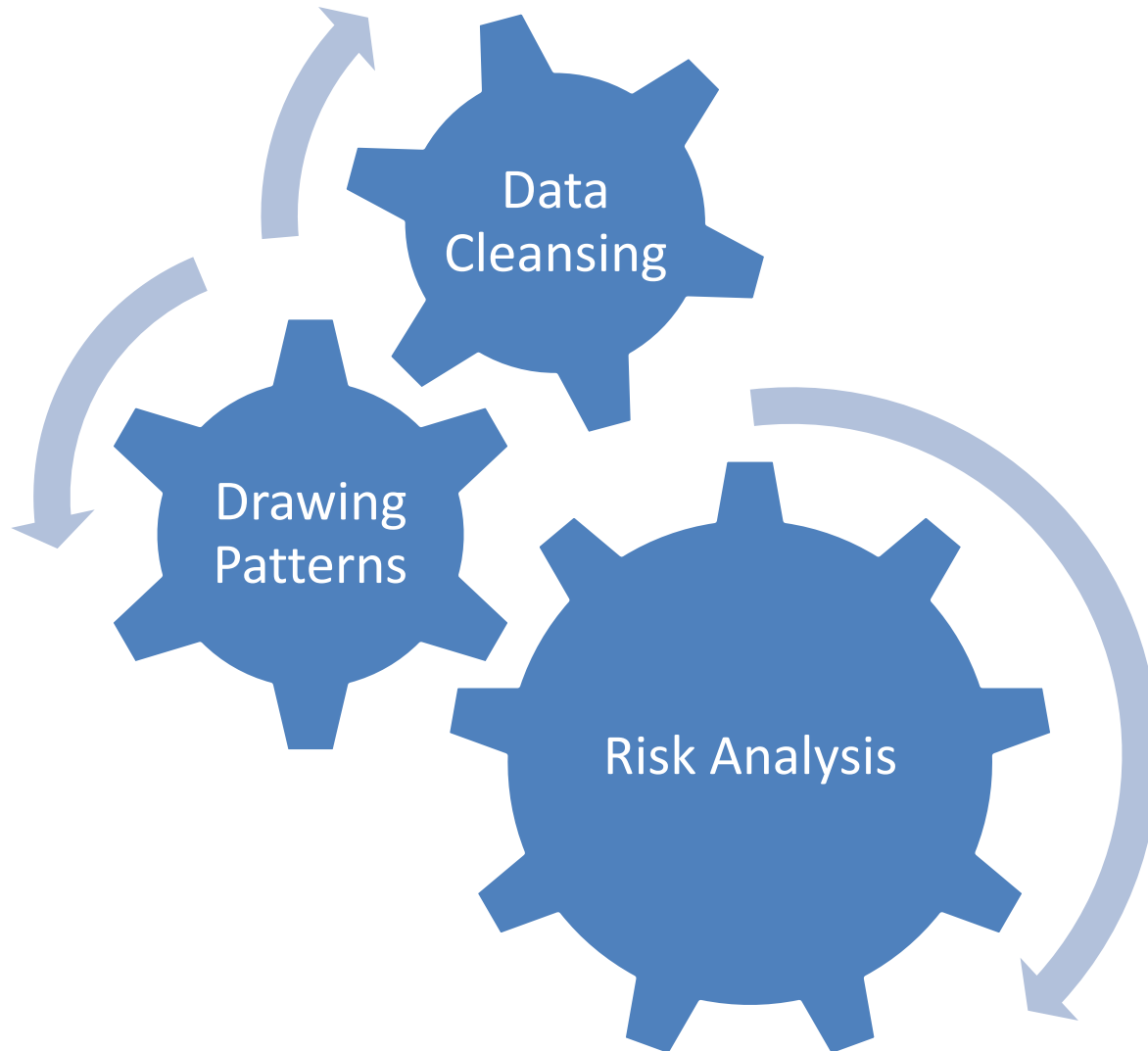# Gramener Case Study

Risk Analytics in Banking and Financial Services

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Analytical Strategy of Bank Loans

Data Cleansing

Drawing Patterns

Risk Analysis

Problem Statement

- With this contextual analysis, Understanding kinds of risks related while tolerating the credit applications from clients.

- The point is to distinguish designs which show if an individual is probably going to default, which might be utilized for taking activities, for example, denying the advance, lessening the measure of credit, loaning (to unsafe candidates) at a higher financing cost, and so on under after issue conditions:
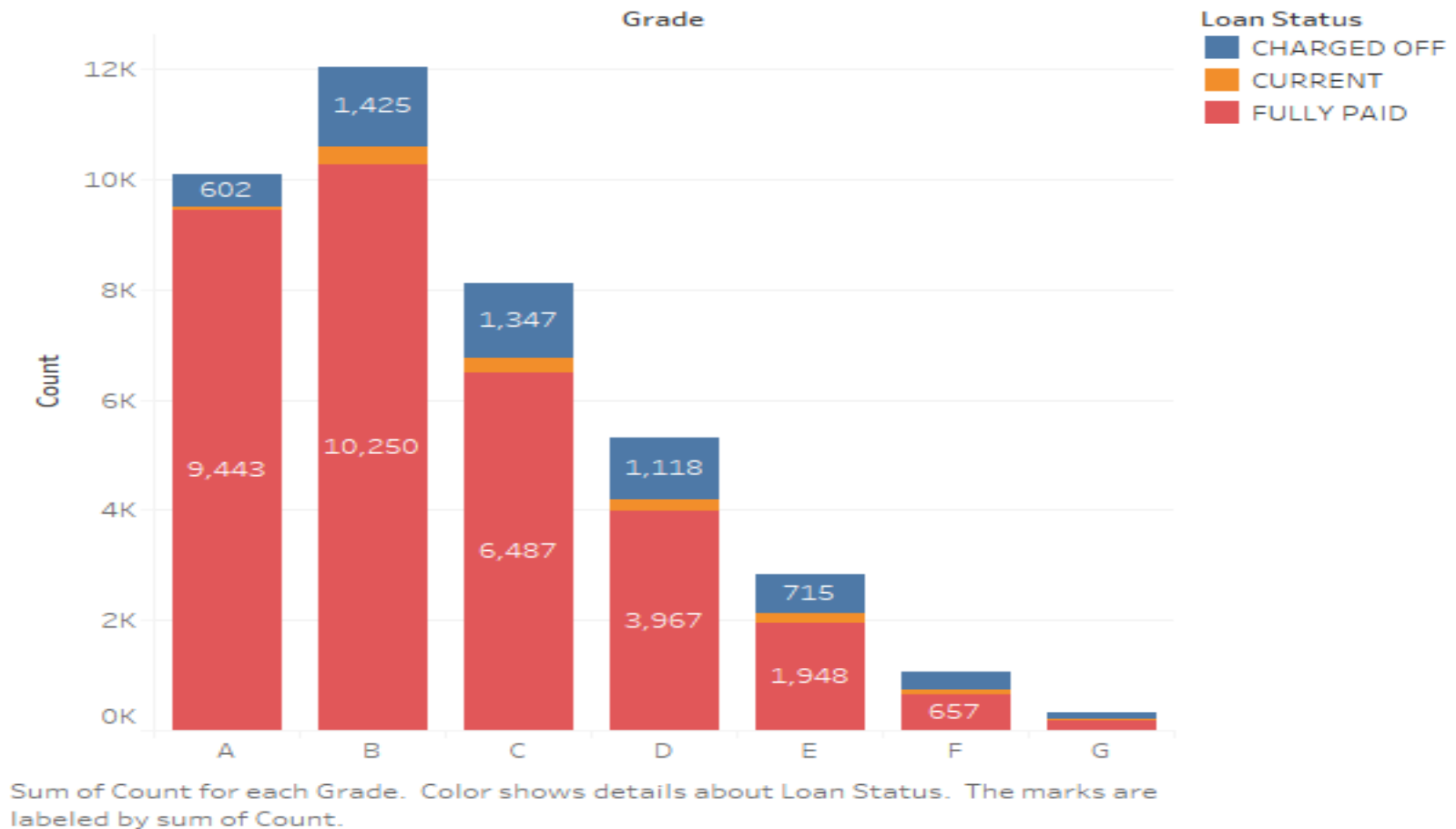
Two sorts of risks are related with the bank's choice:

