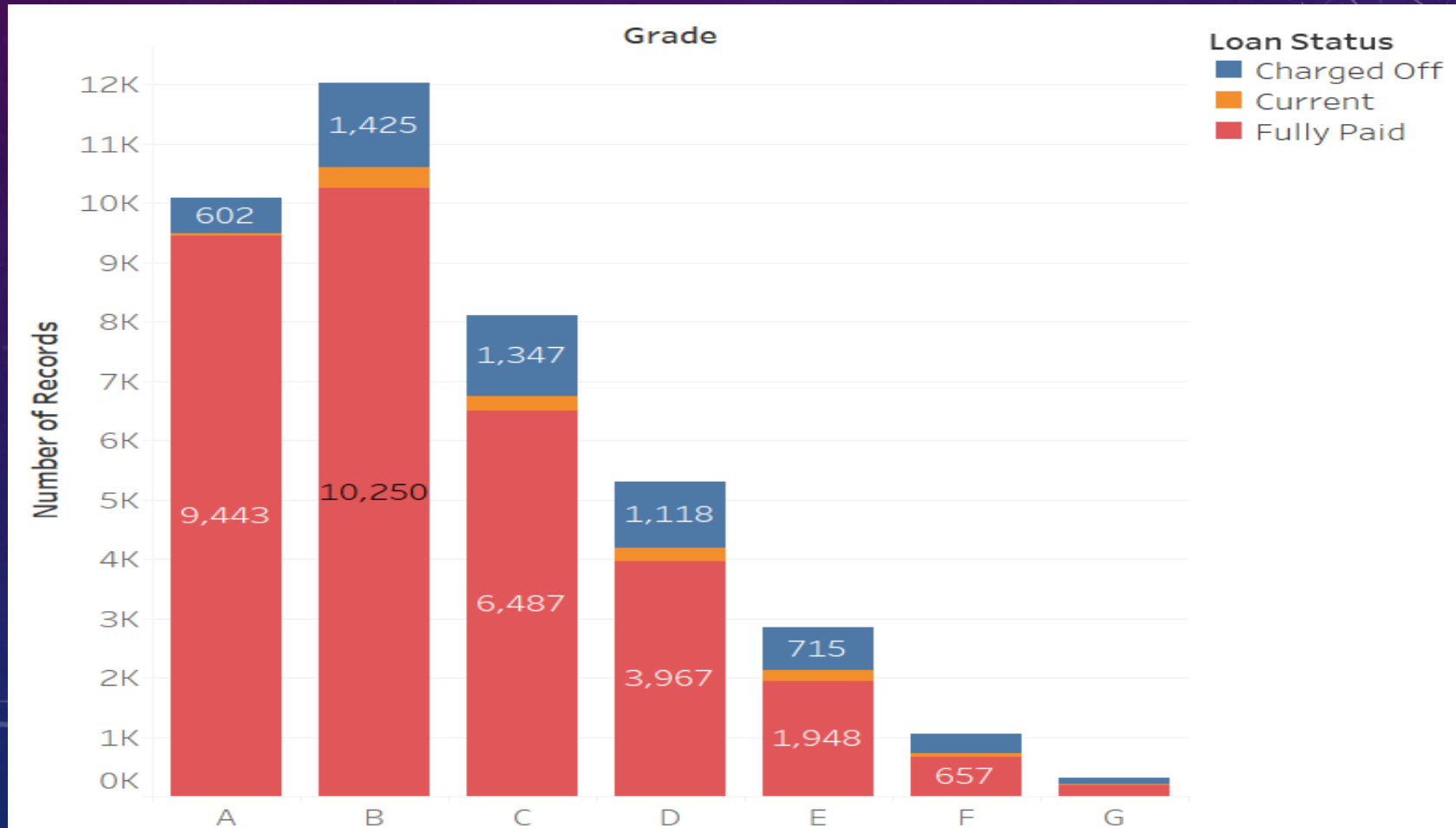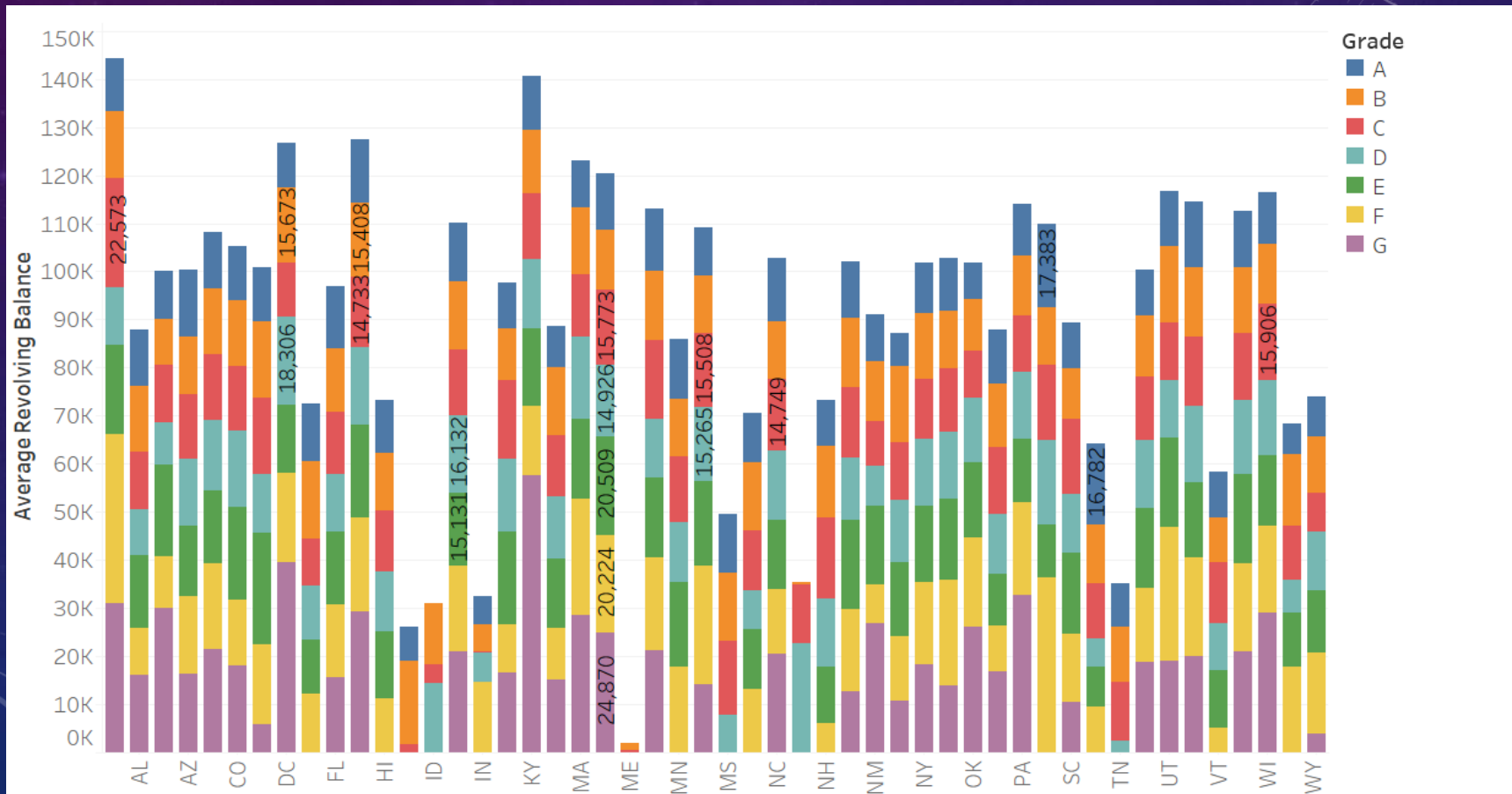
AVERAGE INTEREST RATES AT VARIOUS GRADES

