

# MODULE 1

## LENDING CLUB CASE STUDY

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# Problem Statement

- **A consumer finance company** which specializes in lending various types of loans to urban customers. When the company receives a loan application, the company has to make a decision for loan approval based on the applicant's profile.
- Like most other lending companies , lending loans to 'risky' applicants is the largest source of financial loss(called credit loss).
- Two **types of risks** are associated with the bank's decision:
  - 1.If the applicant is **likely to repay the loan**, then not approving the loan results in a **loss of business** to the company.
  2. If the applicant is **not likely to repay the loan**, i.e. he/she is likely to default, then approving the loan may lead to a **financial loss** for the company.

# Approach

1

- **Data Loading**
- Reading CSV File

2

- **Data Understanding**
- Using Data dictionary

3

- **Data Cleaning**
- Removal of Null Values , special characters .
- Missing value check

4

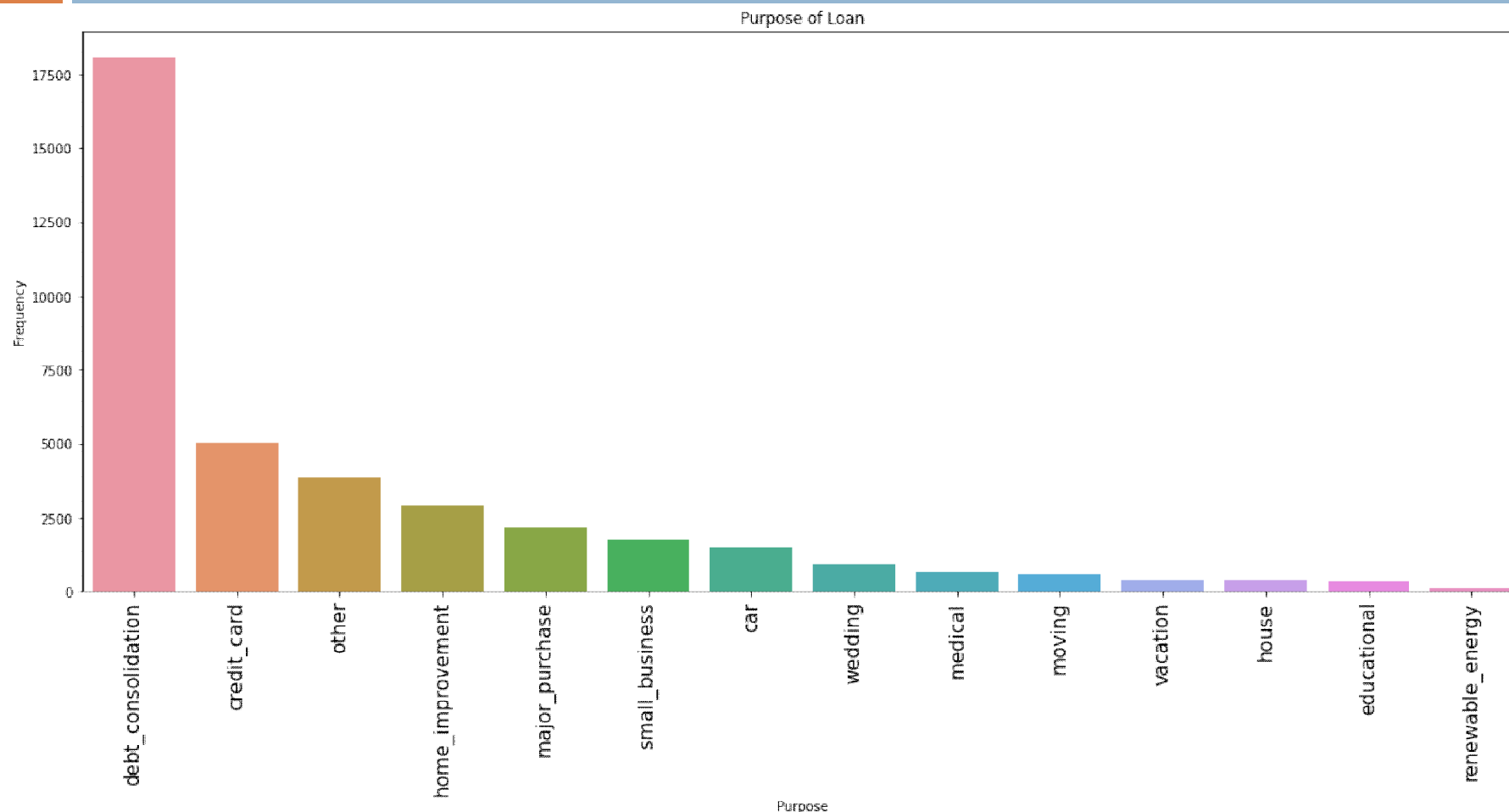
- **Data Analysis**
- Using EDA Techniques and deriving valuable insights

