LENDING CLUB LOAN ANALYSIS

AGENDA

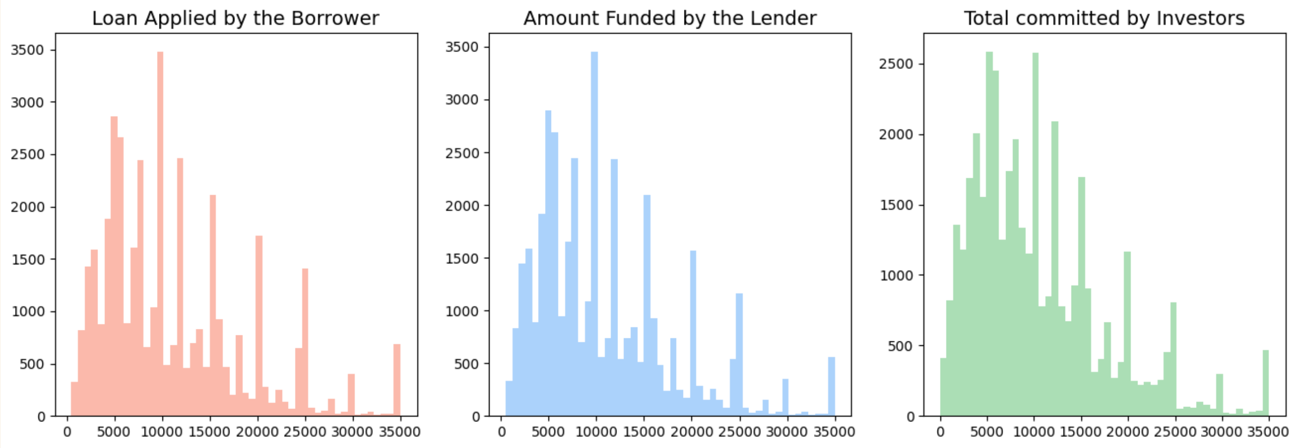
Company Information
Similar Distributions
Good Loans vs Bad Loans
A Deeper Look into Bad Loans
Understanding the Operative Side of Business
Analysis by Income Category
Assessing Risks
The Importance of Credit Scores

PROBLEM STATEMENT

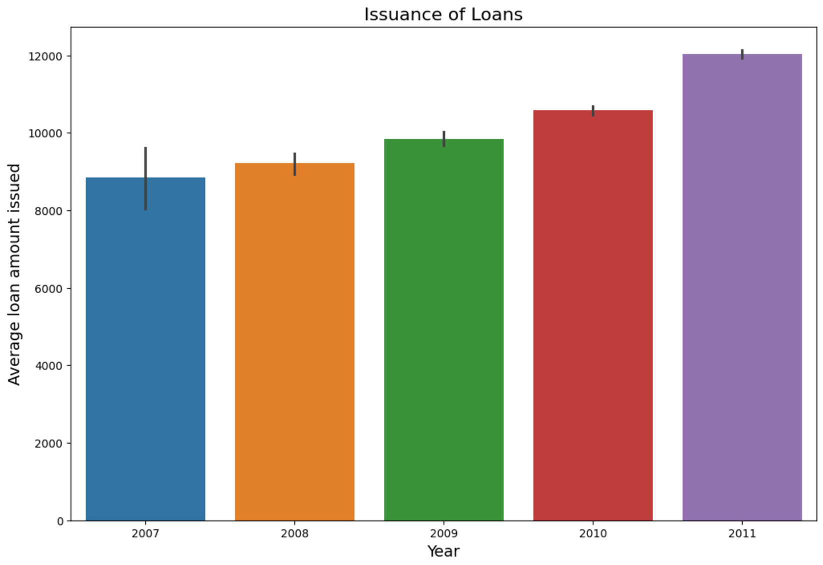
The company needs to develop a robust methodology for identifying high-risk loan applicants to minimize credit loss due to defaults. This involves conducting exploratory data analysis to uncover the driver variables associated with loan defaults, enabling better risk assessment and informed lending decisions.

OVERALL DISTRIBUTIONS

We will start by exploring the distribution of the loan amounts and see when did the loan amount issued increased significantly.