This analysis can help in understanding the average interest rates at various grades. Also to identify the interest rate patterns
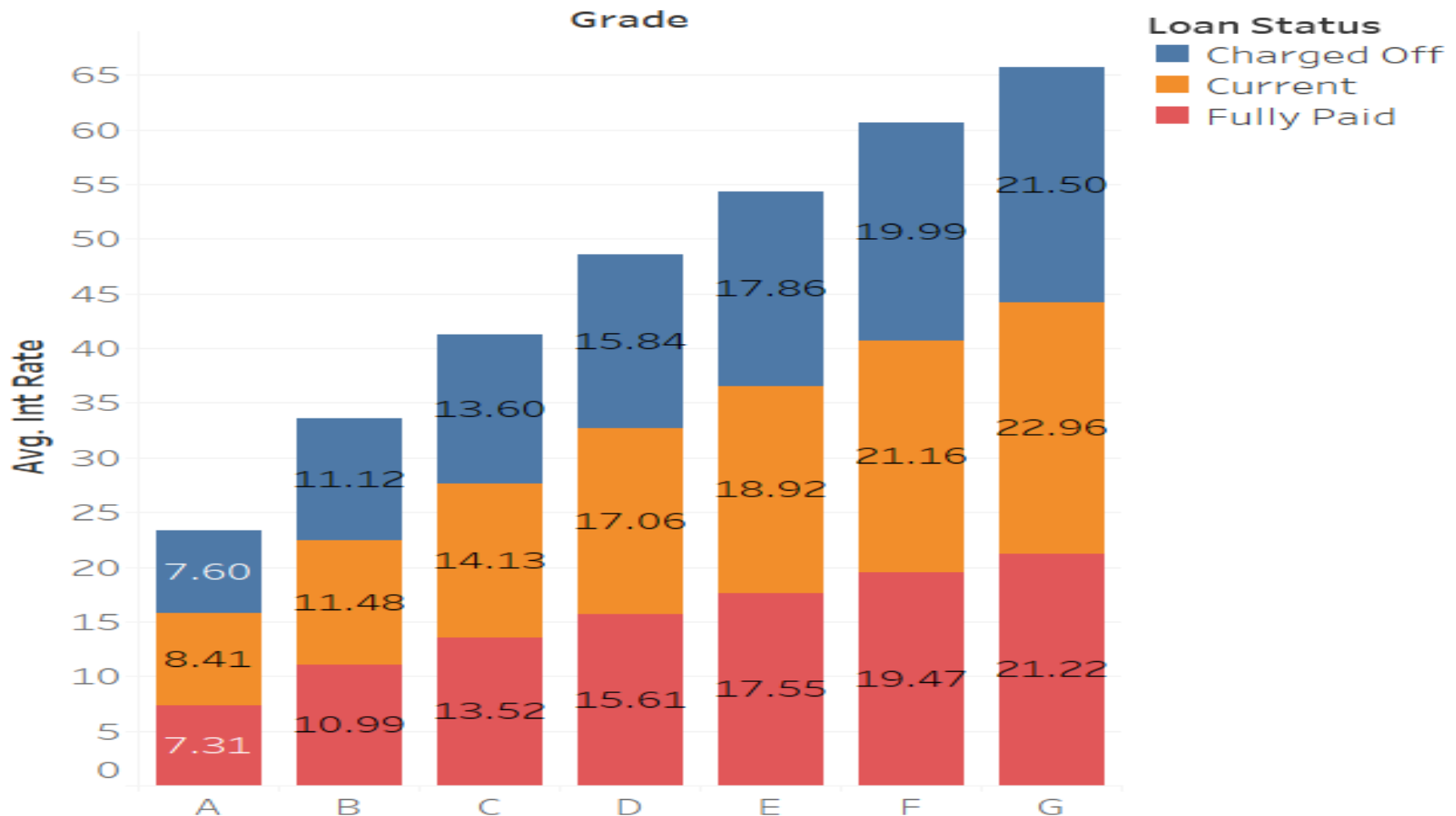
CREDIT CARD REVOLVING BALANCE