5

- **Conclusion**

# Univariate Analysis

## Based on Purpose for Loan

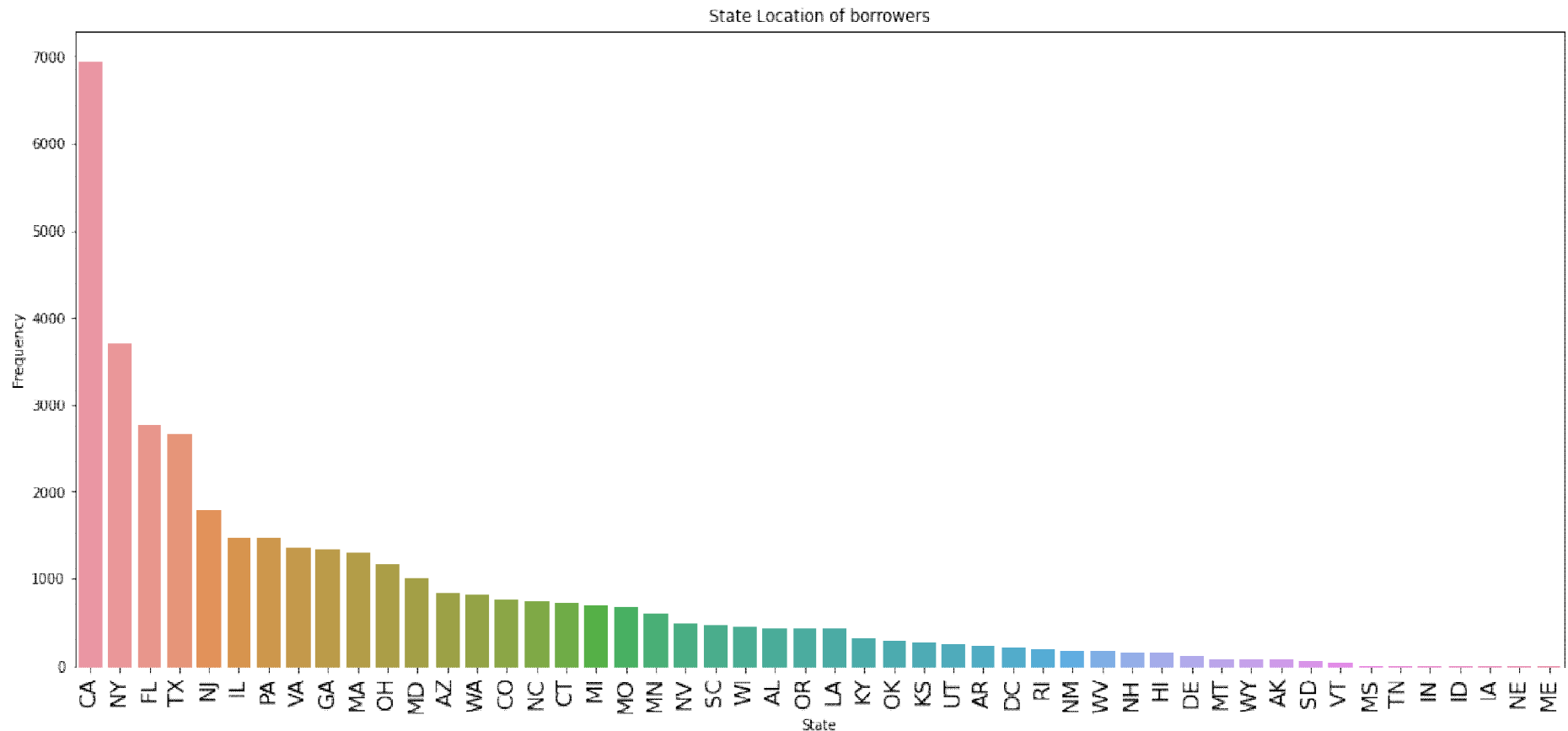


### **Observations :**

The highest number of loan is taken for debt consolidation and minimum number of loan is taken for renewable energy.

# Univariate Analysis

## Based on State of the Borrowers

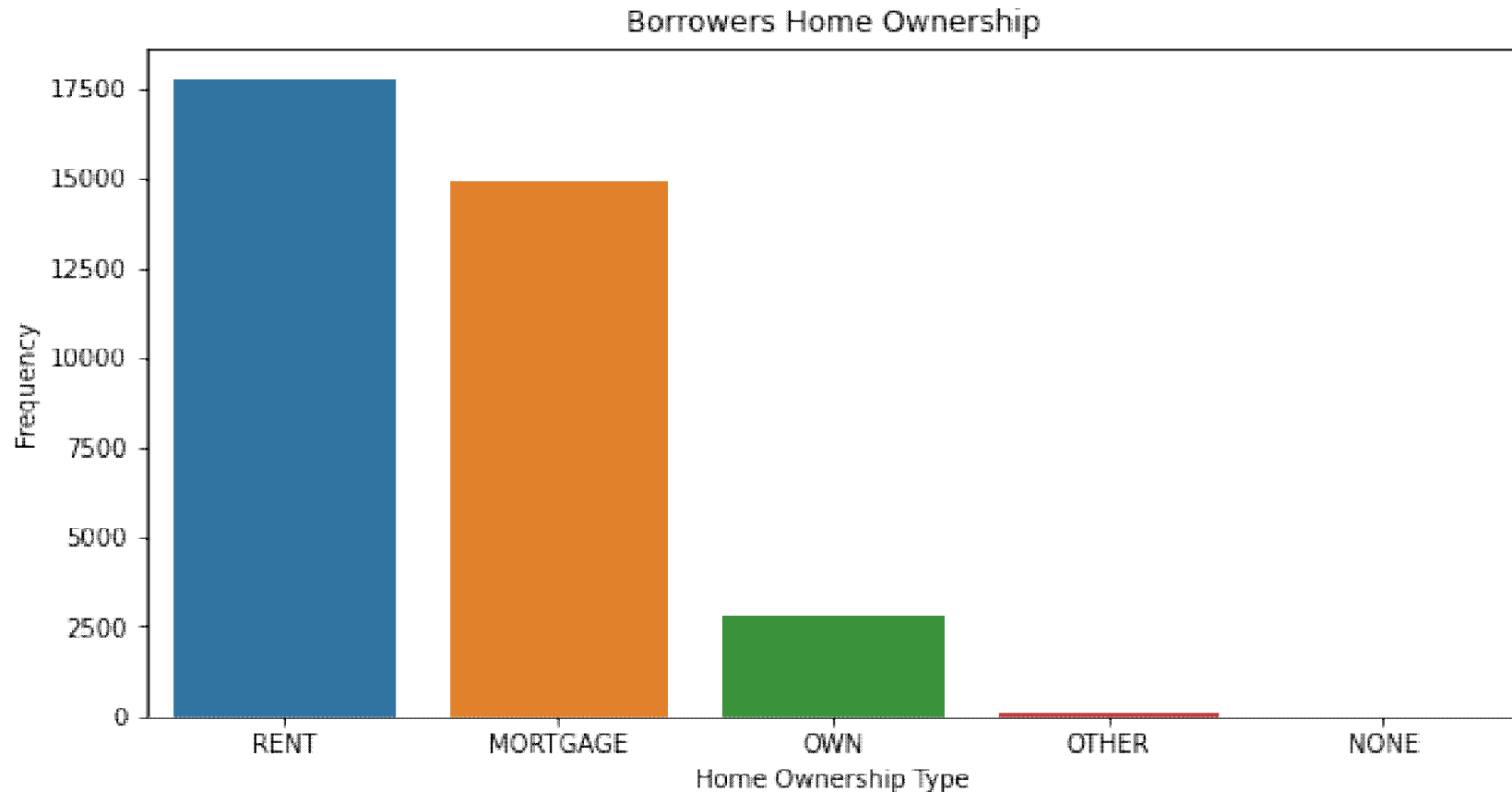


### **Observations :**

The highest number of borrowers belongs to the California and minimum of borrowers belongs to Maine .

