

# Lending Club Case Study

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# Problem Statement

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- **Lending Club** is 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.
- Two **types of risks** are associated with the bank's decision:
  - If the applicant is **likely to repay the loan**, then not approving the loan results in a **loss of business** to the company.
  - 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.
- Company provided historical data to find out the defaulters pattern.
- Objective is to analyze the data and identify patterns which indicate if a person is likely to default, which may be used for taking actions such as denying the loan, reducing the amount of loan, lending (to risky applicants) at a higher interest rate, etc.

# Data Cleaning & Manipulation

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## ➤ Data Cleaning

- Drop the rows in below scenarios:
  - *Duplicate rows.*
  - *Rows with loan status 'Current'.*
- Drop the column in below scenarios:
  - *Columns not needed for analysis.*
  - *If missing value is > 60%*
  - *Removing columns with unique count.*

## ➤ Data Manipulation

- Convert the values of the below columns
  - *int\_rate*
  - *revol\_unit*
  - *term*
  - *emp\_length*
- Derive different categories
  - *Annual Income*
  - *Interest Rate*

## Loan Data Analysis Criteria

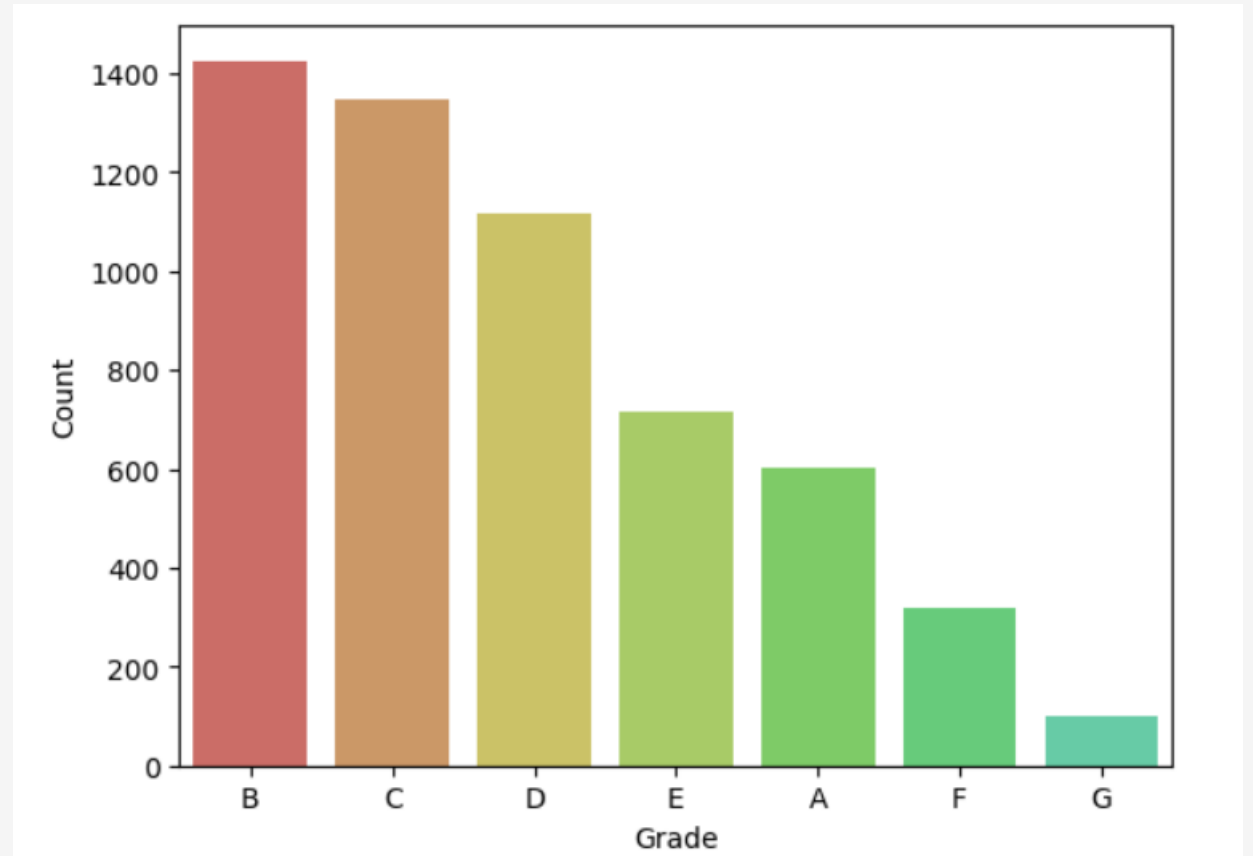
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Analyse the data using univariate, bivariate analysis and the analysis report are created based on different parameters.