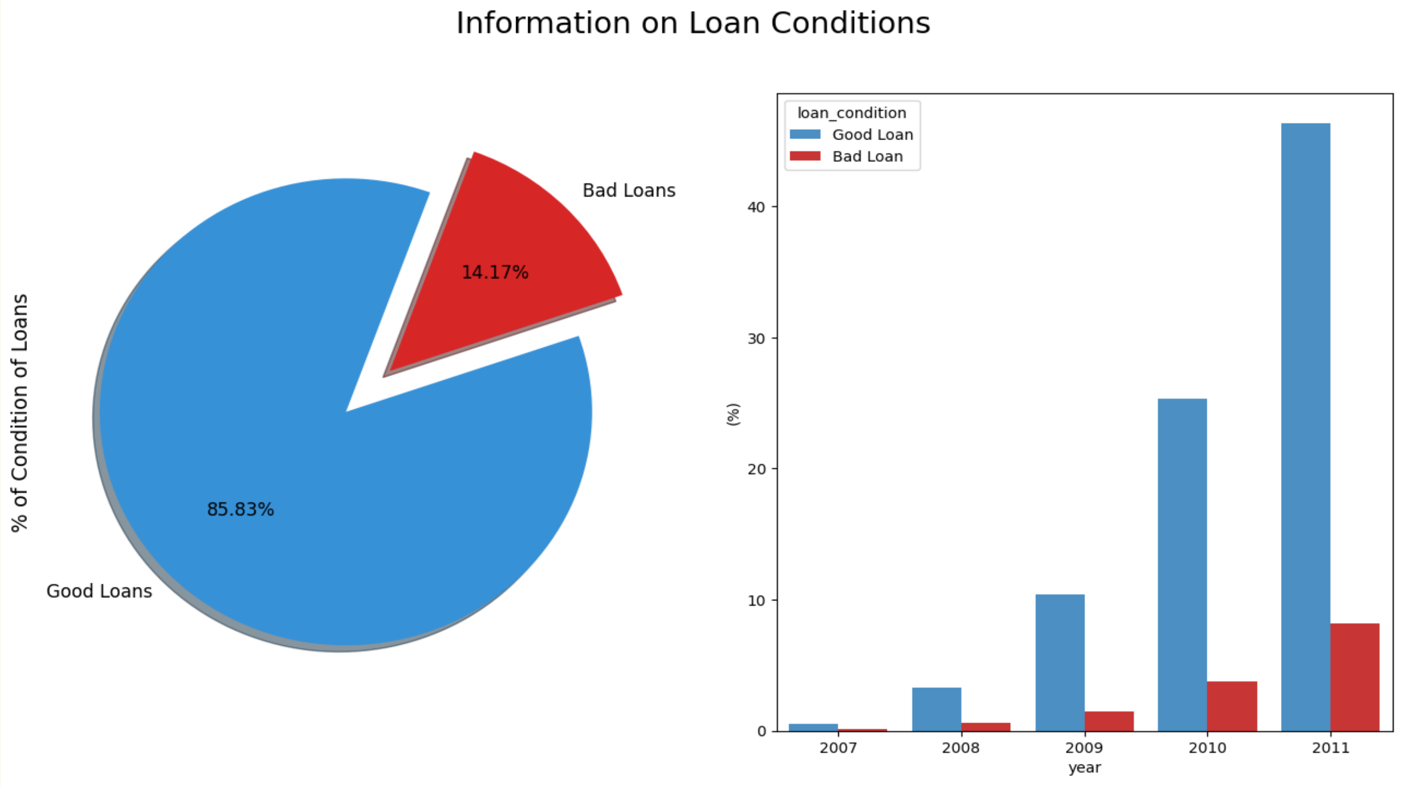
- Most of the loans issued were in the range of 5000 to 15000 USD.
- The year of 2011 was the year were most loans were issued.
- Loans were issued in an incremental manner. (Possible due to a recovery in the U.S economy)



LOAN DISTRIBUTION

In this section, we will see what is the amount of bad loans Lending Club has declared so far, of course we must understand that there are still loans that are at a risk of defaulting in the future.

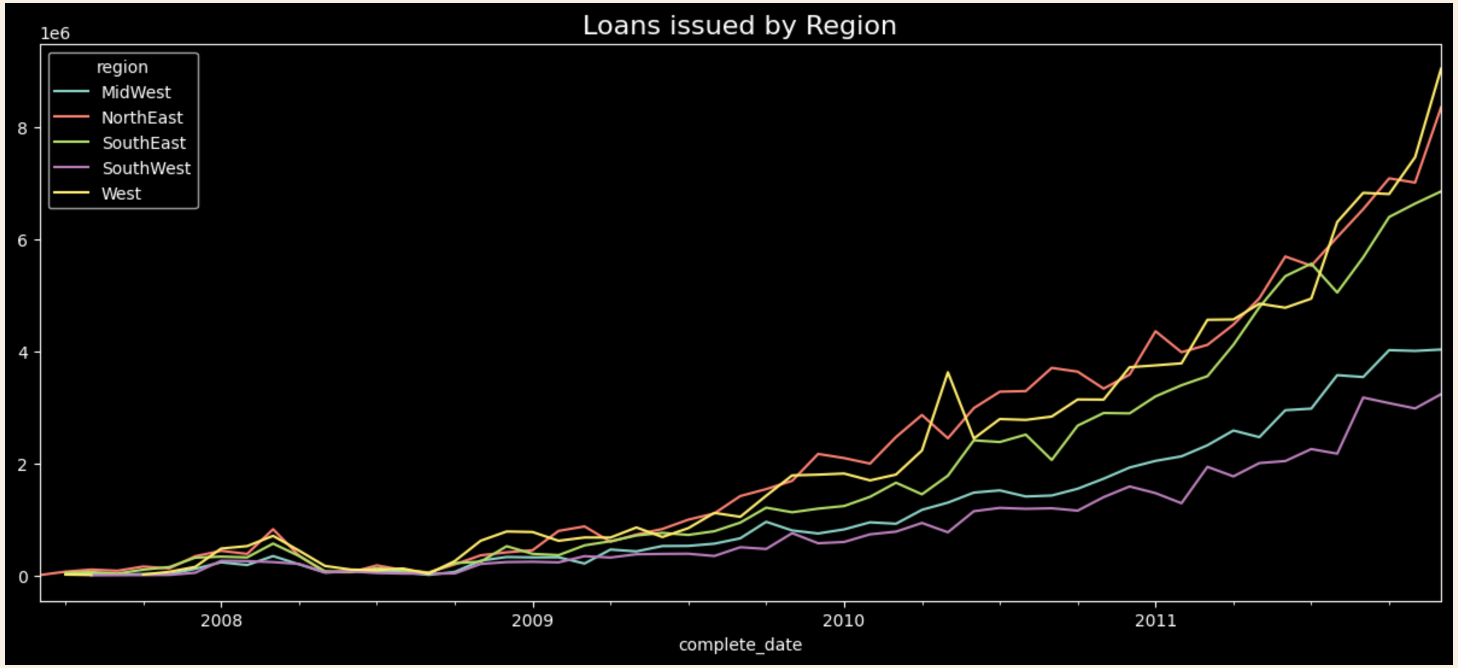
- Currently, bad loans consist 14.17% of total loans but remember that we still have current loans which have the risk of becoming bad loans. (So this percentage is subjected to possible changes.)
- The North-East region seems to be the most attractive in term of funding loans to borrowers.
- The South-West and West regions have experienced a slight increase in the "median income" in the past years.