1. In the event that the candidate is probably going to reimburse the credit, not endorsing the advance outcomes in lost business to the organization

2. On the off chance that the candidate isn't probably going to reimburse the advance, i.e. he/she is probably going to default, at that point endorsing the advance may prompt a monetary misfortune for the organization.

At the point when an individual applies for an advance, there are two sorts of choices that could be taken by the organization:
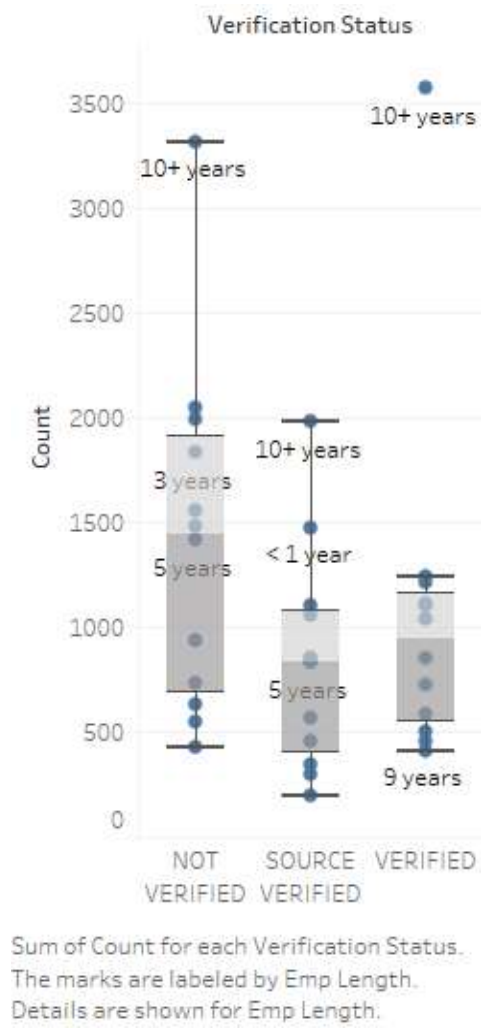
1. **Credit acknowledged:** If the organization endorses the advance, there are 3 conceivable situations depicted underneath:

    Completely paid: Applicant has completely

    Current: Applicant is paying the portions, i.e. the residency of the advance isn't yet finished. These hopefuls are not named as 'defaulted'. paid the credit (the vital and the financing cost).

    Charged-off: Applicant has not paid the portions in due time for an extensive stretch of time, i.e. he/she has defaulted on the advance

2. **Advance rejected:** The organization had rejected the credit (in light of the fact that the hopeful does not meet their prerequisites and so on.).

Loan Status Accordingly Grade Wise :

Sum of Count for each Grade. Color shows details about Loan Status. The marks are labeled by sum of Count.
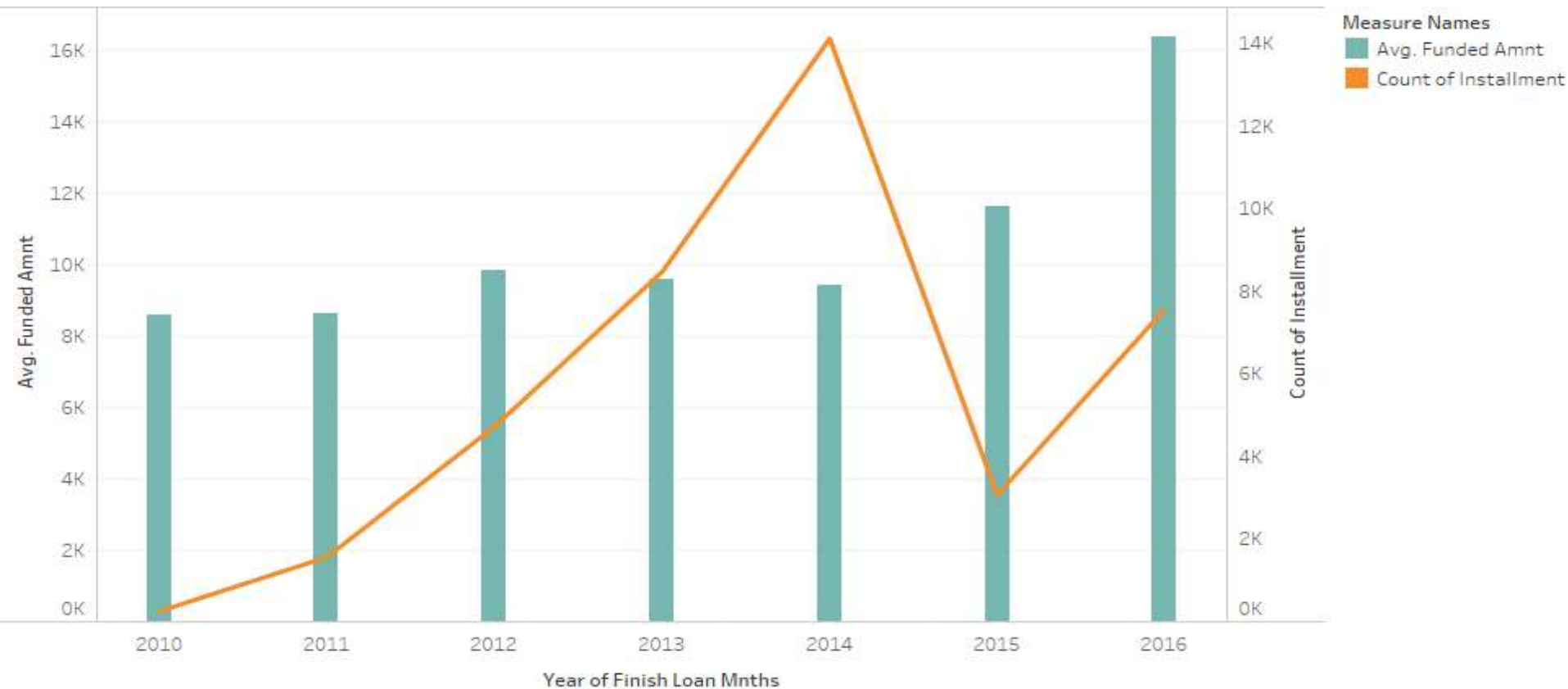
Above chart represents the Status of Loan among the different grades ,here B graded employees are more in towards taking loans and they are Fully paid with requested amount