# Loan Grade

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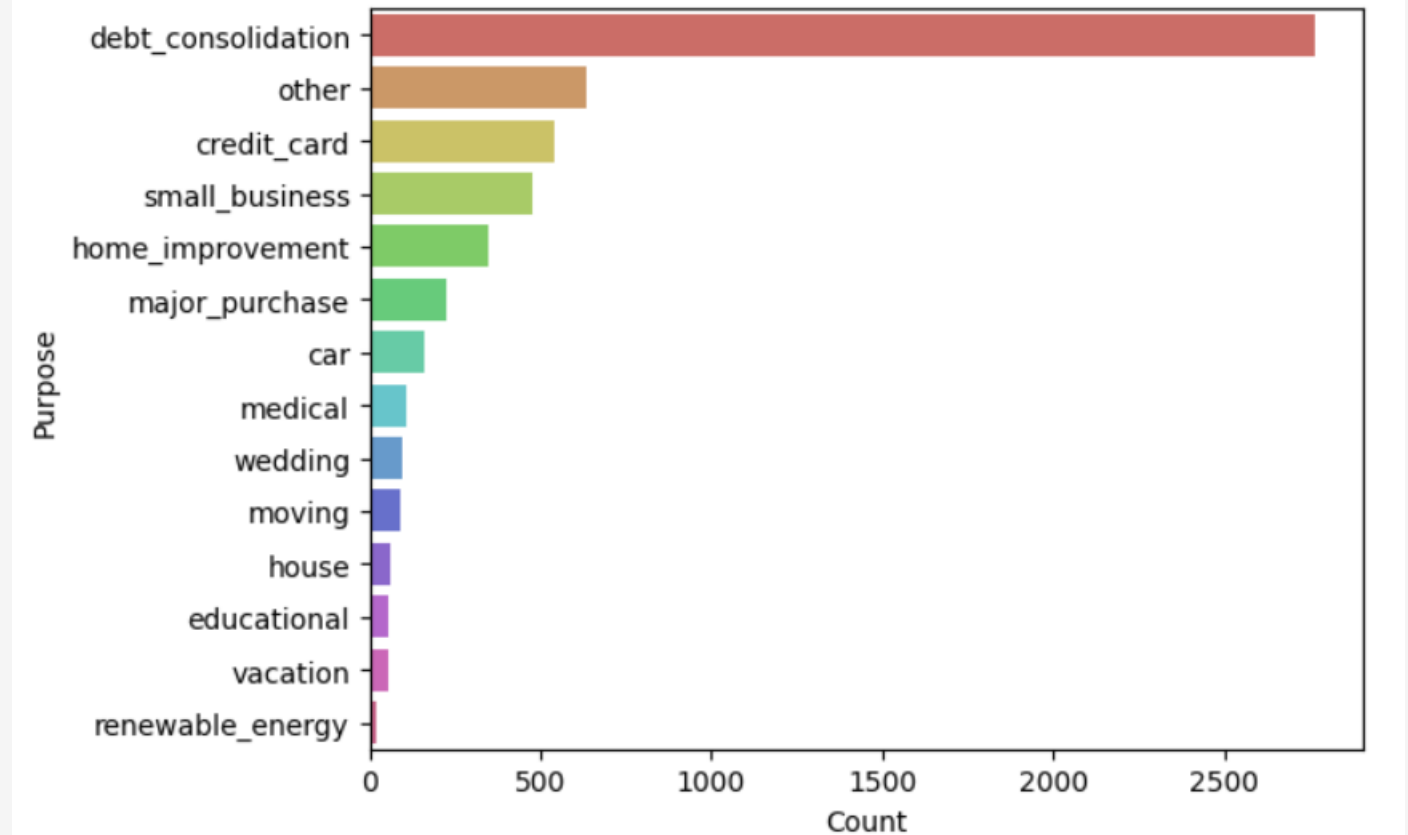
Based on the analysis there is high chance the loan will be charged off if the loan grade is in B,C or D.



