



Lending Club Case Study

BY:- RAJ KANSARA &
MAHESWARAN

Aim

In this case study, apart from applying the techniques that you have learnt in the EDA module, you will also develop a basic understanding of risk analytics in banking and financial services and understand how data is used to minimise the risk of losing money while lending to customers.

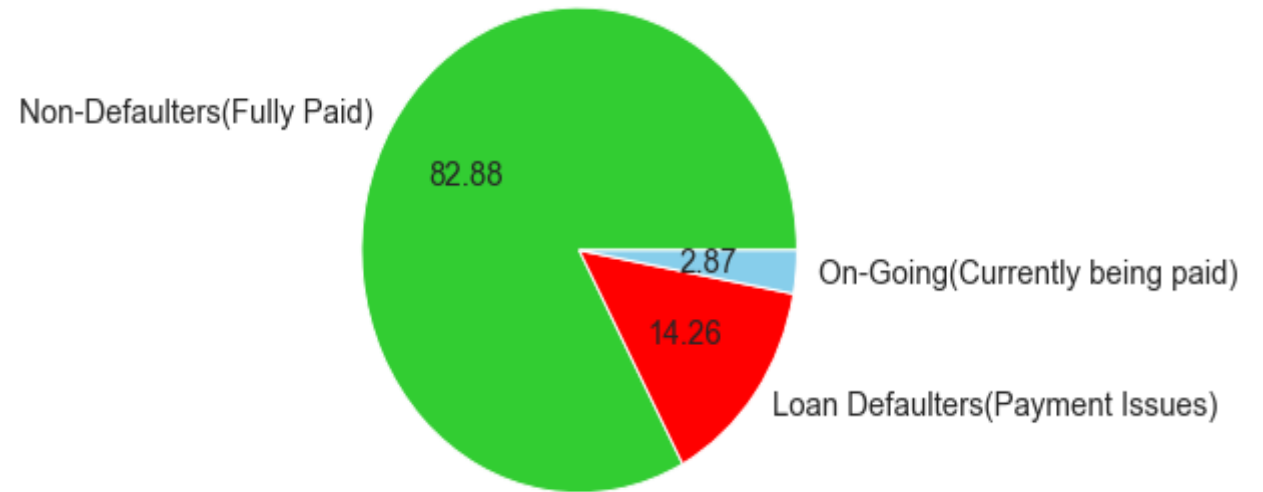
Business Objective

The company wants to understand the driving factors (or driver variables) behind loan default, i.e. the variables which are strong indicators of default. The company can utilize this knowledge for its portfolio and risk assessment.

Assumptions

- Nan/na are Null Values.
- In loan_status column:
 - Charged off is considered as 'Defaulters'/ People with more payment difficulties or People who fail to pay the loan
 - Fully Paid and Current are considered as 'Non Defaulters'/ People with less payment difficulties