# Univariate Analysis

## Based on borrowers home ownership

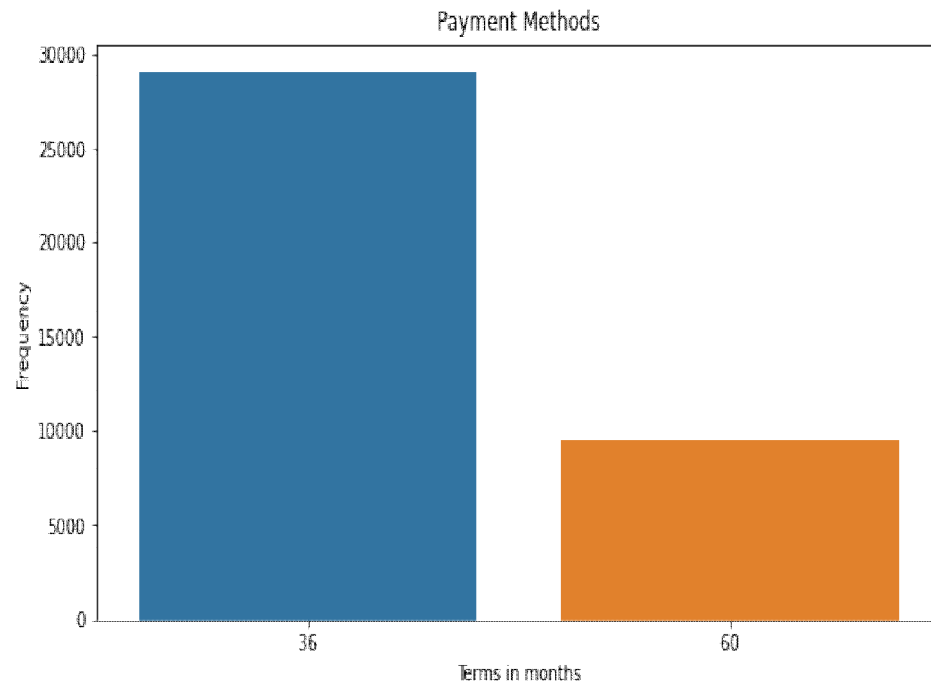


### **Observation :**

The highest number of borrowers stays in a rented home and very few borrowers own their own home.

# Univariate Analysis

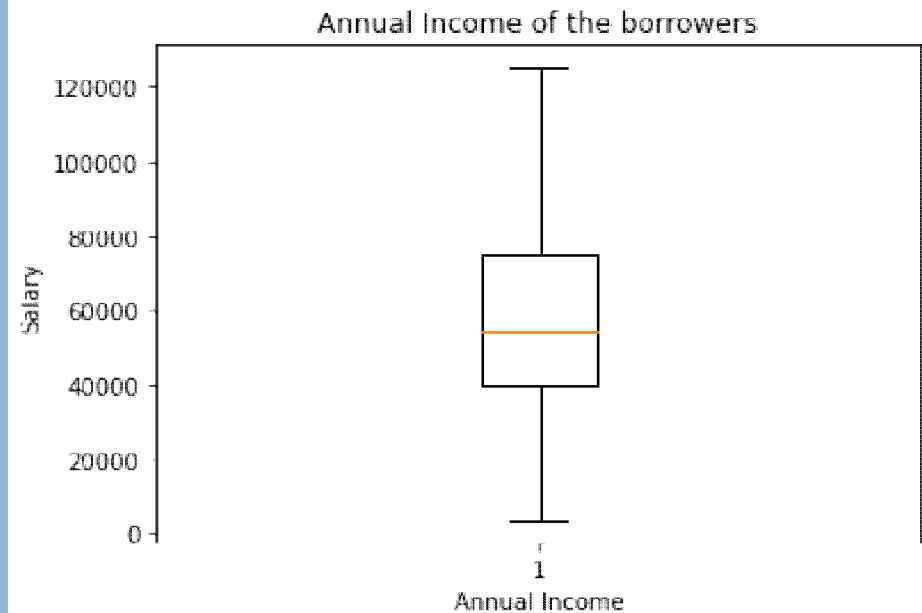
## Based on Payment Method



### **Observation:**

The borrowers mostly prefer 36 months terms for payment rather than 60 months.

## Based on Annual Income of the Borrowers

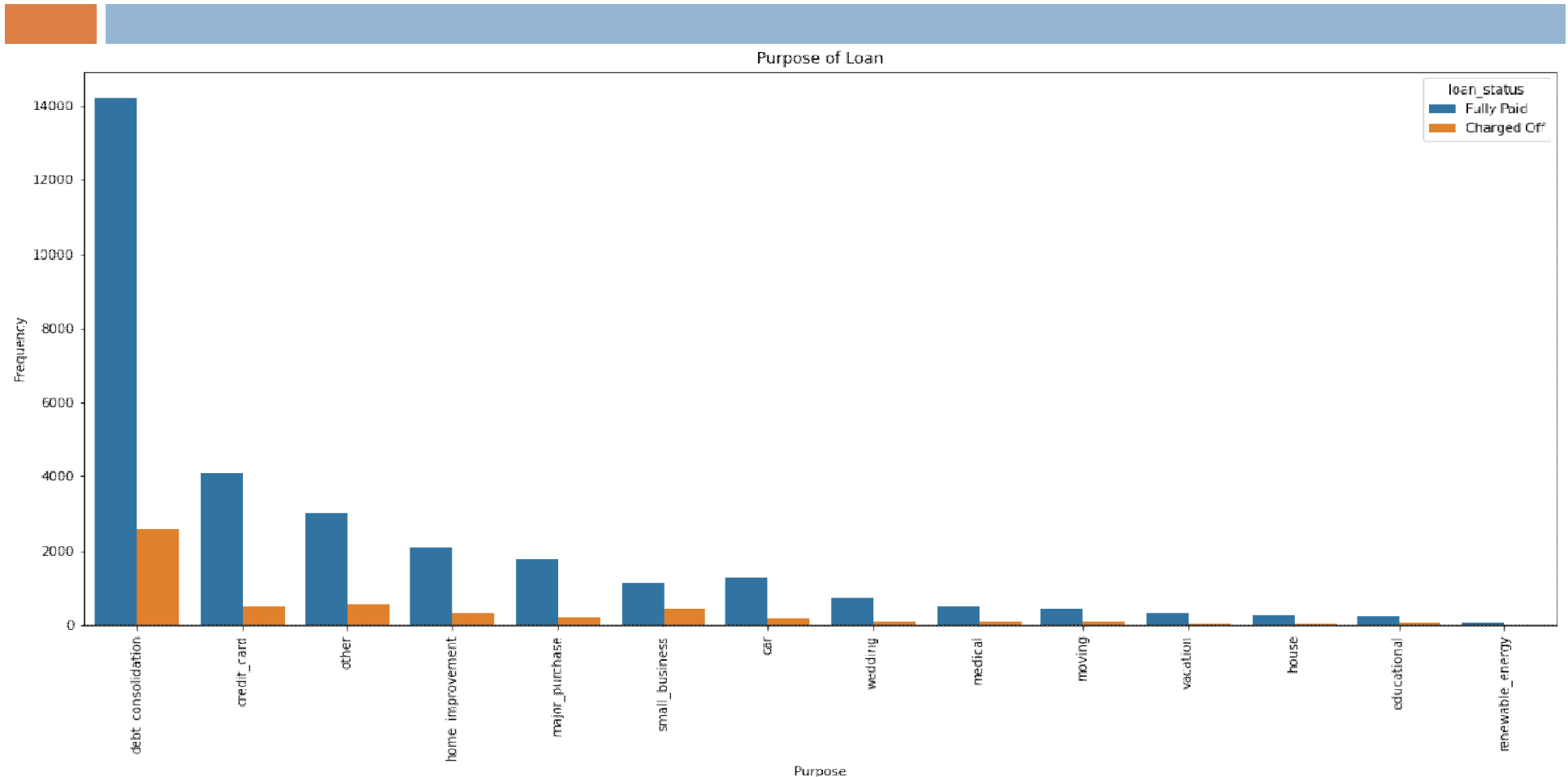


### **Observation:**

The average salary of the borrowers is 55000 annually.