LOANS SLICED BY REGION

In this section we want to analyze loans issued by region to see region patters that will allow us to understand which region gives Lending Club.

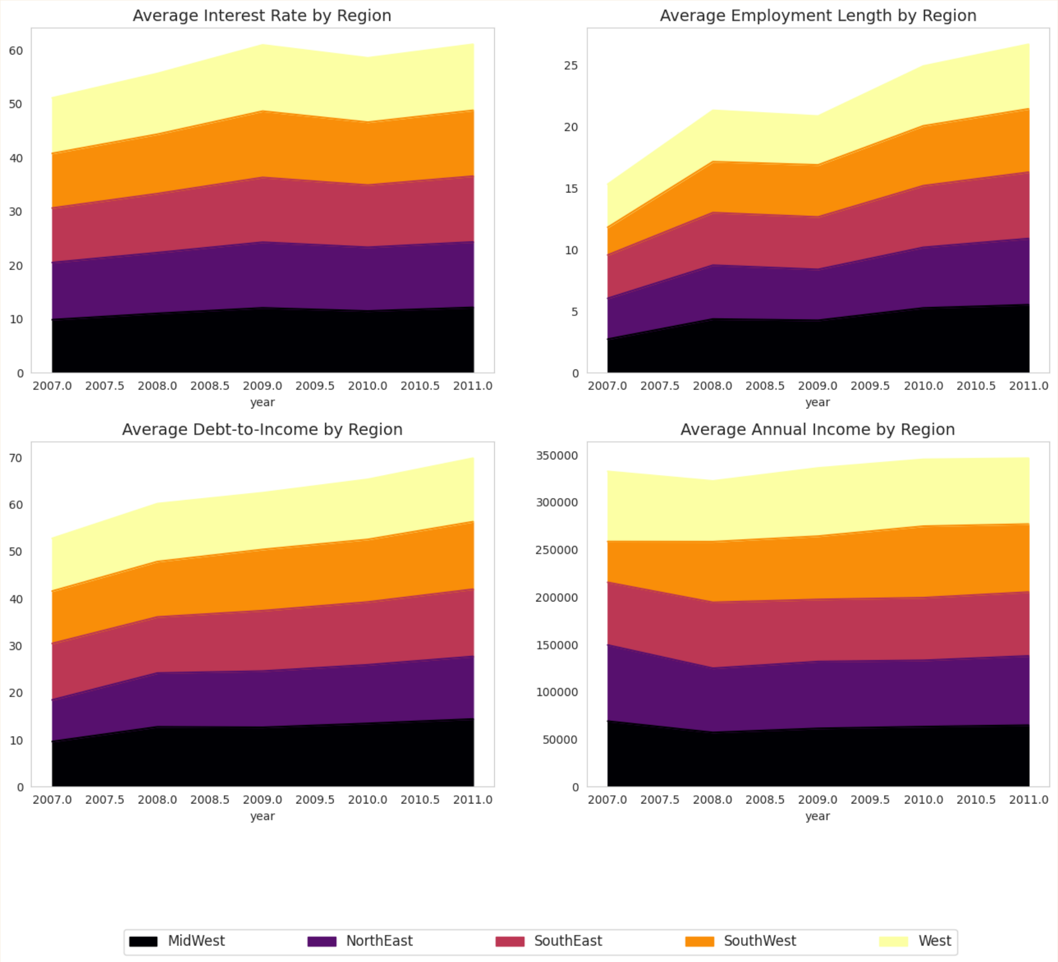
- The North-East region seems to be the most attractive in term of funding loans to borrowers.
- The South-West and West regions have experienced a slight increase in the "median income" in the past years. South-East , West and North-East regions had the highest amount of loans issued.
- West and South-West had a rapid increase in debt-to-income starting in 2010.
- West and South-West had a rapid decrease in interest rates (This might explain the increase in debt to income).