# Loan Purpose

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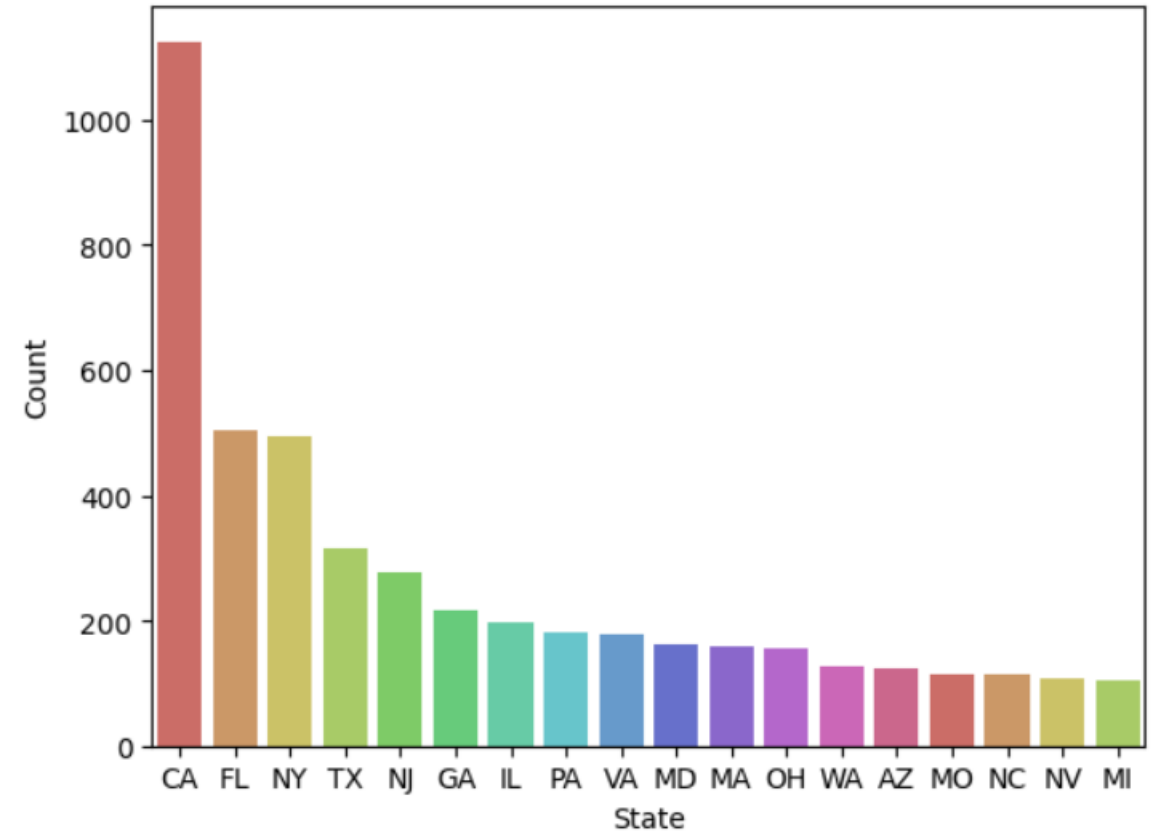
Based on the analysis there is high chance the loan will be charged off if the loan purpose is to consolidating the existing debit the customer is having.