# Segmented Univariate Analysis

Based on Purpose for borrowing between fully paid and charged off customers



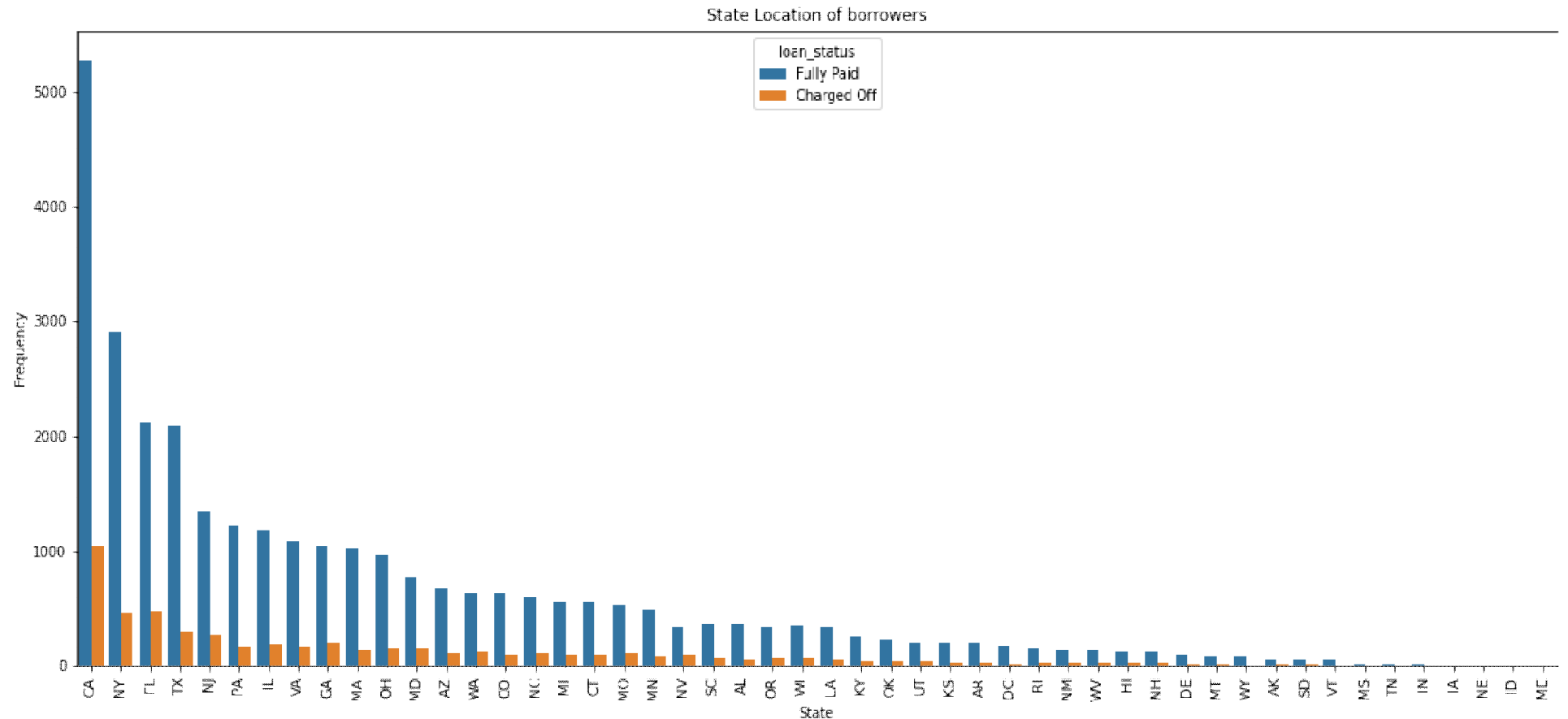
## Observation :

More number of defaulters and fully paid consumers are from debt consolidation group but hardly any defaulter from renewable energy group.



# Segmented Univariate Analysis

Based on State of the Borrowers between fully paid and charged off customers.