Employee Verification Status According to Experience :

Sum of Count for each Verification Status.
The marks are labeled by Emp Length.
Details are shown for Emp Length.

The Above Chart represents probability of getting loan according to Employees experience and there verification status ,here above 9 and 10+ experience employees are considered as Outliers as there is high probability of verification status getting Verified, and there is also large rejections of loans for employees having 3 to 5 years of experience

Installments of Loan Clearance in months for average funded amount

The trends of Avg. Funded Amnt and count of Installment for Finish Loan Mnths Year. Color shows details about Avg. Funded Amnt and count of Installment.
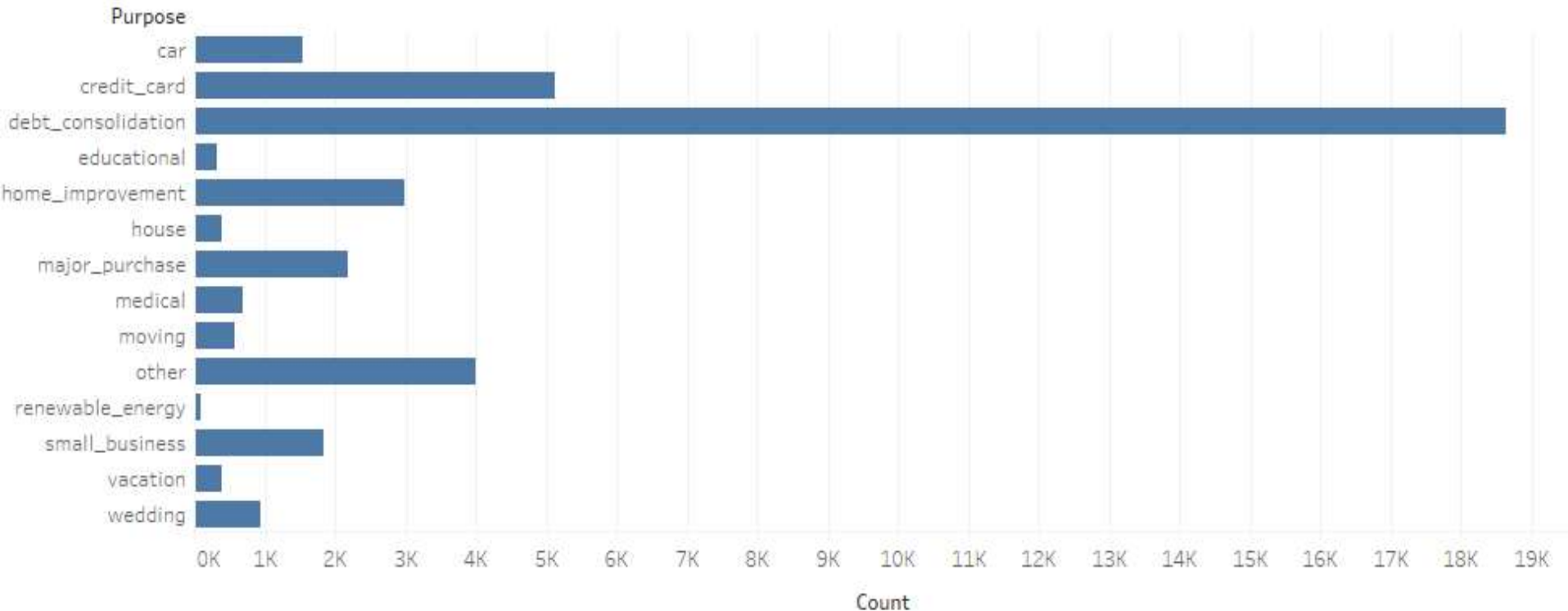
Above Chart represents the clearance of loans in particular year wise and highest count of installments that were cleared in 2014 for an average funded amount