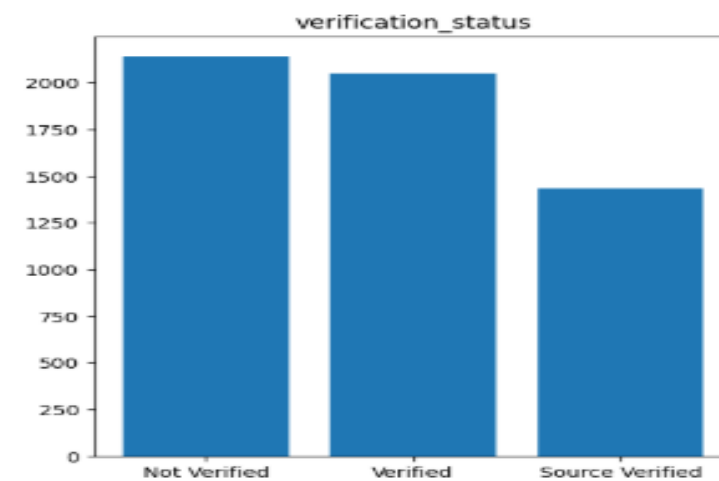
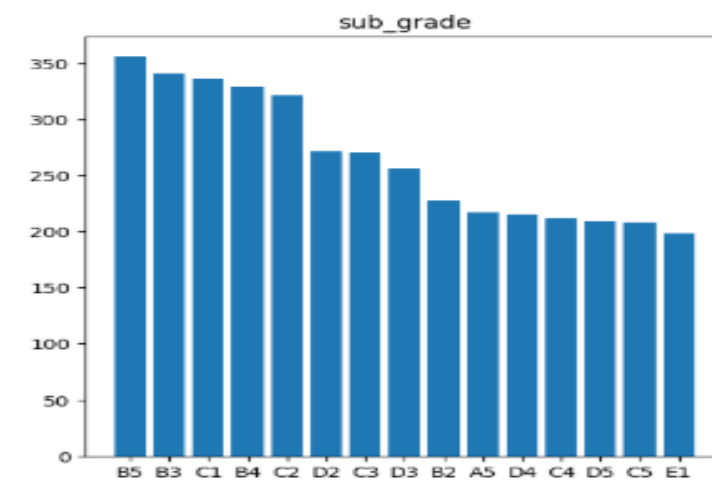
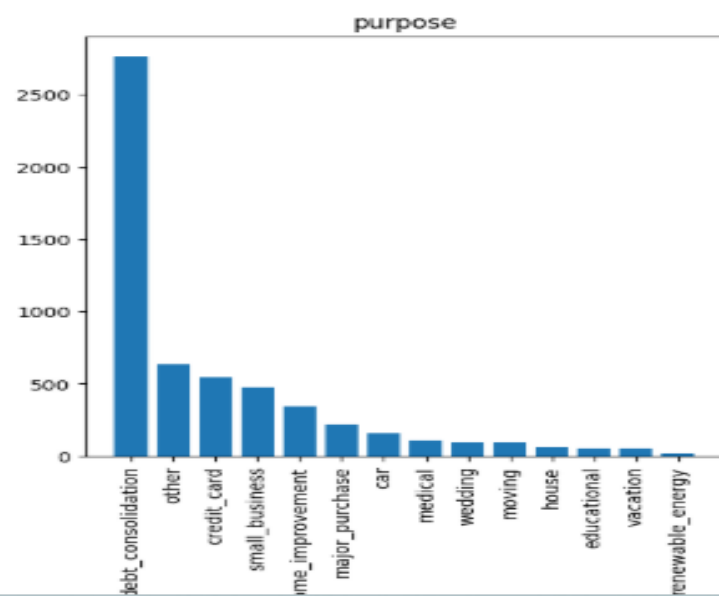