LOANS SLICED BY REGION

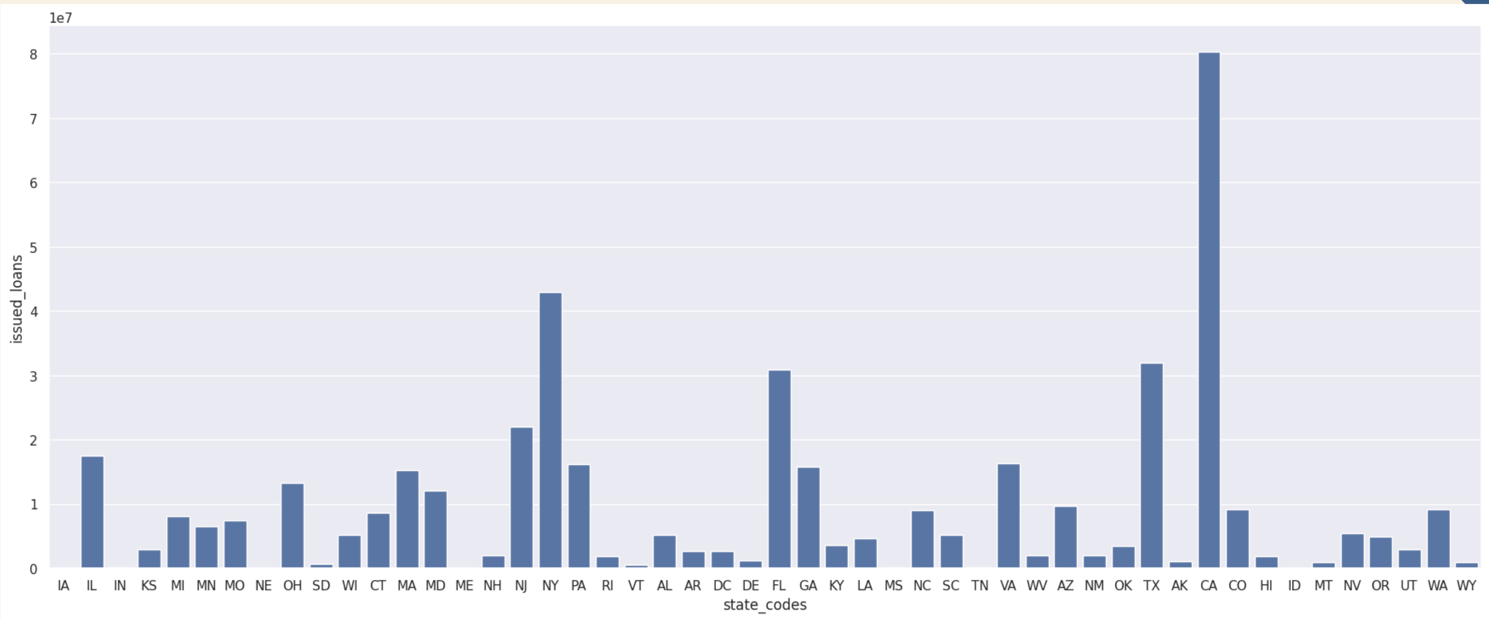
In this section, we will see what is the amount of bad loans Lending Club has declared so far, of course we must understand that there are still loans that are at a risk of defaulting in the future.

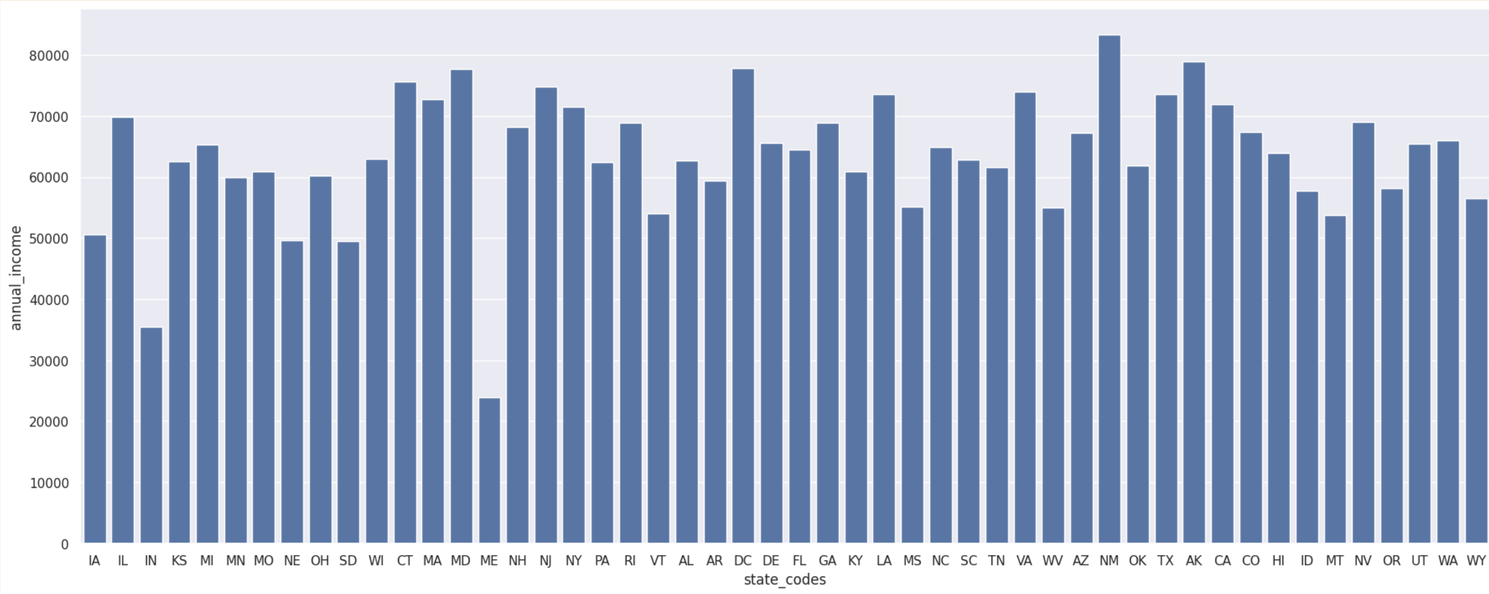
- Average interest rates have declined since 2009, but this might explain the increase in the volume of loans.
- Employment Length tends to be greater in the regions of the South-West and West
- Clients located in the regions of North-East and Mid-West have not experienced a drastic increase in debt-to-income(dti) as compared to the other regions.