Average Loan Amount Cleared for each year wise :
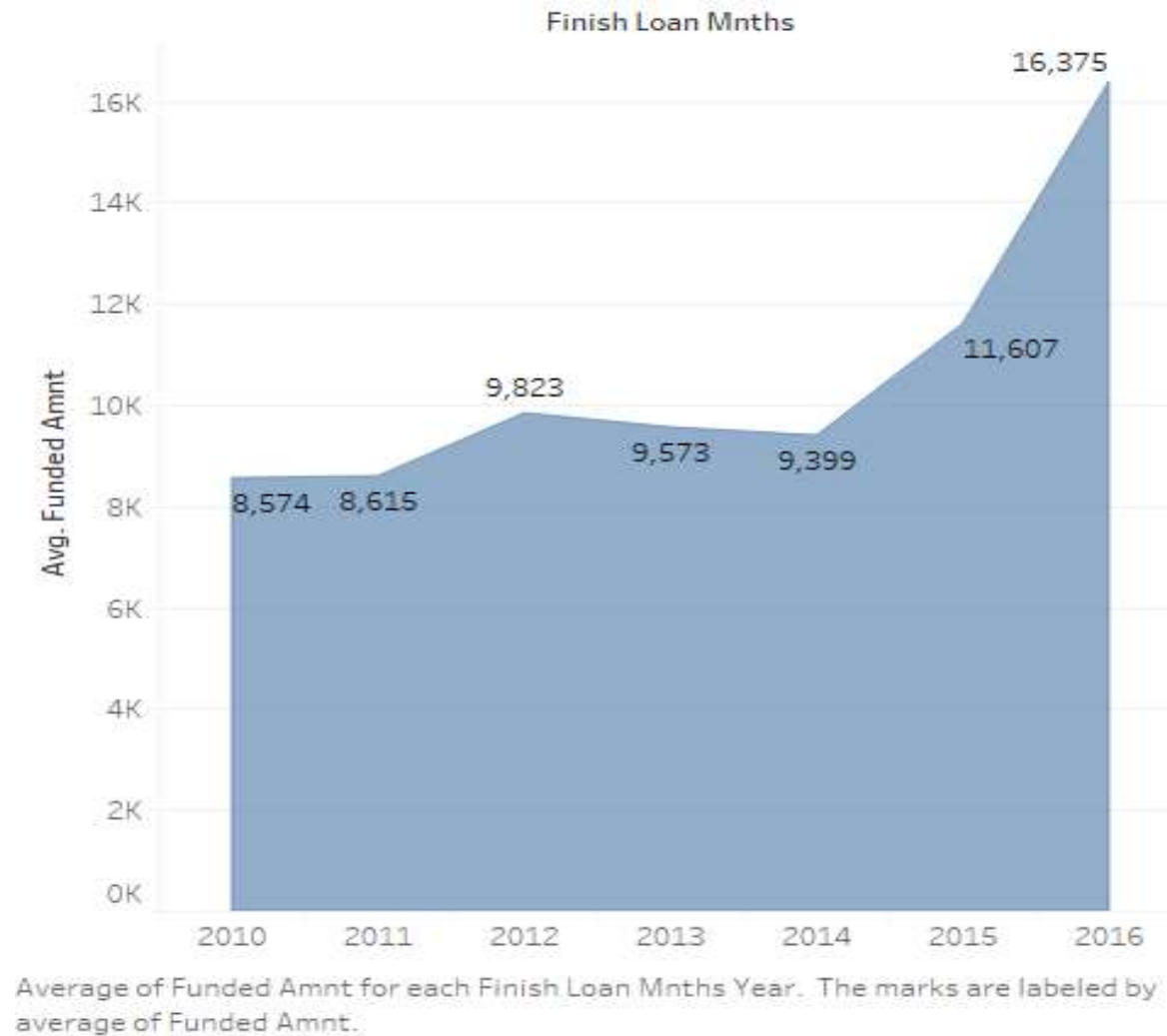
Above Graph represents the highest Average Loan amount was cleared in 2012 and 2016 year.
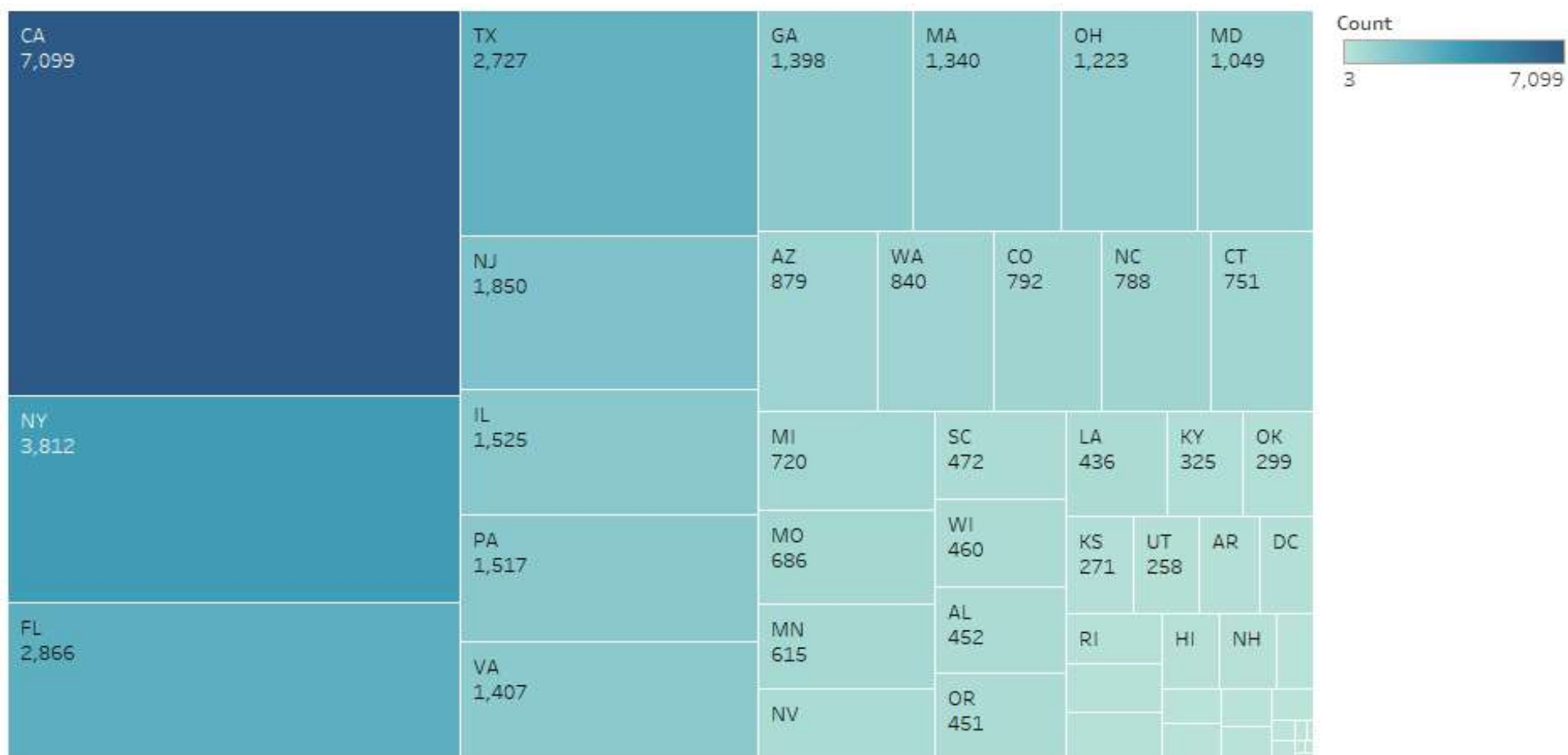
Purpose Of Loan :

Sum of Count for each Purpose.