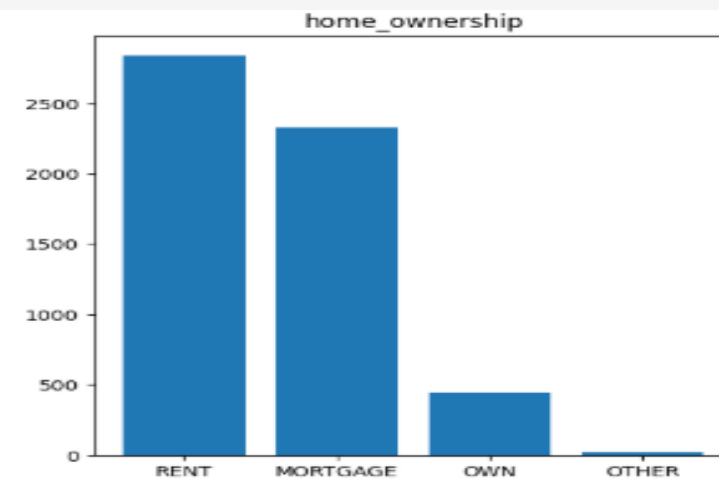
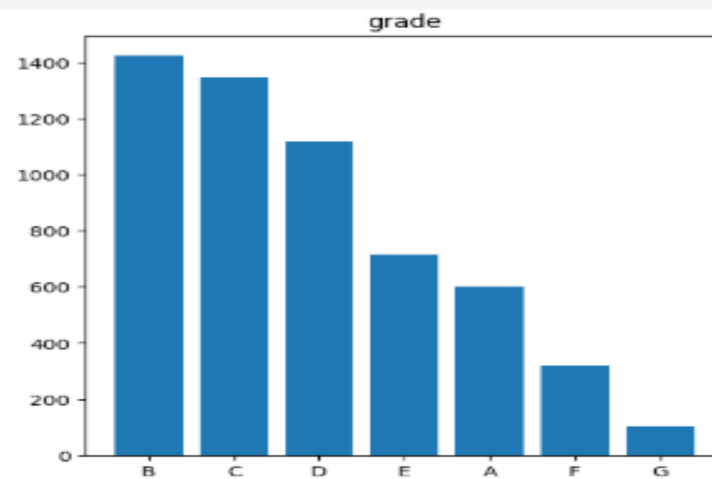
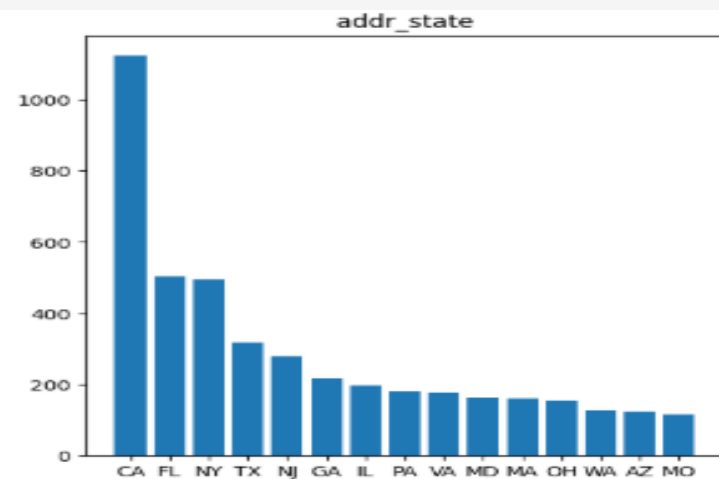
# Loan vs State