LOANS SPLIT BY STATE

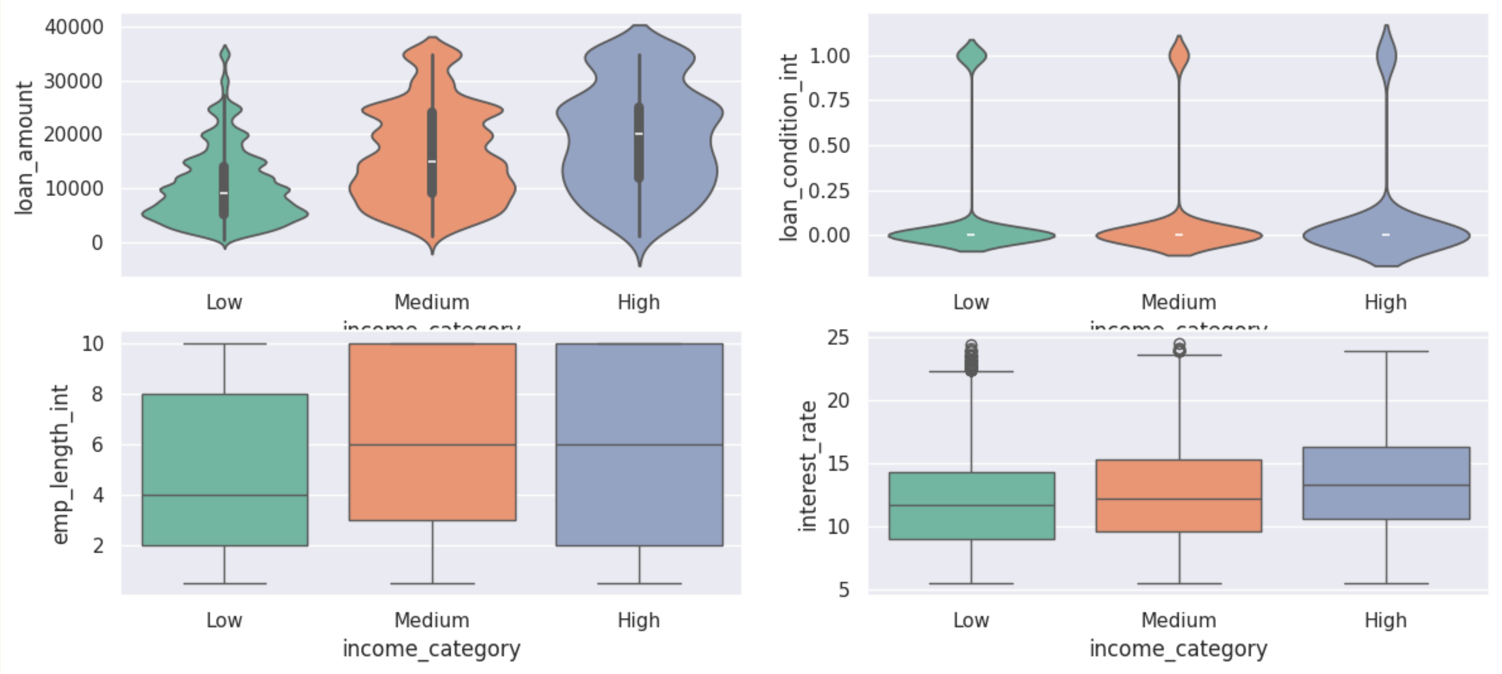
- California, Texas, New York and Florida are the states in which the highest amount of loans were issued.
- Interesting enough, all four states have an approximate interest rate of 13% which is at the same level of the average interest rate for all states (13.24%)
- California, Texas and New York are all above the average annual income (with the exclusion of Florida), this might give possible indication why most loans are issued in these states.