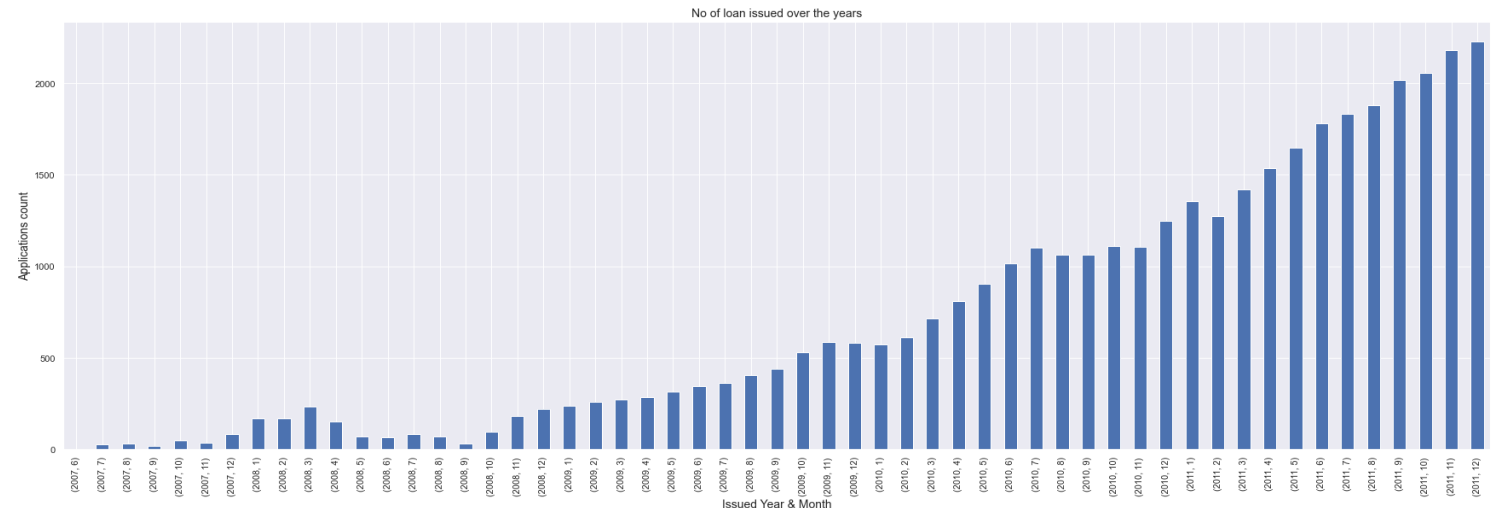
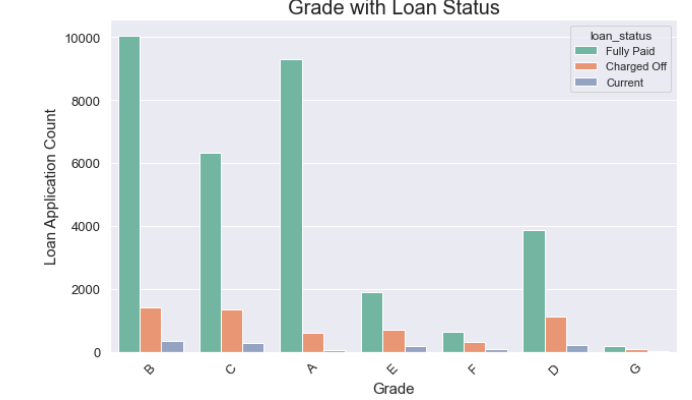
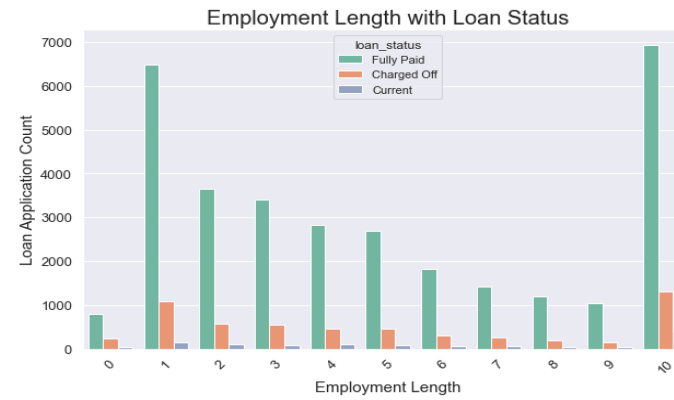
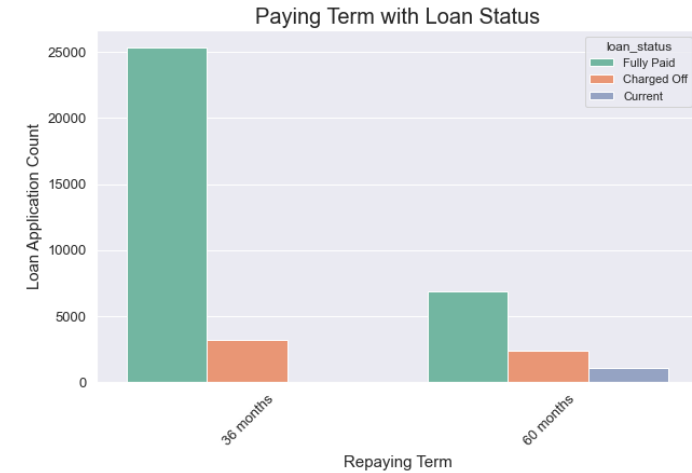
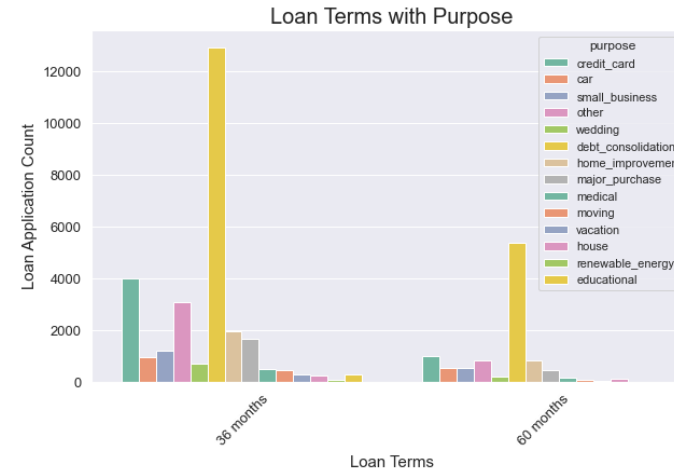
Distribution of Loan Status