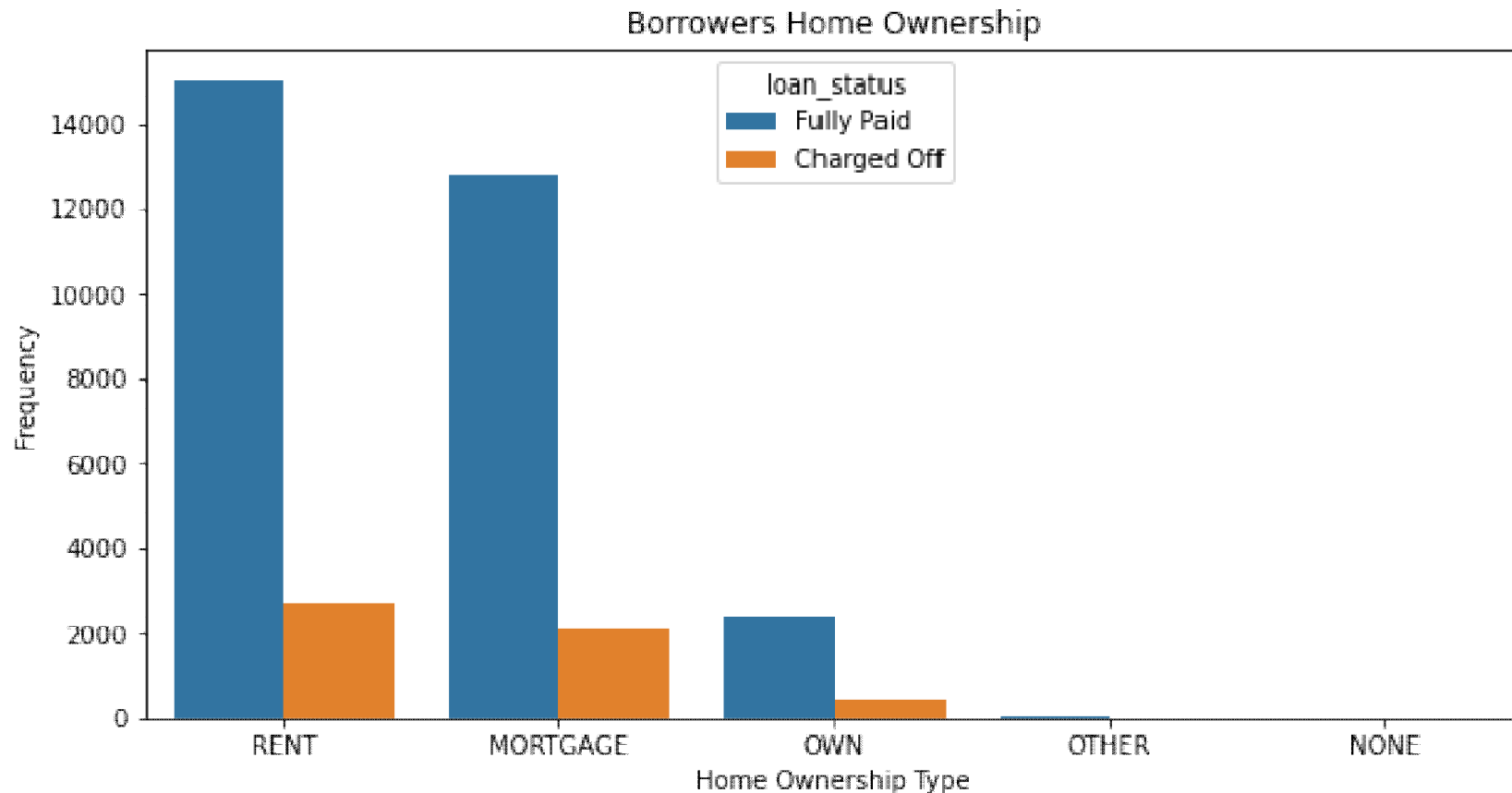


## Observation :

The highest number of borrowers belongs to the California and so is the number of defaulters compared to other states.

# Segmented Univariate Analysis

Based on borrowers home ownership between fully paid and charged off customers

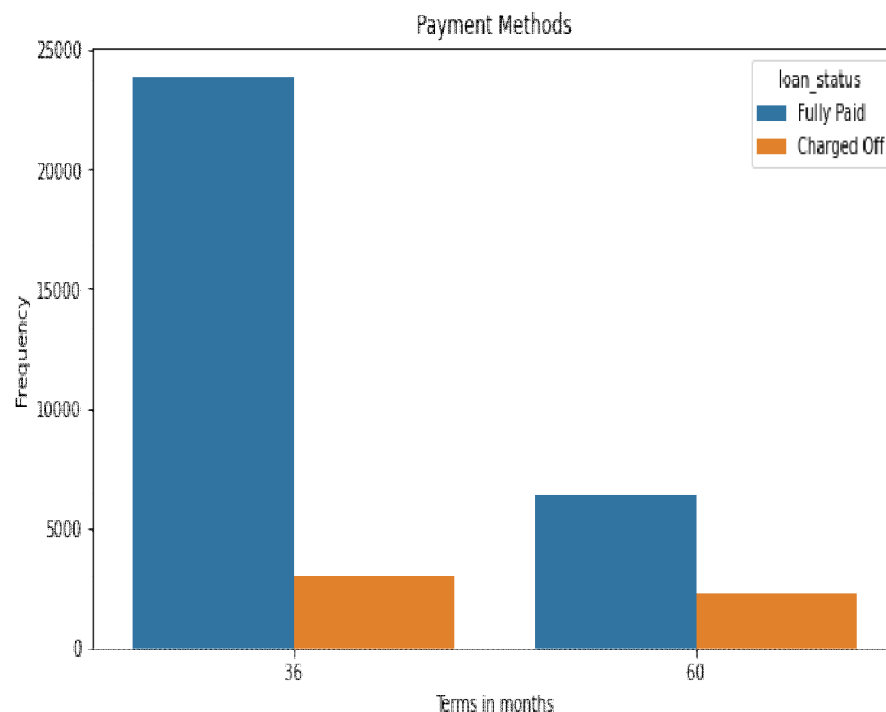


## Observation :

- Owners having Rented and mortgage homes are mostly the borrowers .
- They have the highest number of defaulters as well.

# Segmented Univariate Analysis

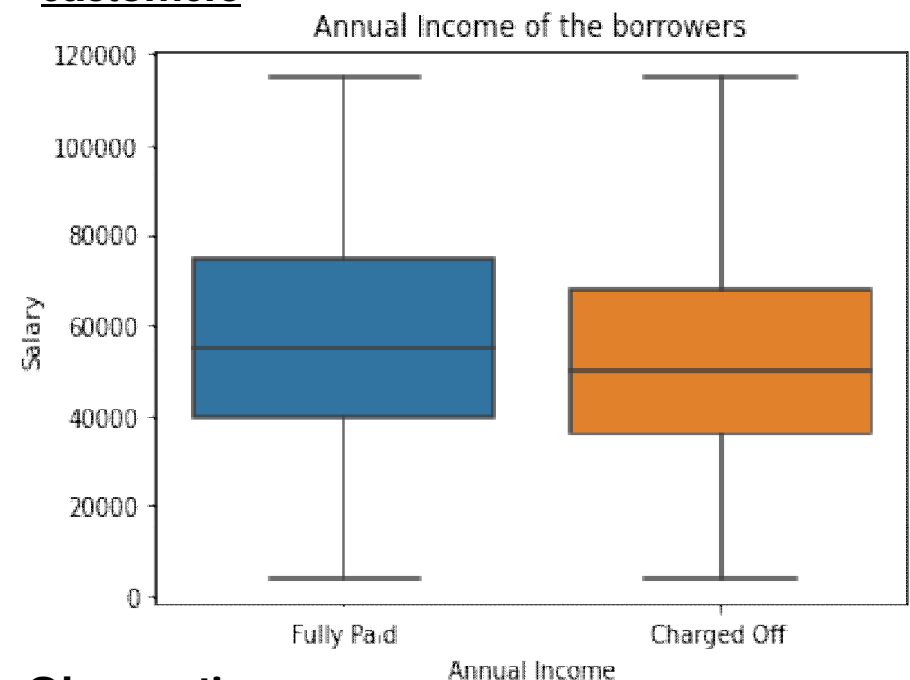
## Based on Payment Method between fully paid and charged off customers



### **Observation:**

The defaulters are equal in both 36 months terms and 60 months terms for payment but fully paid customers are from the 36 months term.