LOANS SPLIT BY INCOME CHATAGORY

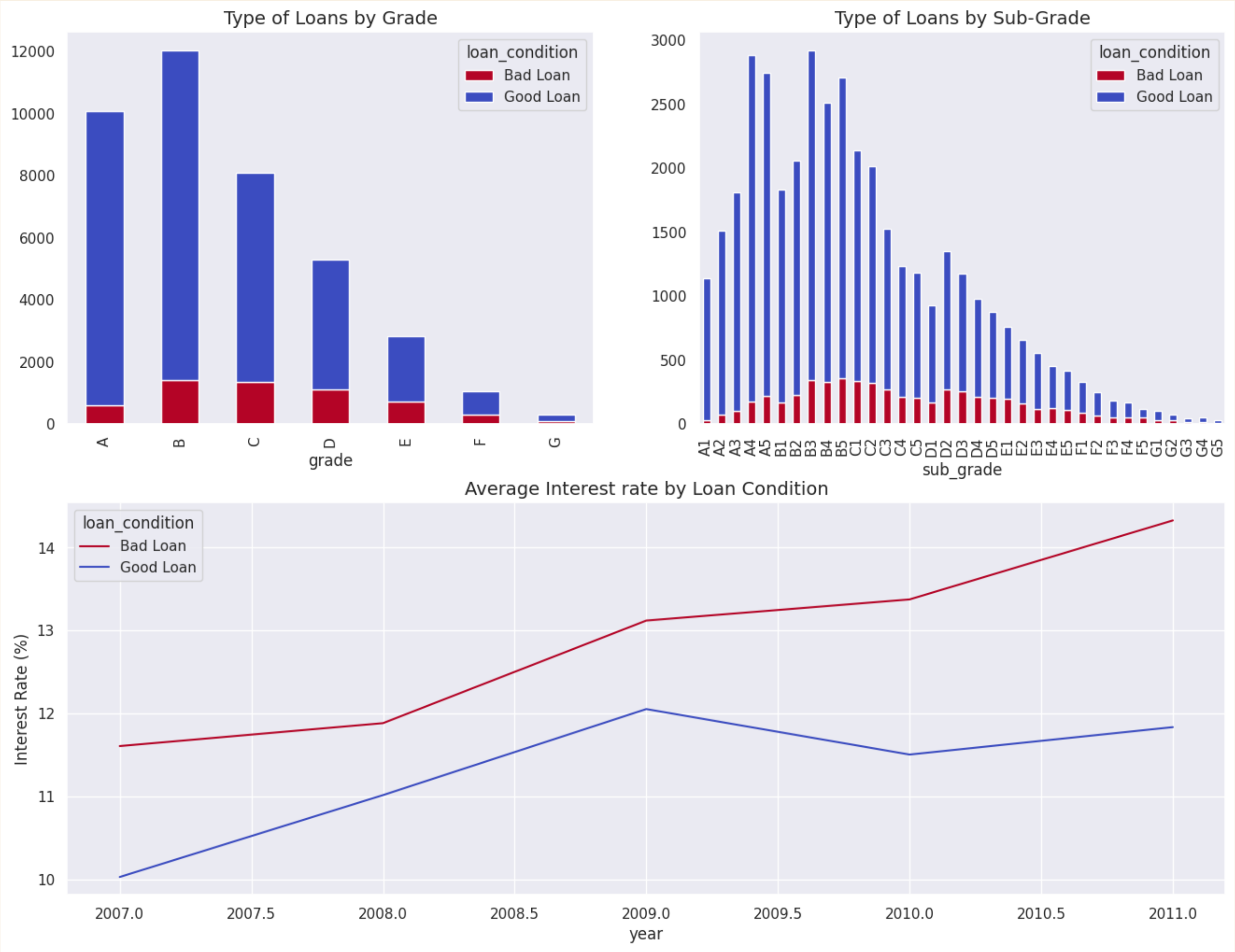
- Borrowers that made part of the high-income category took higher loan amounts than people from low- and medium-income categories. Of course, people with higher annual incomes are more likely to pay loans with a higher amount. (First row to the left of the subplots)
- Loans that were borrowed by the Low-income category had a slightly higher change of becoming a bad loan. (First row to the right of the subplots)
- Borrowers with High and Medium annual incomes had a longer employment length than people with lower incomes.(Second row to the left of the subplots)
- Borrowers with a lower income had on average higher interest rates while people with a higher annual income had lower interest rates on their loans. (Second row to the right of the subplots)



THE IMPORTANCE OF CREDIT SCORES

Credit scores are important metrics for assessing the overall level of risk. In this section we will analyze the level of risk as a whole and how many loans were bad loans by the type of grade received in the credit score of the customer.

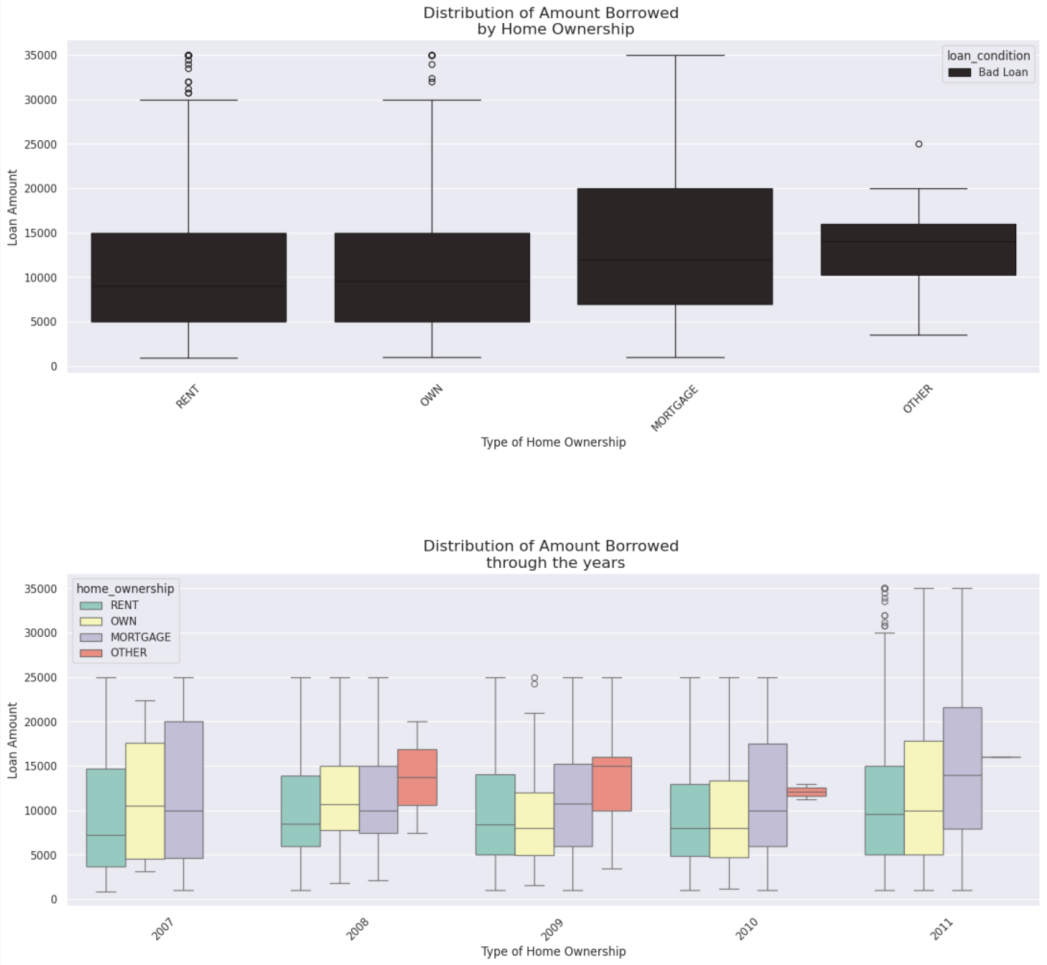
- The scores that has a lower grade received a larger amounts of loans (which might had contributed to a higher level of risk).
- Logically, the lower the grade the higher the interest the customer had to pay back to investors.
- Interestingly, customers with a grade of "C" were more likely to default on the loan