Univariate Analysis

Ordered Categorical Variables:

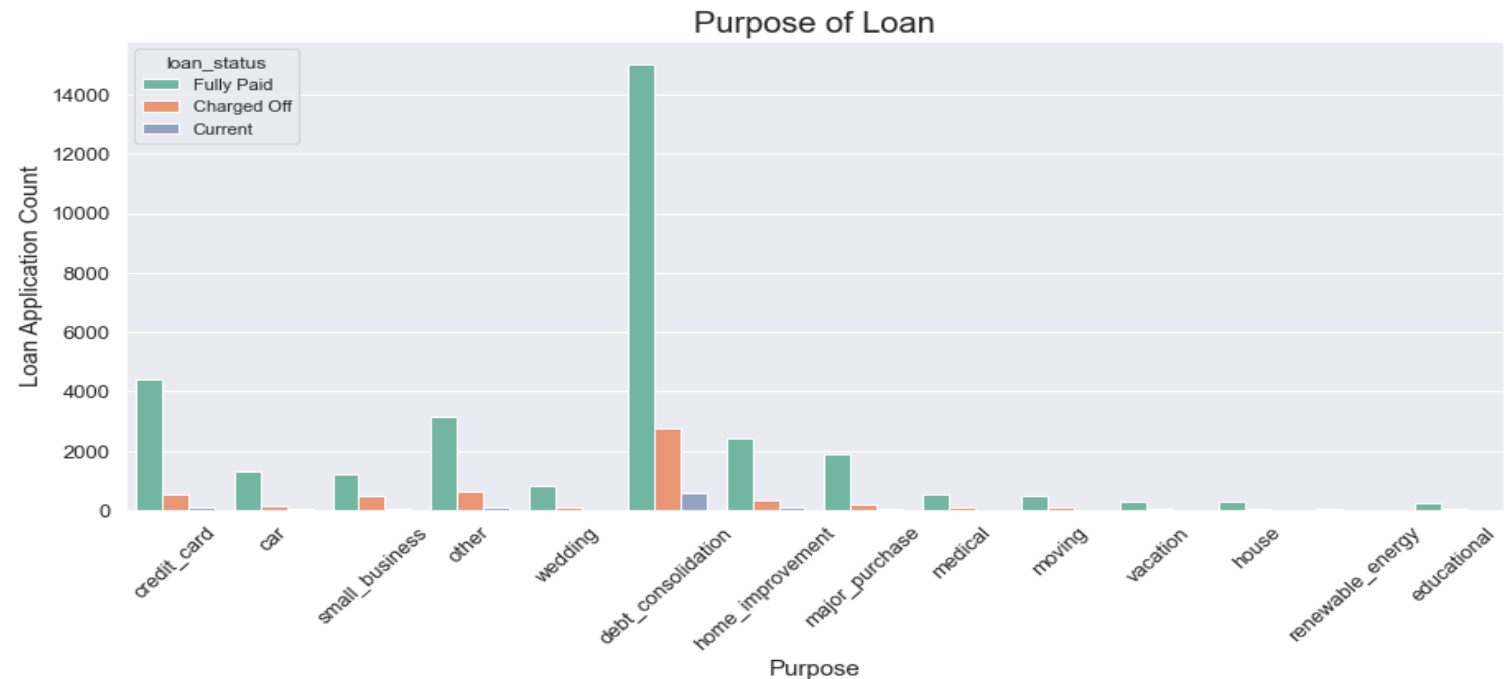
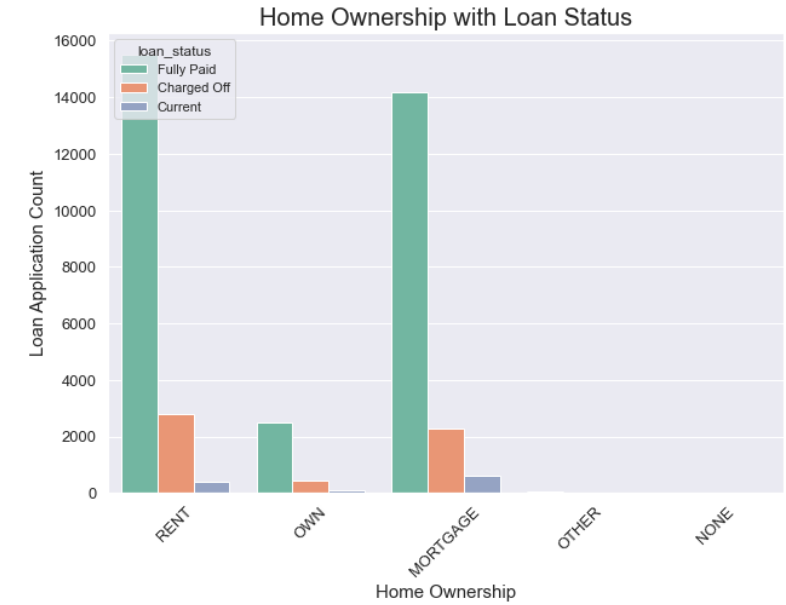
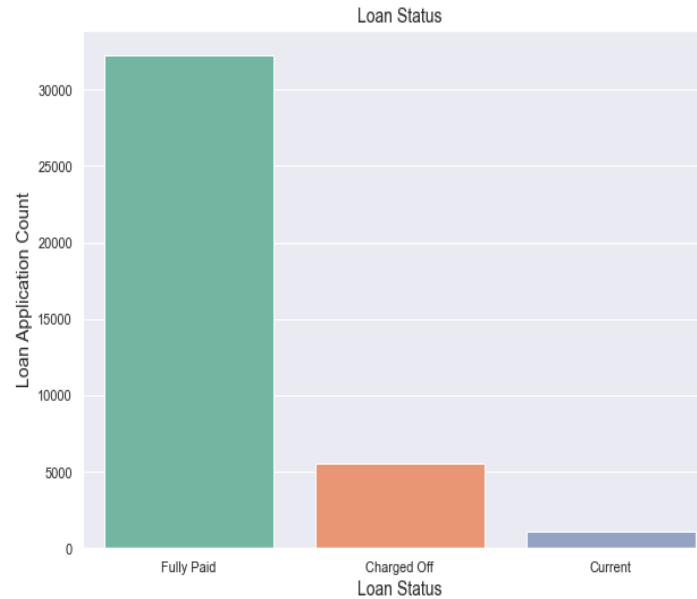
1. There are more clients with lesser repaying terms .
2. Client with 36 month repaying terms are more likely to default as there are more number clients.
3. There are more number of clients with lower grade loans.
4. There are more number of clients with higher experience years/longer employment .
5. As the years passes, number of clients are increasing which in turn also increases defaulters.