The Above graph represents the major factors for adopting loan
Below are the key factors for loan adoption
1)Debit Consolidation
2)Credit Card Payments
3)Other purposes
4)Small Business

Location wise loan funding :

Addr State and sum of Count. Color shows sum of Count. Size shows sum of Count. The marks are labeled by Addr State and sum of Count.

The Above area graph shows top funded locations, California is highly loan funded state compared to others and New York,Florida,Texas follows in the sequence.

Location and Purpose of Loan :
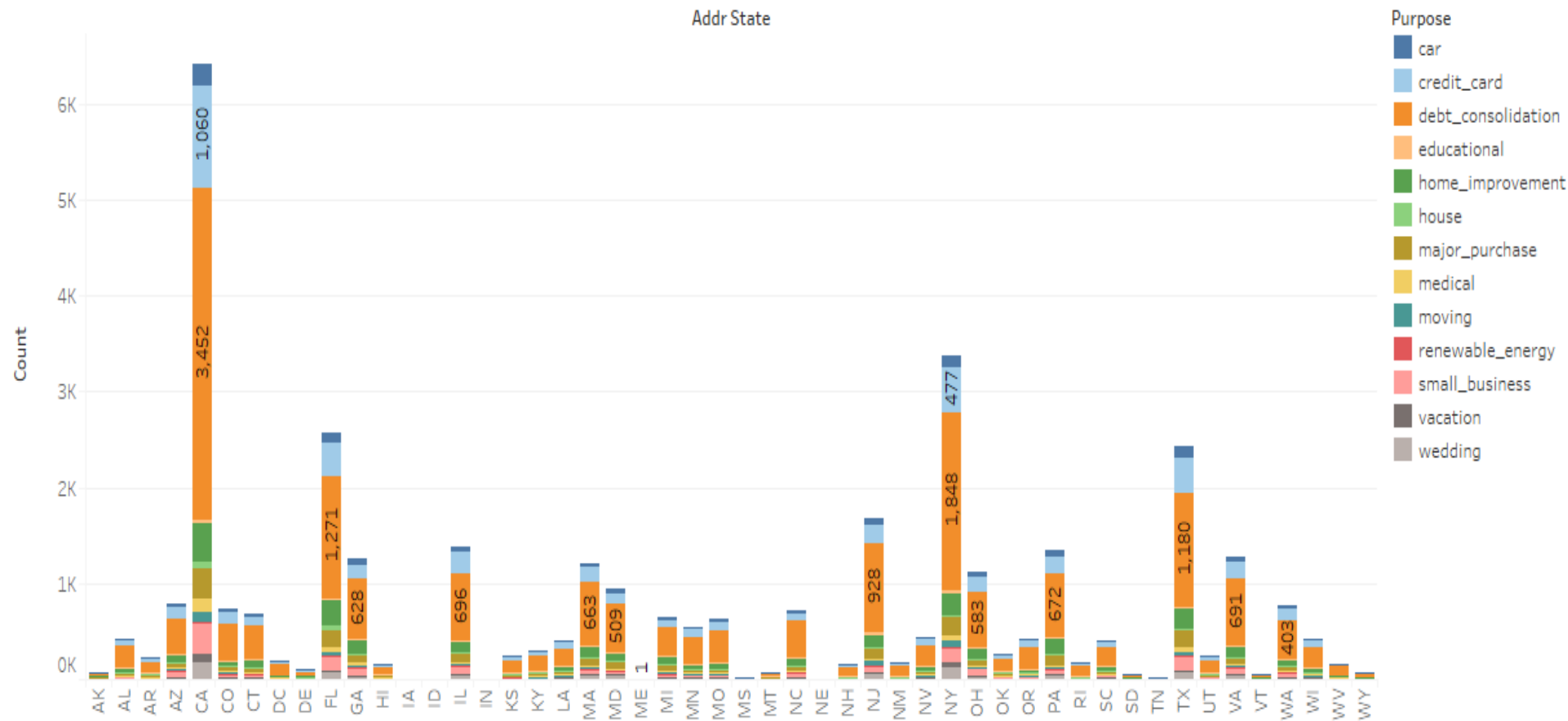
Sum of Count for each Addr State. Color shows details about Purpose. The marks are labeled by sum of Count. The view is filtered on Purpose, which excludes other.

As Shown in earlier graphs California stands as highly loan funded and most purpose of lending the loan was debit consolidation ,the above graph shows the California has maximum debit consolidations and credit card loans and loan for debit consolidation reason is high in each area.

Loan verification status as per average interest rate :

Average of Int Rate for each Verification Status. The marks are labeled by average of Int Rate.
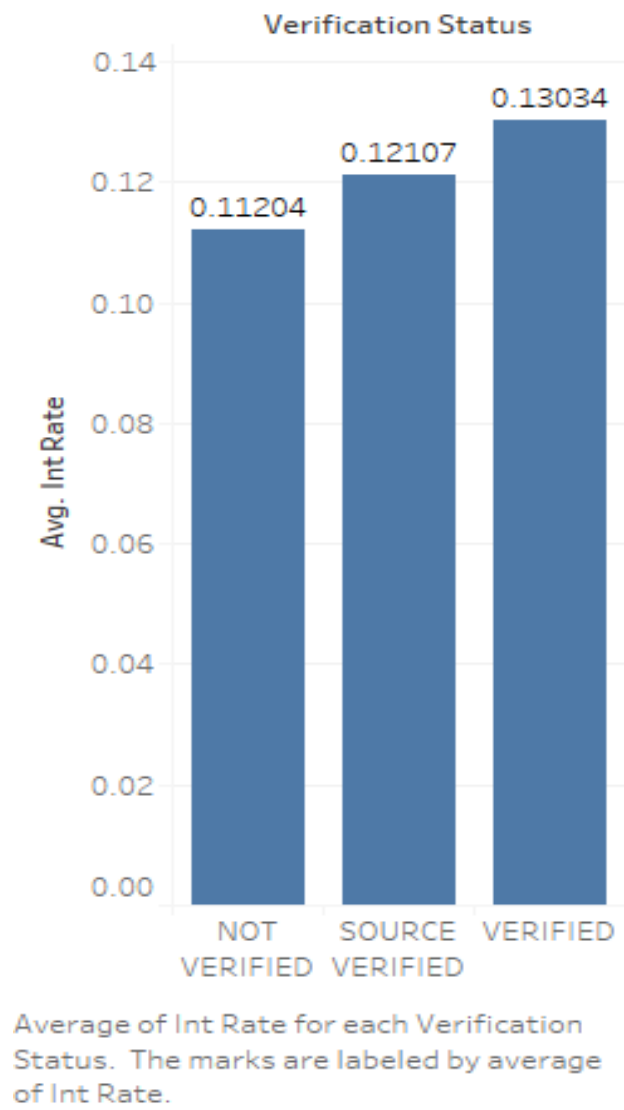
The above graph represents the people who has average interest rate of 0.13 are more promptly to get load verified.