ASSESSING RISKS: WHAT DETERMINES A BAD LOAN

My main aim in this section is to find the main factors that causes for a loan to be considered a "Bad Loan". Logically, we could assume that factors such as a low credit grade or a high debt to income could be possible contributors in determining whether a loan is at a high risk of being defaulted.

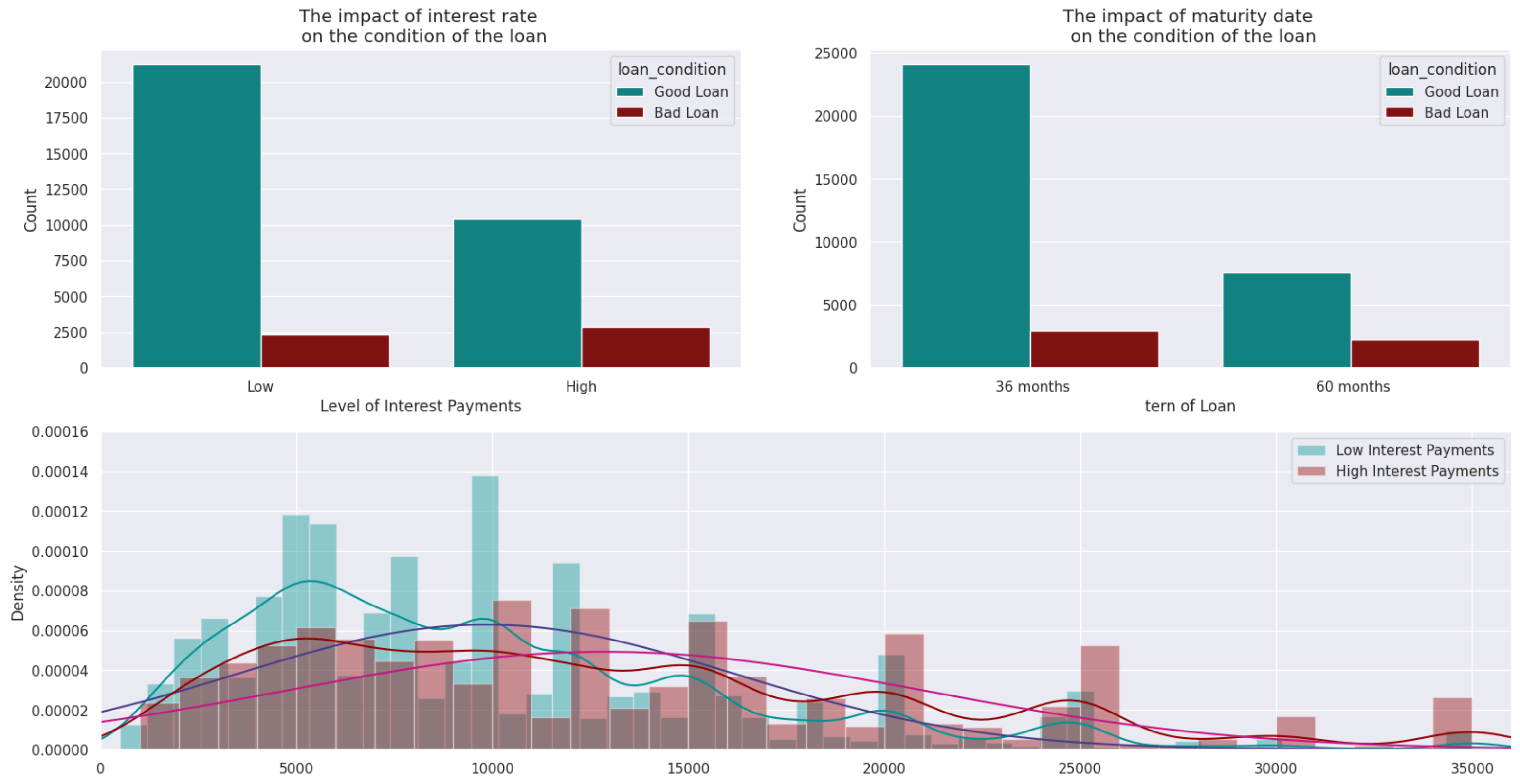
- Mortgage was the variable from the home ownership column that used the highest amount borrowed within loans that were bad.
- There is a slight increase on people who have mortgages that are applying for a loan.
- People who have a mortgage (depending on other factors as well within the mortgage) are more likely to ask for more loan



DEFAULTED LOANS AND LEVEL OF RISK

From all the bad loans the one we are most interested about are the loans that are defaulted. Therefore, in this section we will implement an in-depth analysis of these types of Loans and see if we can gain any insight as to which features have a high correlation with the loan being defaulted.