## Based on Annual Income of the Borrowers between fully paid and charged off customers

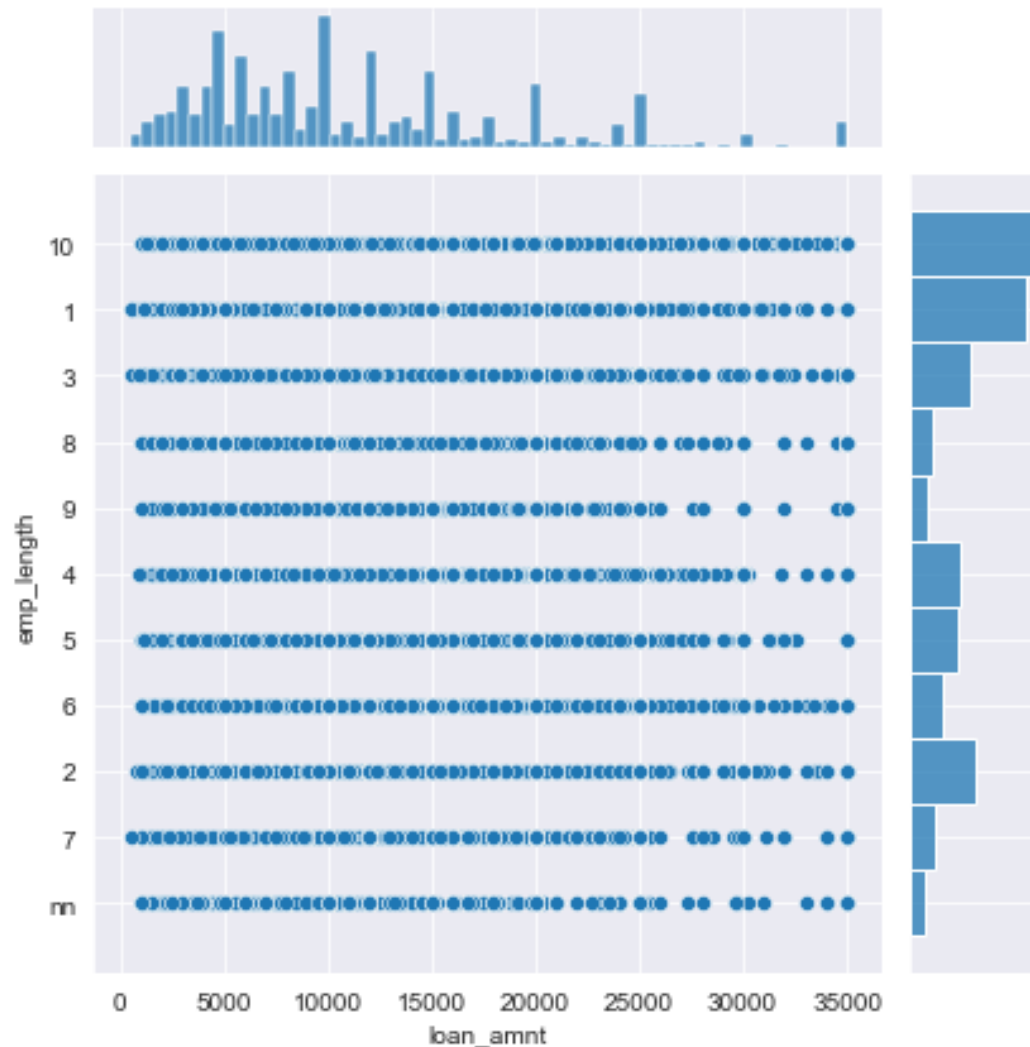


### **Observation:**

The average salary of the borrowers who are defaulters are usually 50000(approx.) annually and for fully paid are nearly 55000 (approx.) annually.

# Bivariate Analysis

Loan amount V/s Borrowers Work Experience



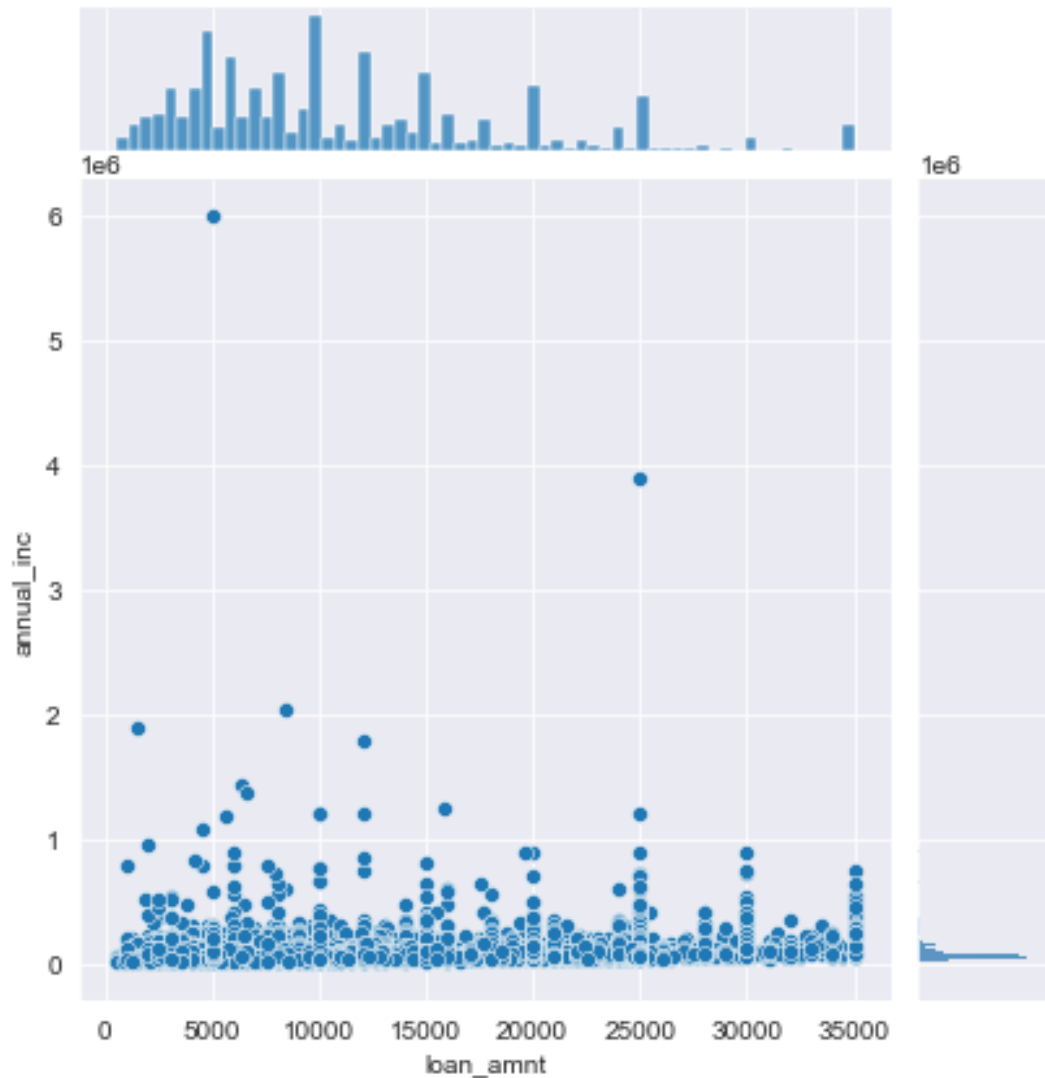
## Observation:

It is evident from the graph that the borrowers having employee length more than 10 and 1 years are the highest loan amount takers.