Type of Home Owners lend for loan :

Home Ownership

Sum of Count for each Home Ownership. The marks are labeled by sum of Count. The view is filtered on Home Ownership, which excludes NONE.
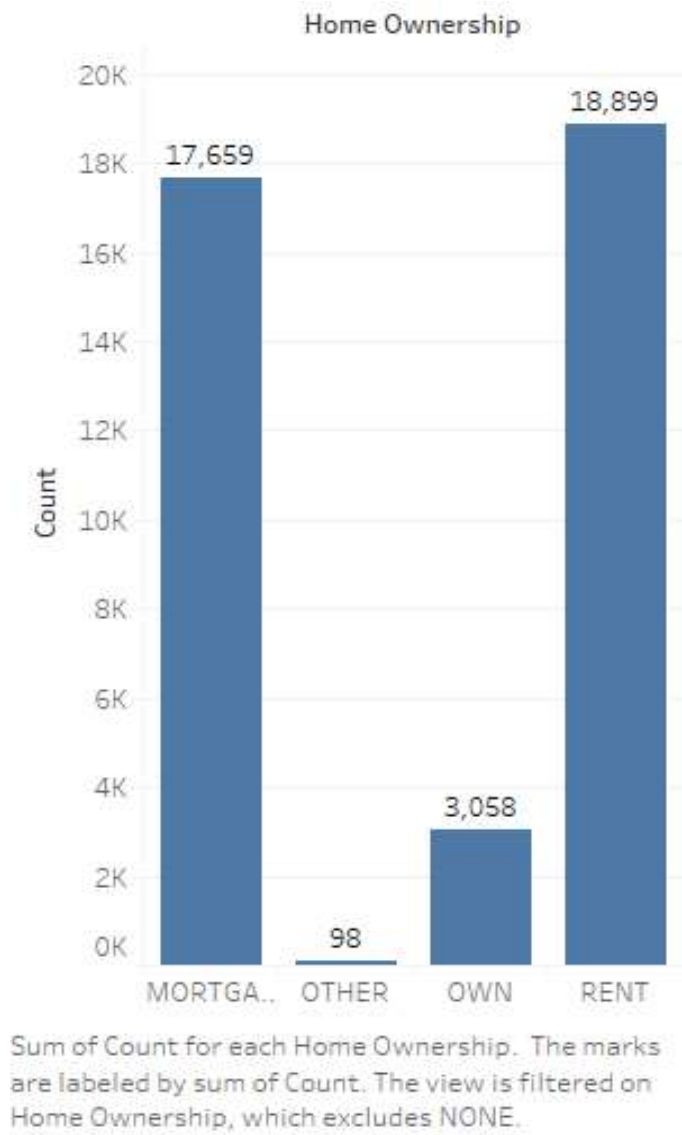
The Above graph represents Rented people are more likely to take the loan.

Income wise Funding Amount :
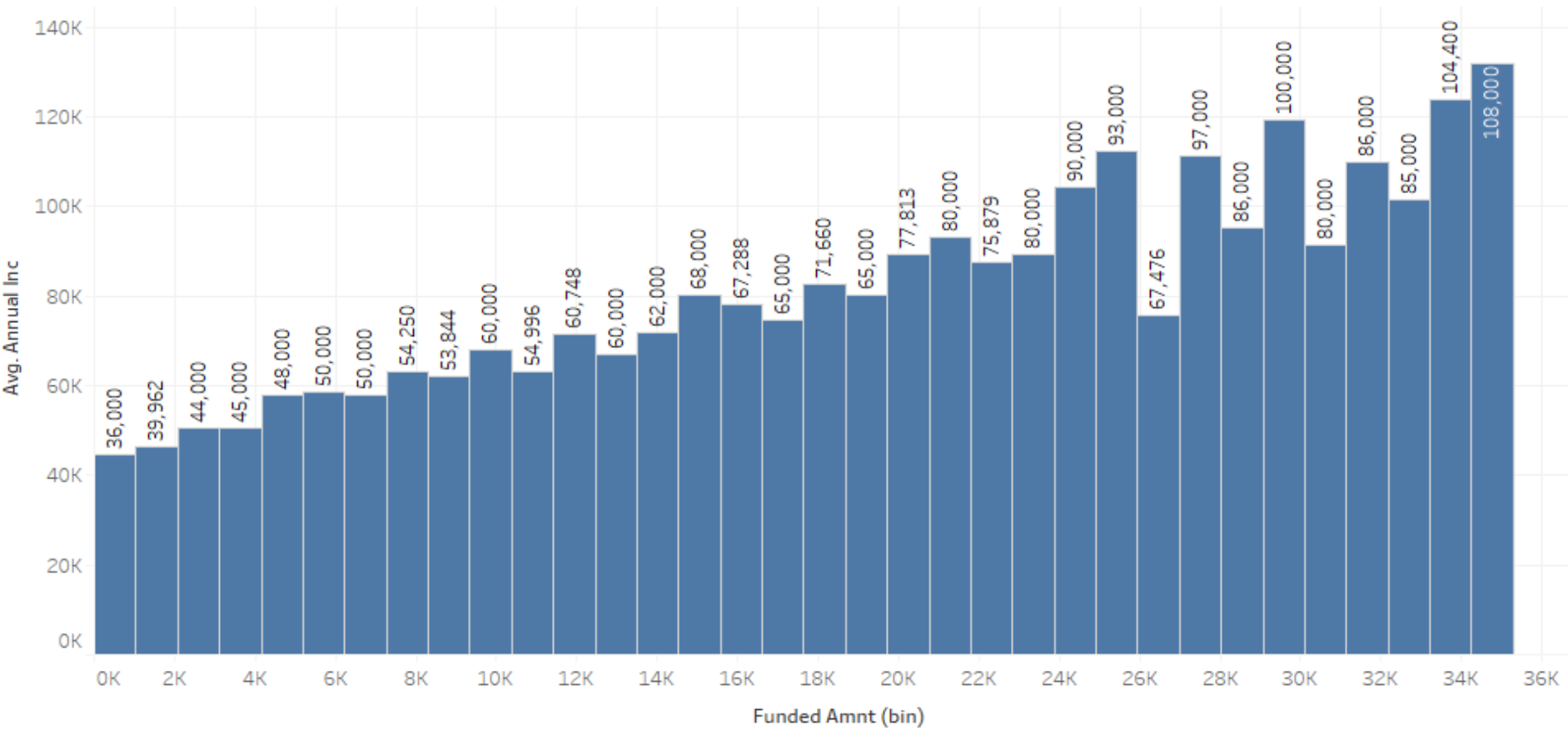
The trend of average of Annual Inc for Funded Amnt (bin). The marks are labeled by median of Annual Inc. The data is filtered on Home Ownership, which excludes NONE.