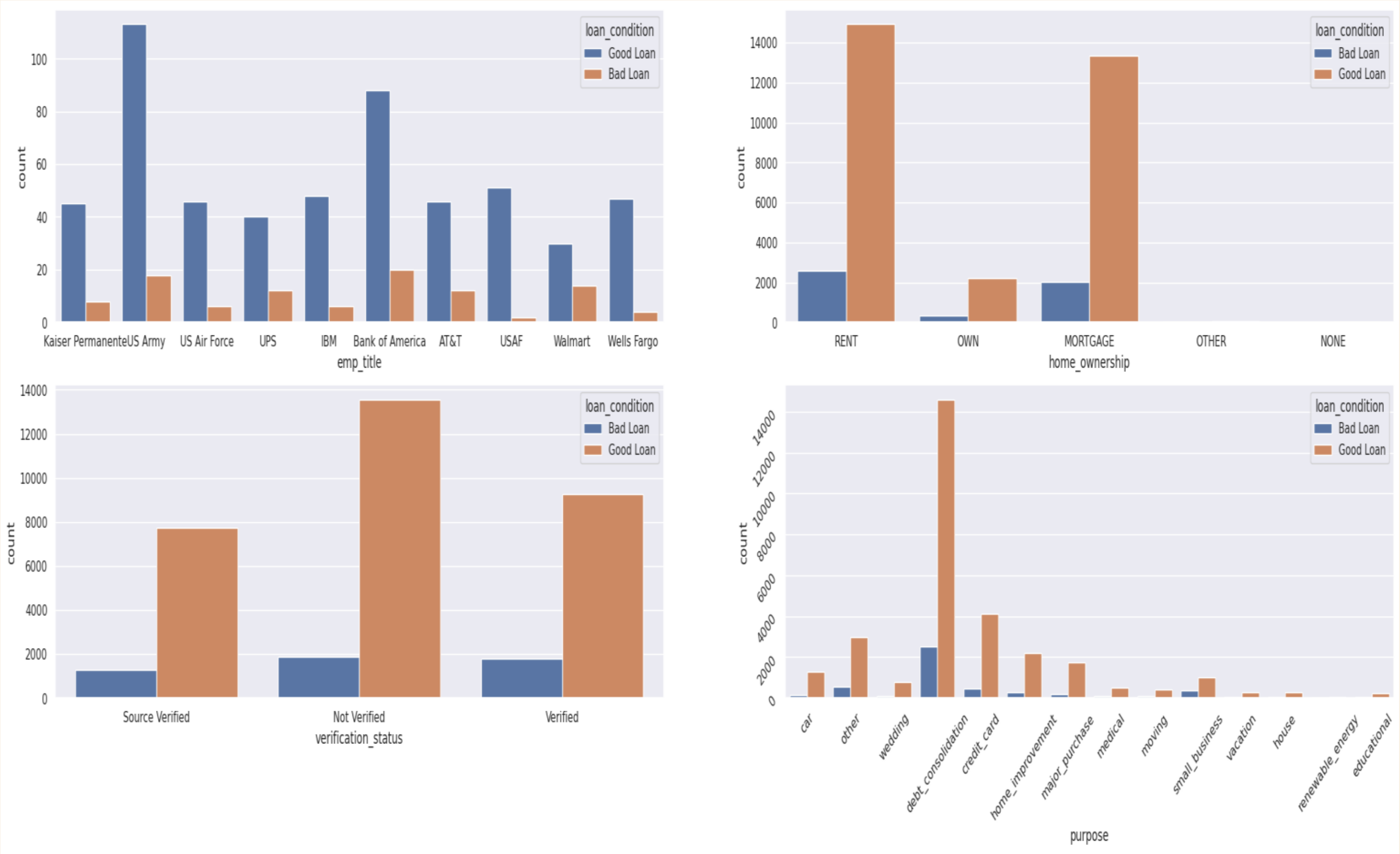
- Loans that have a high interest rate(above 13.23%) are more likely to become a bad loan .
- Loans that have a longer maturity date (60 months) are more likely to be a bad loan.
- Hight interest loans have been increasing through the years which could also mean bad loans are also progressively increasing



VERIFICATION AND EFFECT ON EMPLOYMENT TYPE

Employment type plays a significant role in assessing the risk of loan defaults, influencing factors such as job stability, income level, industry risk, creditworthiness, and debt-to-income ratios.

- Walmart employees exhibit a higher tendency to default on loans
- Raising concerns particularly regarding verified loans, which have the highest default rates
- Additionally, a significant portion of these loans is utilized for debt consolidation purposes.



FINAL TIPS & TAKEAWAYS

•**Incremental Loans:** In 2011, most loans issued between $5,000 and $15,000 indicated economic recovery.

•**Bad Loans:** Currently, bad loans account for 14.17% of total loans.

•**Regional Insights:**

- North-East: Most attractive region for loan funding.
- South-West & West: Notable increases in median income and debt-to-income ratios since 2010.

•**Interest Rates Impact**: Declining interest rates since 2009 have likely boosted loan volumes.

•**Employment Trends**: Longer employment lengths are observed in the South-West and West regions.

•**Stable Ratios**: Clients in the North-East and Mid-West have maintained stable debt-to-income ratios.

THANK YOU

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