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Based on the analysis there is high chance the loan will be charged off if the consumers residing in CA, FL or NY.



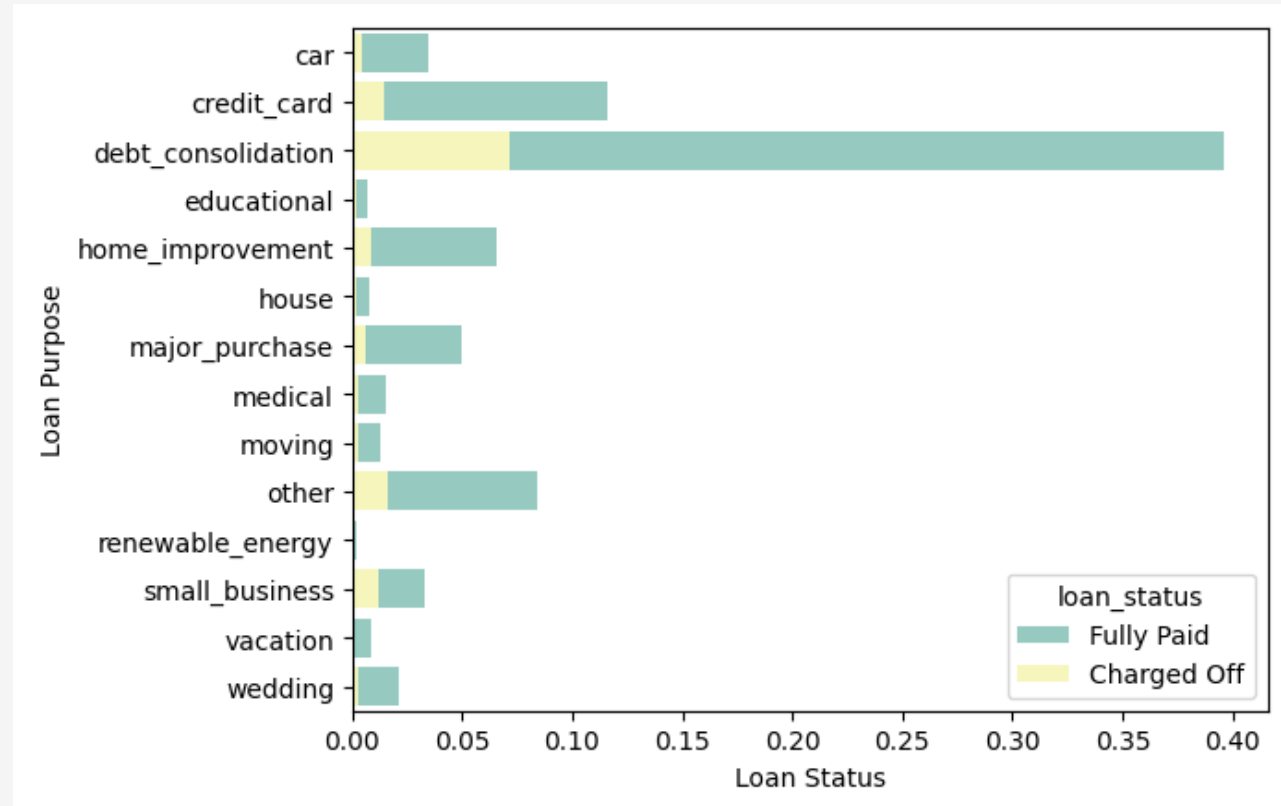
# Categorical Analysis





# Loan Status vs Purpose

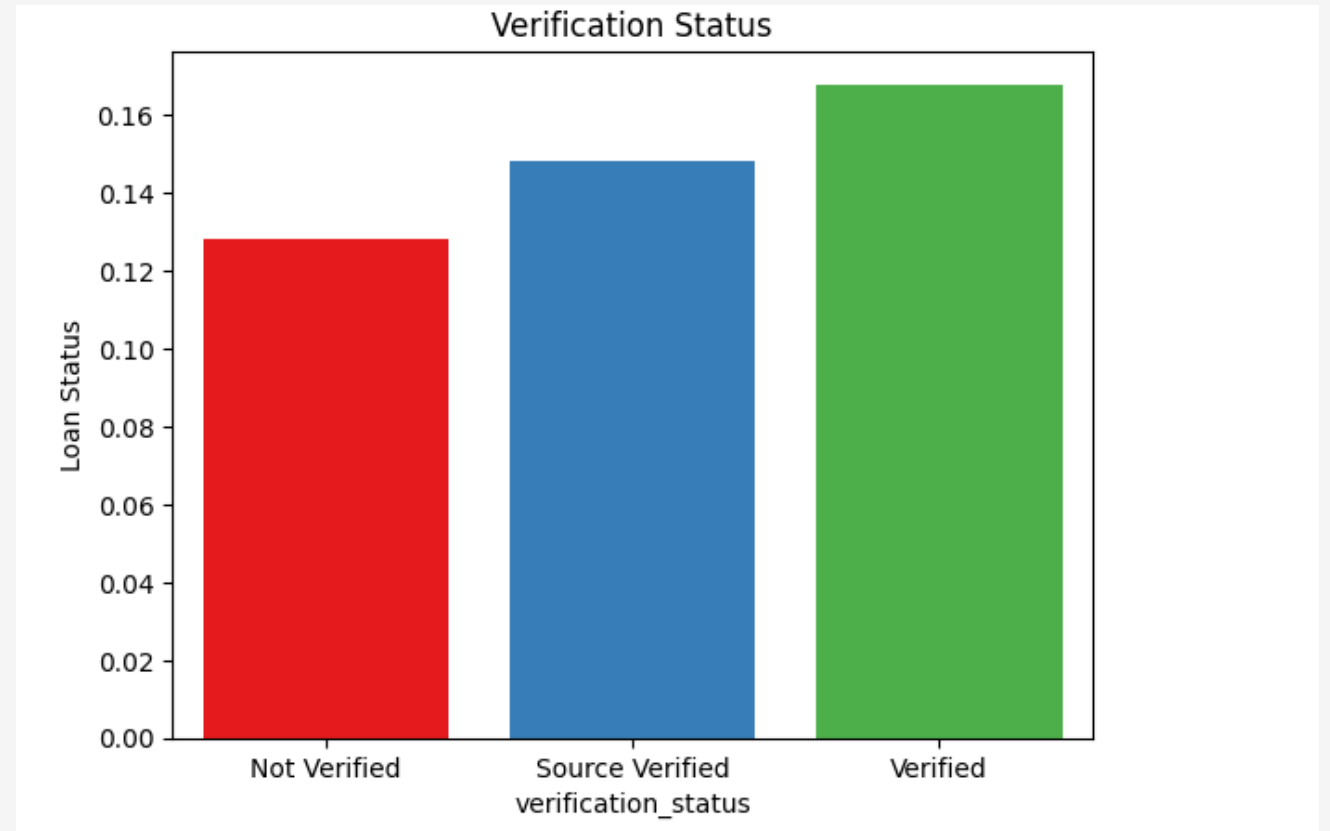
Based on the analysis there is high chance the loan will be charged off if the loan purpose is to consolidating the existing debit the customer is having..