The Above Graph represents Funding amount according to Average Annual Income ,here X axis represents the Funded Amount and Y Axis represents Average Annual Income and as per above analysis we can conclude the amount funded is three times larger than the annual income as highest funded amount for average income of 10k is 34k.

Average Interest for type of loan and according to annual income :
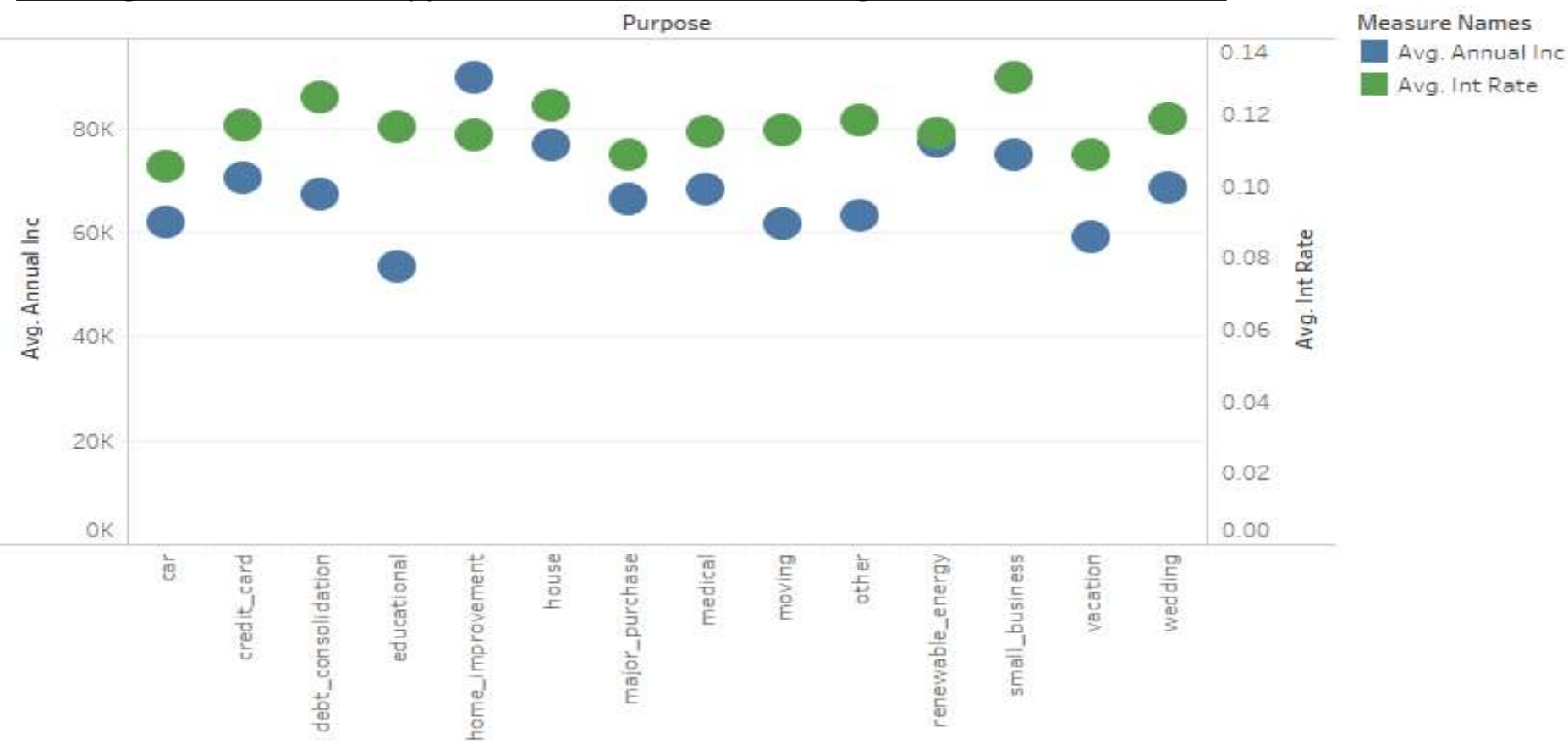
Avg. Annual Inc and Avg. Int Rate for each Purpose. Color shows details about Avg. Annual Inc and Avg. Int Rate.

 The Above graph represents the average interest rate for particular type of loan and according to annual income ,here the small business have the high interest rate compared to other sources even the annual income is low ,and as noticed the loan taken for home improvement have less interest rate though the annual incomes are good.