Univariate Analysis

Unordered Categorical Variables:

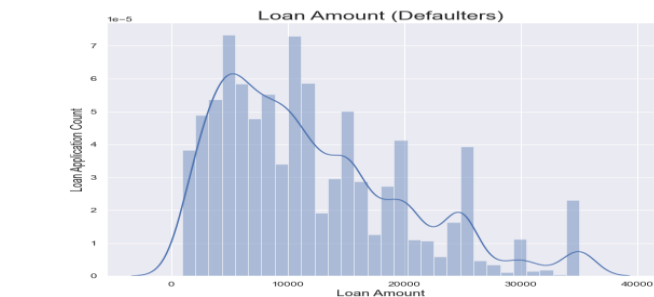
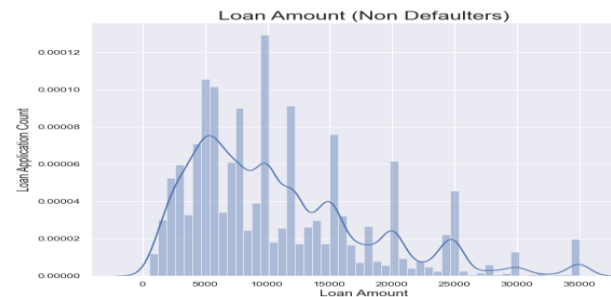
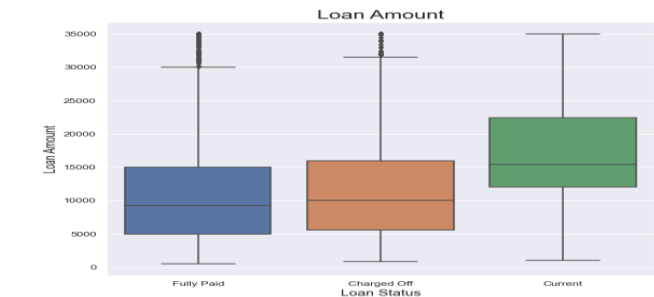
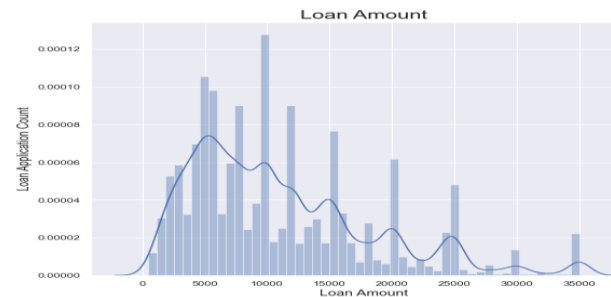
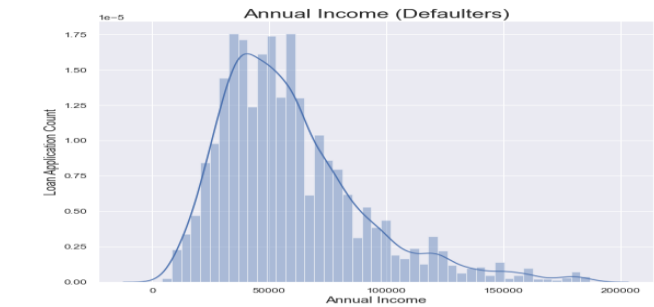
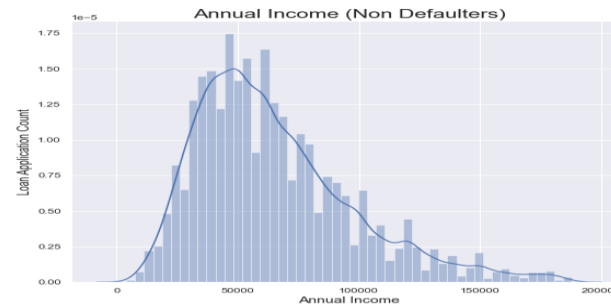
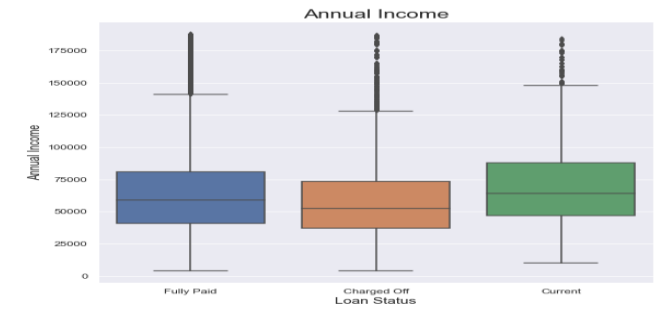
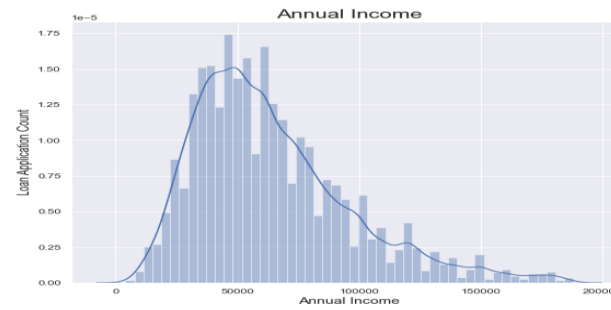
1. There are more number of clients who have fully paid of the loans
2. Clients living on Rent or Mortgage are more likely to become therefore become defaulters
3. More Clients apply loan for debt consolidation, credit card and others compared to other reasons.
4. Therefore clients applying loan for debt consolidation are more likely to become defaulters.



Univariate Analysis

Numerical Variables:

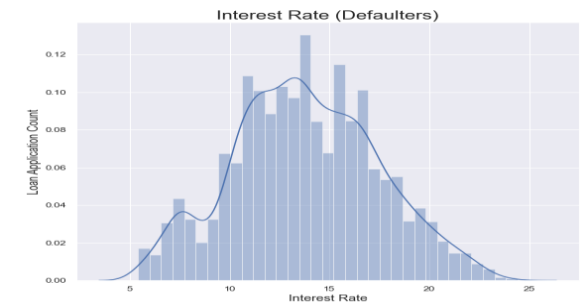
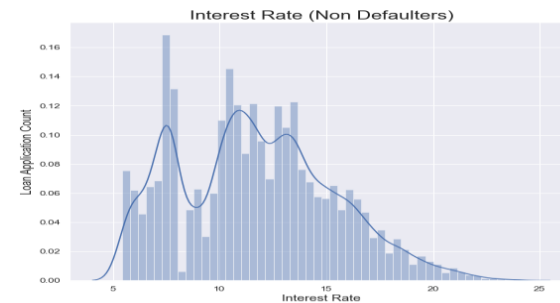
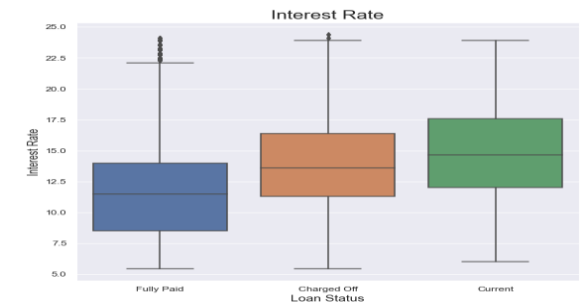
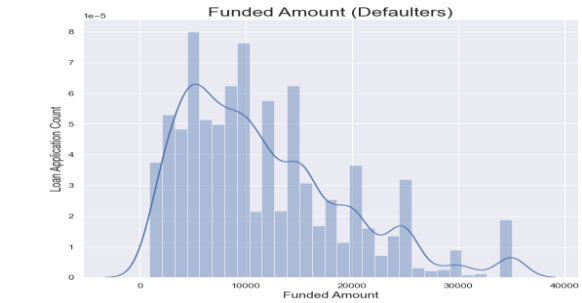
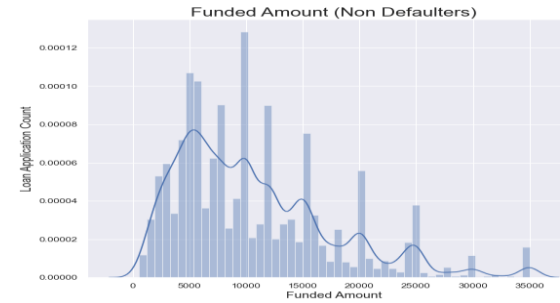
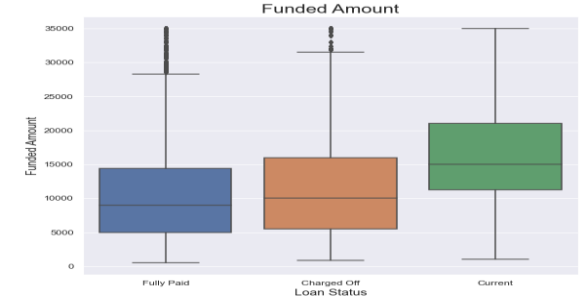
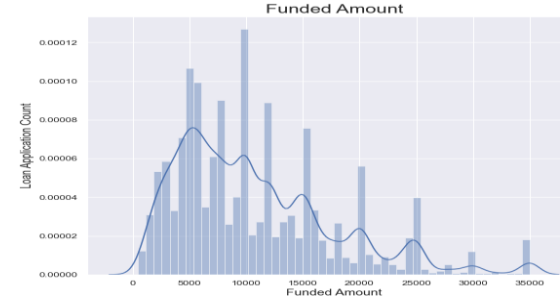
1. Clients having annual income in the range of 25000 to 75000 have taken loan.
2. Clients mainly take loans for loan amount between 5000 to 15000.
3. Clients with lower annual income are more likely to become defaulters
4. Similarly clients with high loan amounts are more likely to become defaulters