# Loan Status Vs Verification

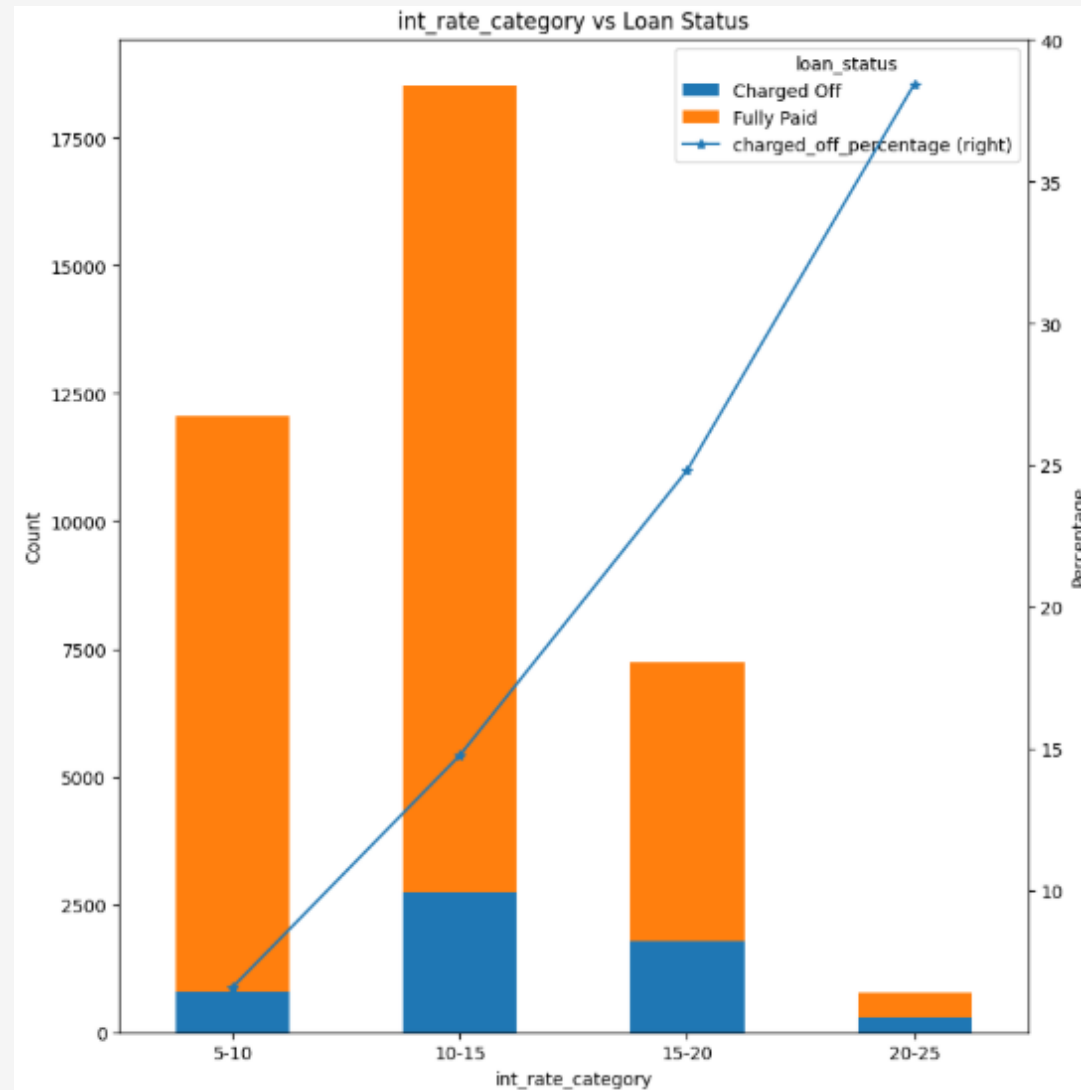
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Based on the analysis it is surprising to note that verified customers are high in loan defaulters list