The revolving balance analysis among various states across all grades helps in identifying in loan processing for the organization.

JOHN WANT A LOAN

John is a working personal and is looking for a loan of $5000.

John:- Please tell me what is procedure.

Fill up a form on our website lendingclub.com, our analyst will review it and pass onto lenders for same.

John

John,
Living in Sunnyvale, California. Working for past 8 Years with Starbucks.
Loan amount needed : $15000
Salary Yearly:$58000
Term:36
Purpose: other
Home ownership: Mortgage
Grade
Sub grade C1
Description: Plan to use for personal care
Title: Looking for a loan Personal
Total acc 10
Verification status Source verified

John is living in California. We are receiving too many loan applications from California this summer anyways,
This guy is with Starbucks Good making around 50k per year good. He has Mortgage oh that's need to be checked. He is working for past 8 years and has mortgage as well.
His history reveals his credit grades are C having subgrade C1 little risk here it seems.
Anyways let see his purpose for loan, he has not filled it from our broad list of category and has mentioned as Others so what the reason he is looking for personal use case.

Oh, so he is having mortgage at 8 year experience and if we look at loan he is asking for is $15000 which is almost 1/4th of his salary and that too in term of 36 months. So Assuming a interest rate of 15% his monthly installment would come around $500 which is around 10% his monthly income and he has mortgage too.
He is C grade as well. This guy is risky can charged off in between.

John

- **Thanks**