Univariate Analysis

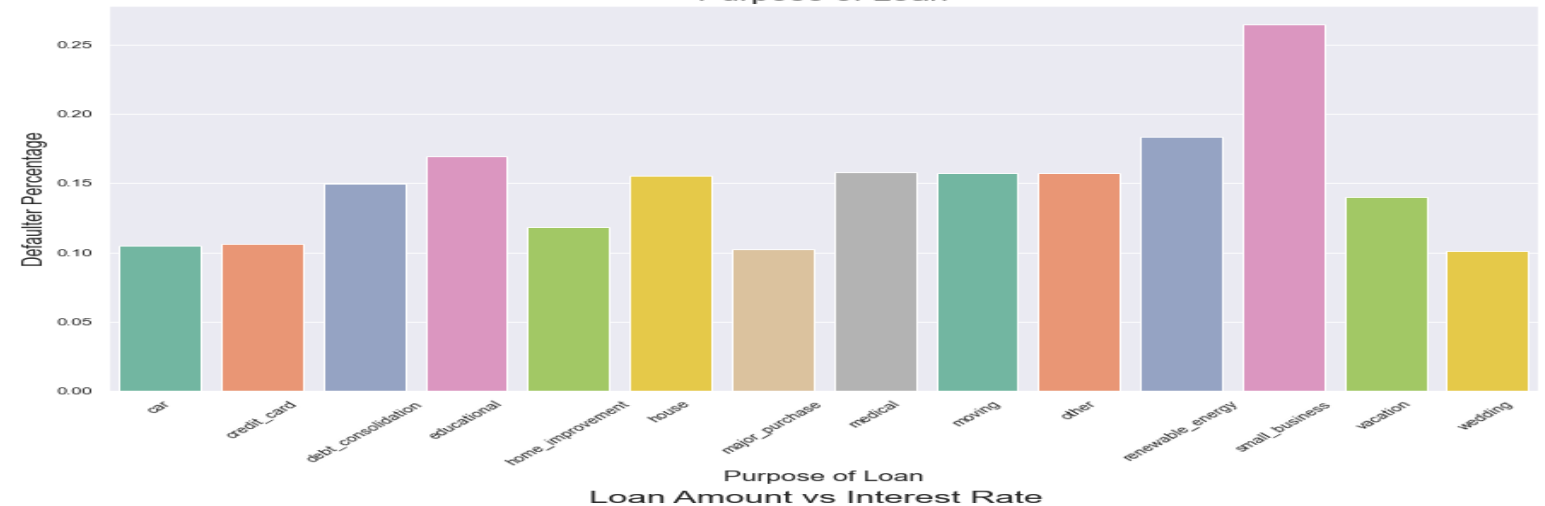
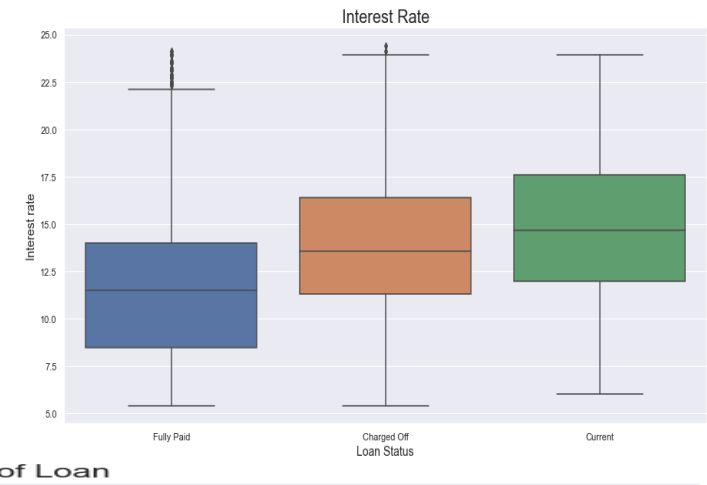
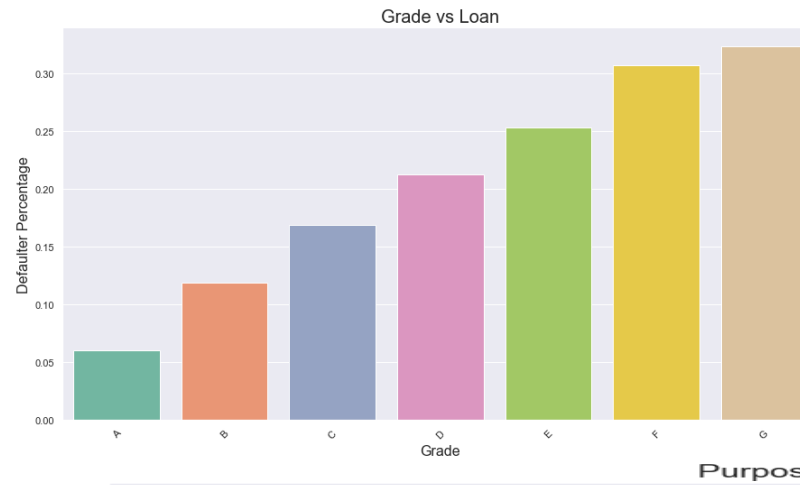
Numerical Variables:

1. Clients have funded amount in the range of 5000 to 15000
2. Clients have loan interest rate mainly in the range of 10% to 15%.
3. As the rate of interest increases, borrowers are more likely to become defaulters.