Also the maximum loan taken is of 10000.

# Bivariate Analysis

Loan amount V/s Borrowers Annual Income

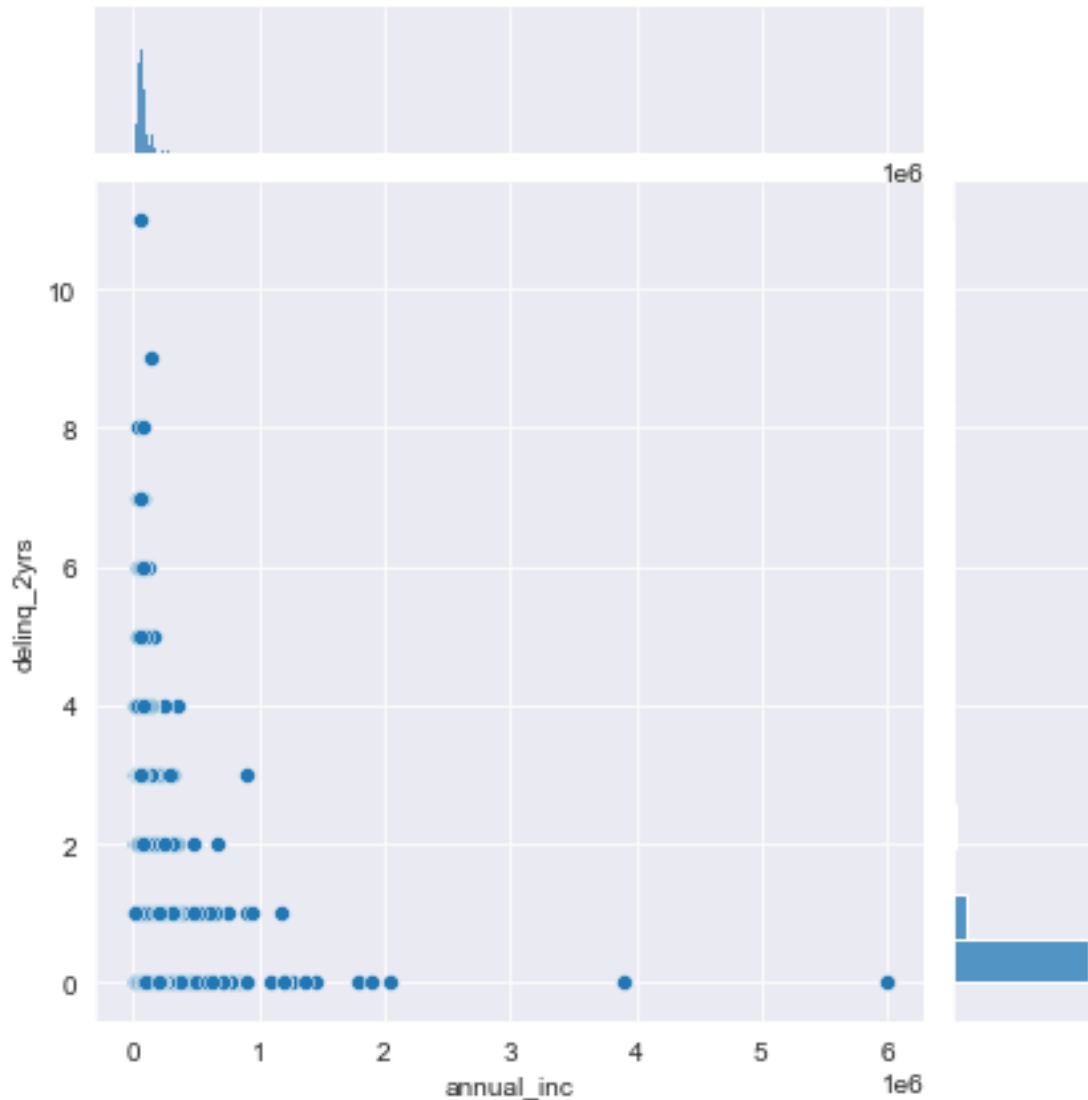


## Observation:

The highest numbers borrowers belong to the category whose annual income is very less annually.