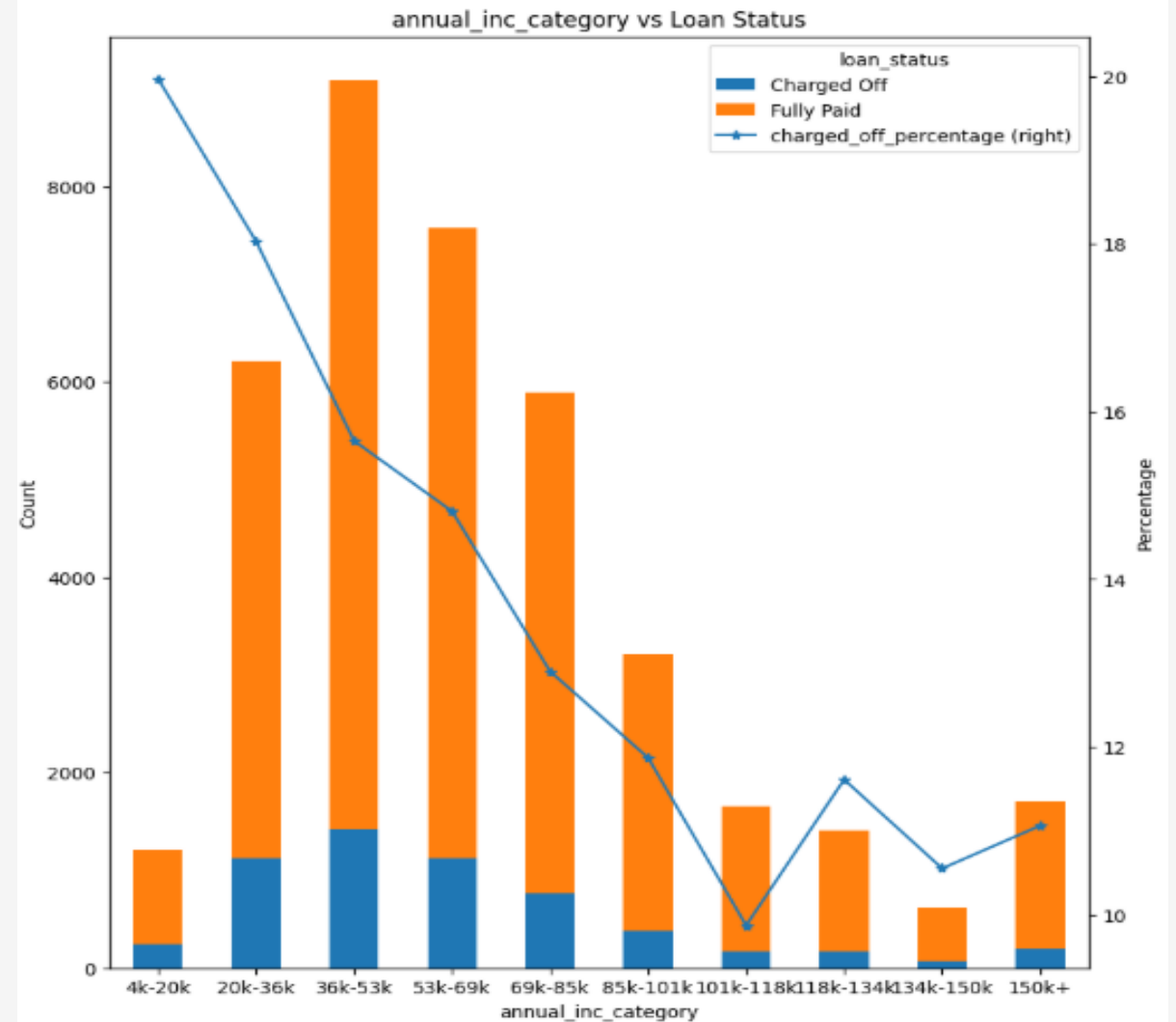
# Loan Status Vs Interest Rate

Based on the analysis it is clear that if the interest rate increases there is a high change the loan will be 'Charged Off'.



# Loan Status Vs Annual Income

Based on the analysis it is clear that if the annual income increases the chances of loan being defaulted decreases.



# Summary Report

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- ☐ There is high chance the loan will be charged off if the loan grade is in B,C or D.
- ☐ There is high chance the loan will be charged off if the loan purpose is to consolidating the existing debit the customer is having.
- ☐ There is high chance the loan will be charged off if the consumers residing in CA, FL or NY.
- ☐ There is high chance the loan will be charged off if the consumer is staying on Rent or his home is on mortgage.
- ☐ Verified customers are high in loan defaulters list.
- ☐ If the interest rate increases there is a high change the loan will be 'Charged Off'.
- ☐ If the annual income increases the chances of loan being defaulted decreases.

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**THANK YOU**