Purpose Of Bankrupt Accordingly Year Wise:
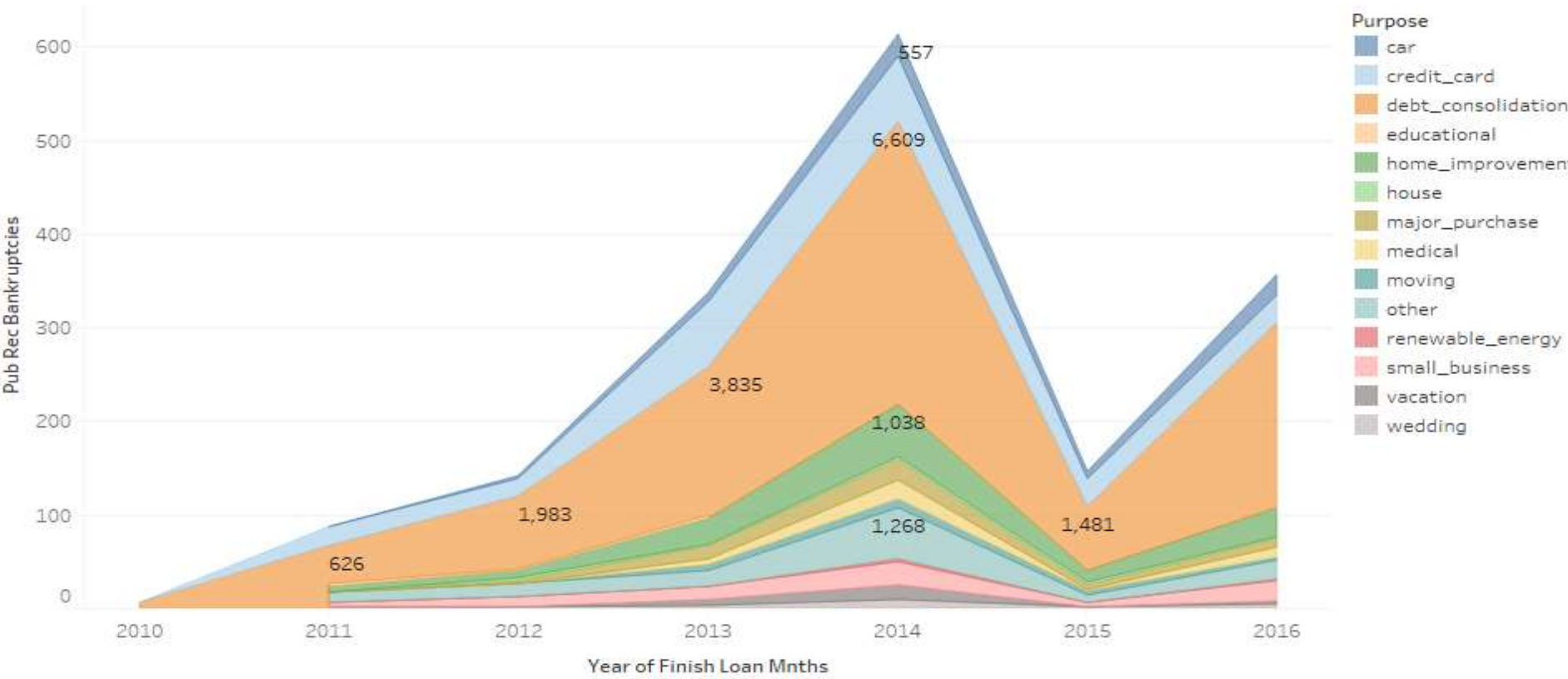
The plot of sum of Pub Rec Bankruptcies for Finish Loan Mnths Year. Color shows details about Purpose. The marks are labeled by sum of Count.

The Above Graph represents the purpose of Bankrupts in a specific year and as per above graph it shows in year 2014 there were high bankrupts and the reason was debit consolidation and 2015 has the less bankrupt cases though the leading factor across the line is debit consolidation ,if we exclude debit consolidation factor in 2014 bankrupts major reason would be loans taken for credit card and home improvement.

Payment Term Opted By Employees :

Count

39,717

Term
- 36
- 60

10,621
60

29,096
36
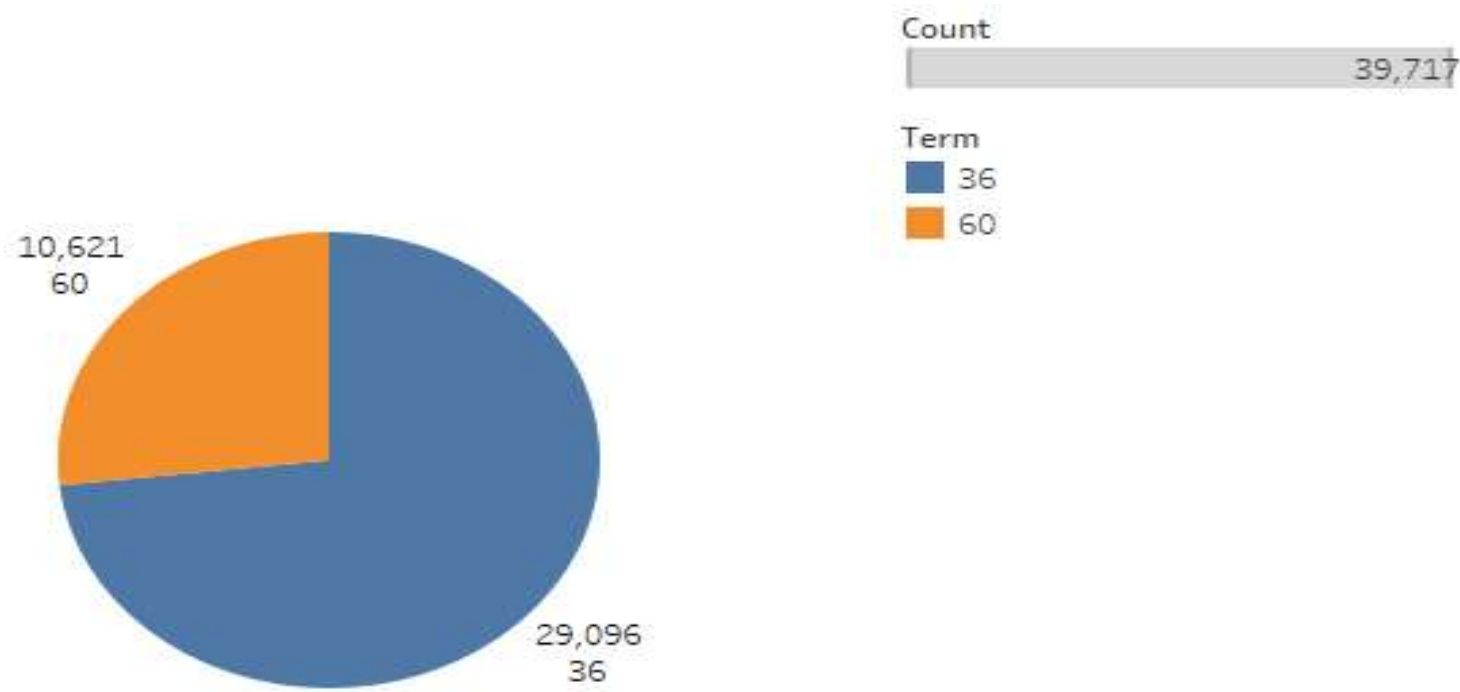
Sum of Count and Term. Color shows details about Term. Size shows sum of Count. The marks are labeled by sum of Count and Term.

Here the Terms is in 2 categories 36months and 60 months, as per the above graph we can conclude that almost 73% of population has opted for 36months loan and rest 27% for 60 months.