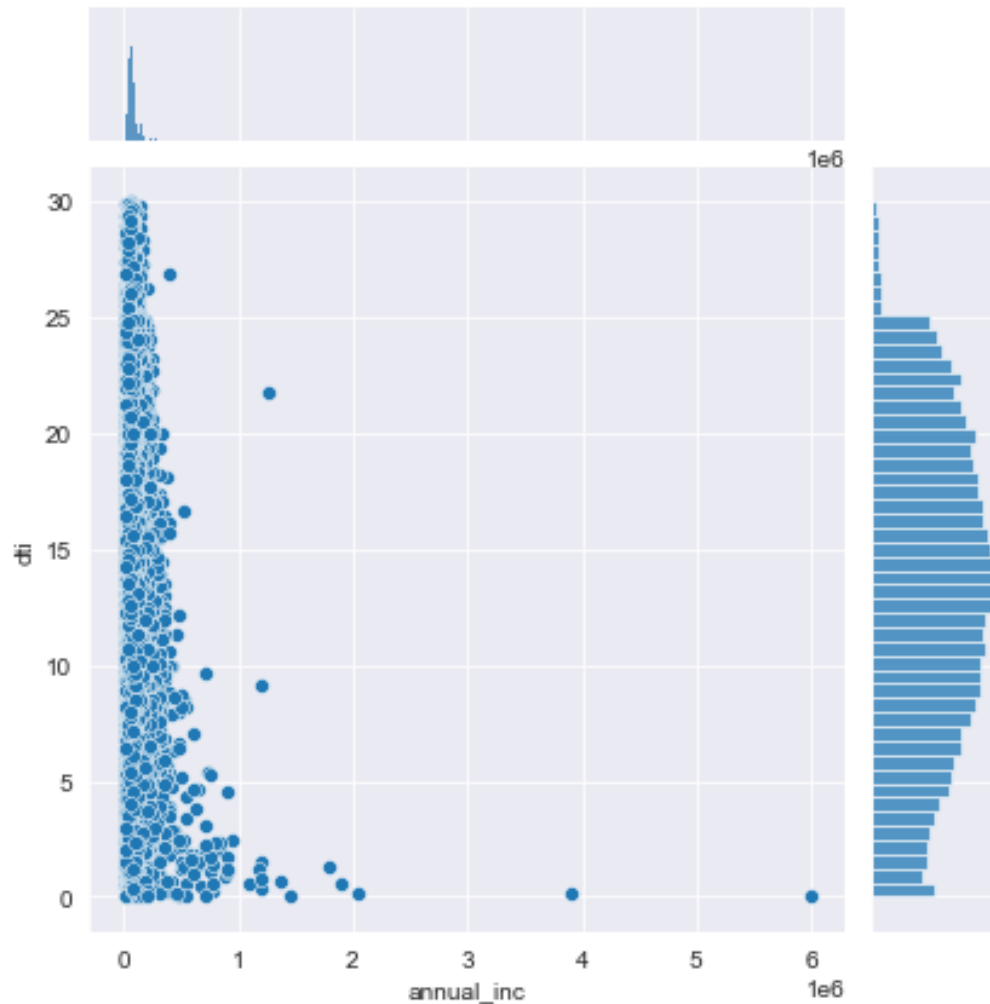
# Bivariate Analysis

Borrowers Annual Income V/s Delinquency in borrowers credit file



# Bivariate Analysis

## Annual Income V/s Debt to Income Ratio

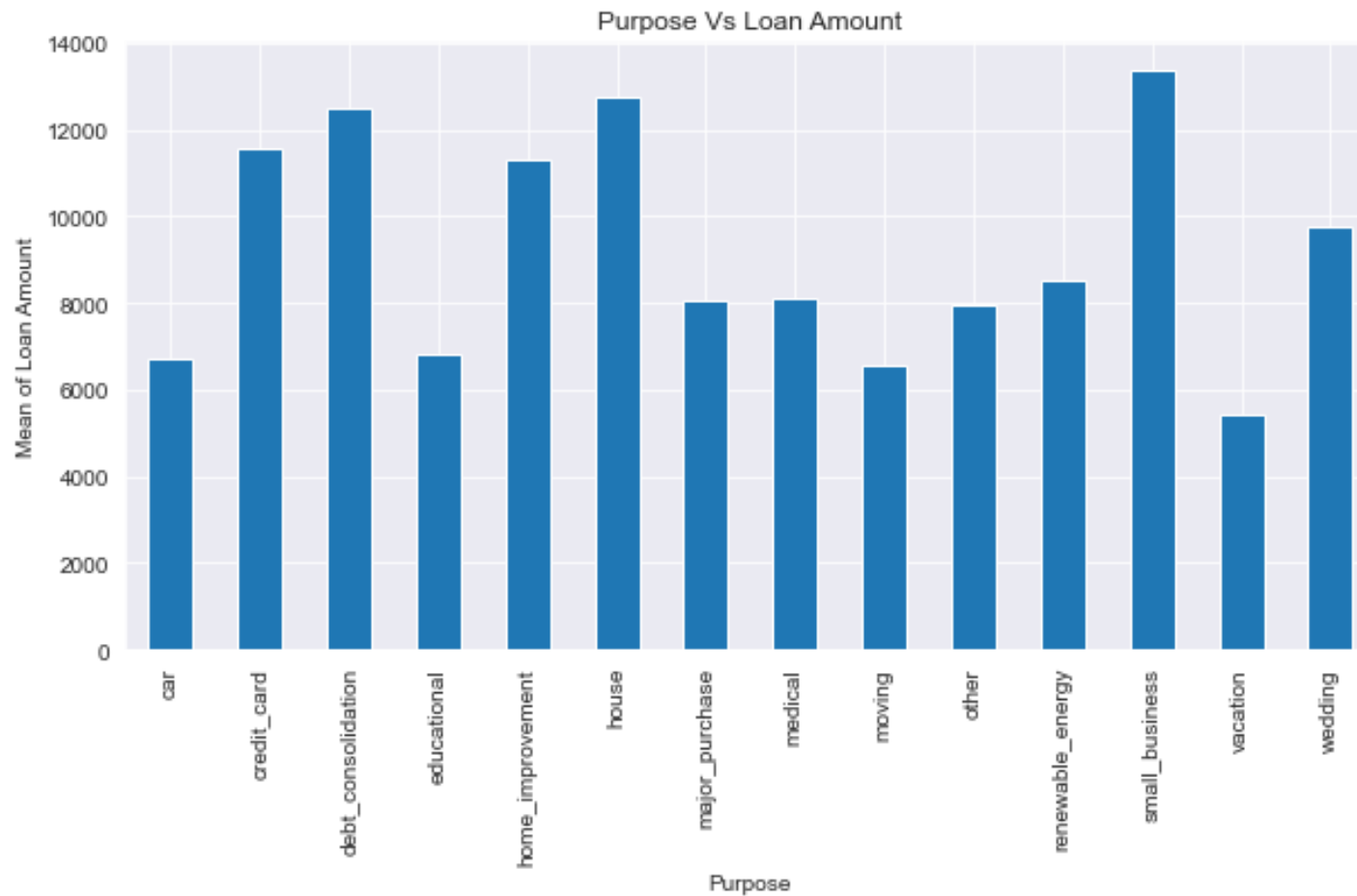


### Observation:

The ratio of debt to income is very high of borrowers having very low annual income.

# Bivariate Analysis

## Purpose V/s Loan Amount



### Observation:

The number of borrowers is high debt consolidation but on an average small business takes more loan amount compared to them.



# Conclusion

- ▣ **Key Variables leading to defaulters :**
- ▣ **Purpose of loan:** The highest number of borrowing is for consolidated loan but on an average small business takes more loan and have very few defaulters.
- ▣ **State:** Though the number of borrowers are high from the California and so is the defaulters wherein the Alaska on an average takes more loan amount and holds a very minimal defaulters.
- ▣ **Ownership of Home:** We observe the number of defaulters are more in terms of borrowers having rented home and mortgage home but the on an average loan amount taken by the borrowers having mortgage home is quite high. Hence ,the is also contributing to the defaulters list.

# Conclusion

- **Debt to income ratio:** The debt to income ratio is quite high for the borrowers having annual income is very low . Hence it is important indicator before lending amount to asses the risky customers.
- **Delinquency in borrowers credit file :** It is one of the key indicators to asses before lending any loan to the borrowers. It gives us an idea about how the borrowers previous loans were paid off or whether he was a defaulter previously.