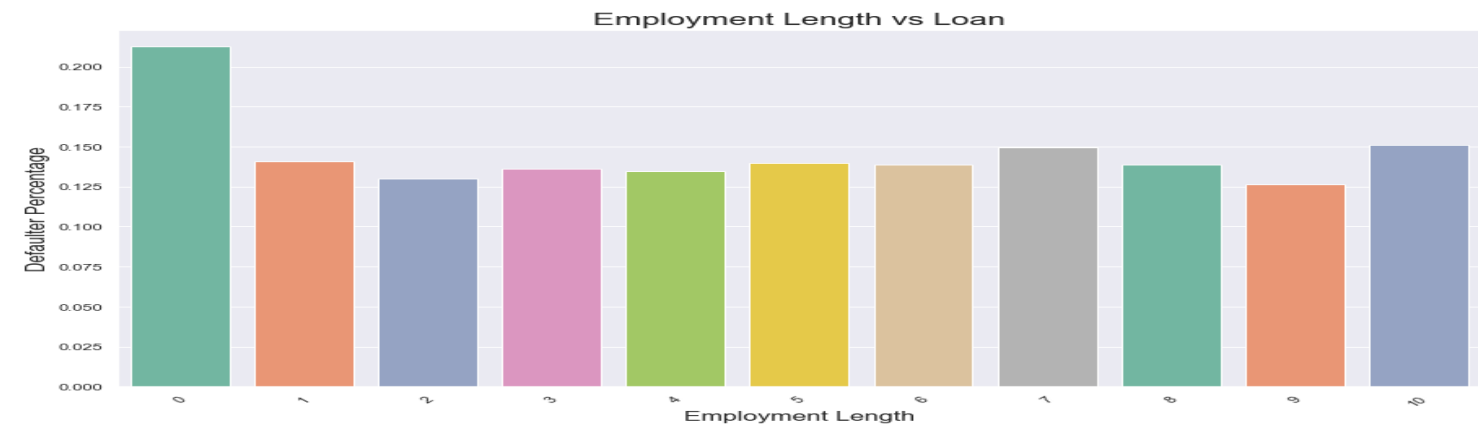
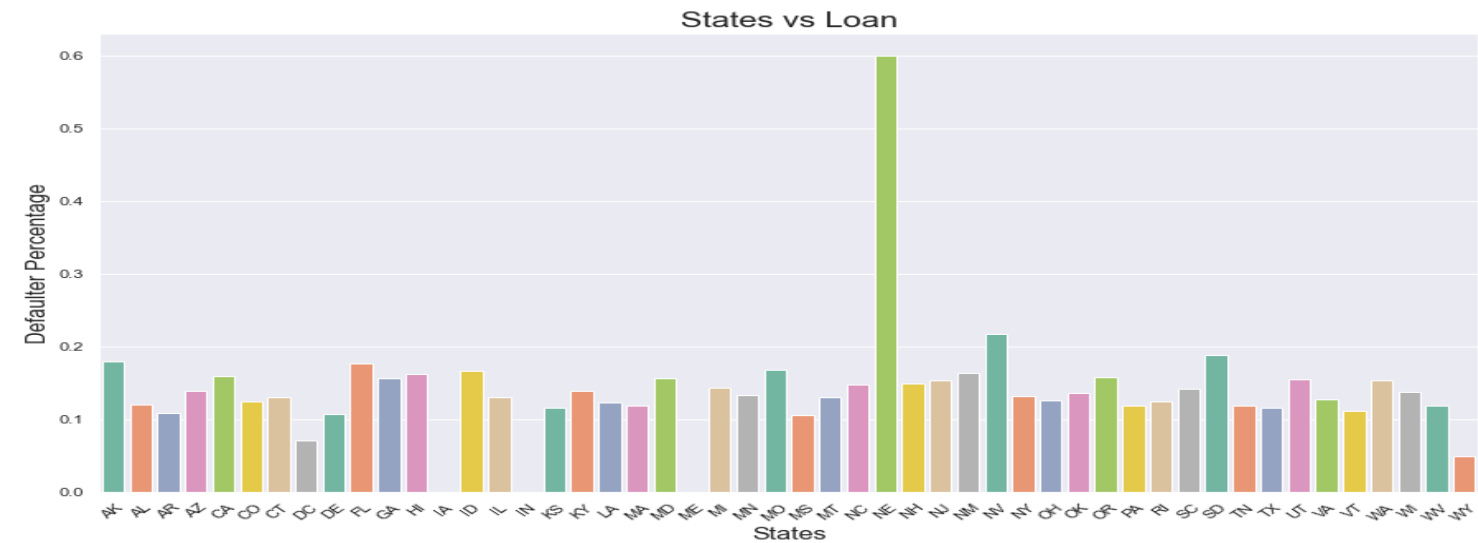
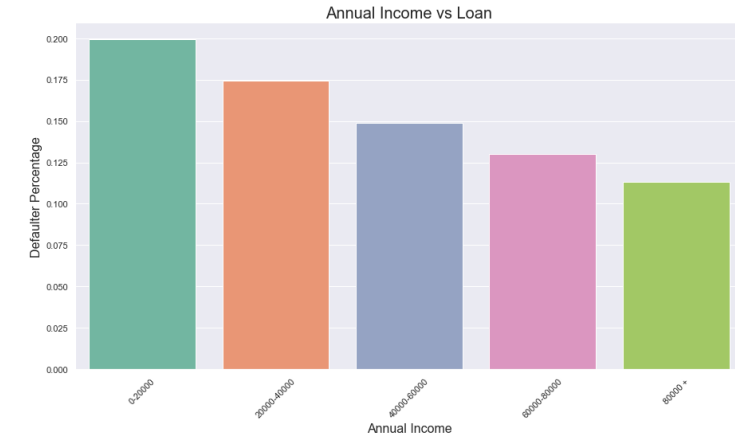
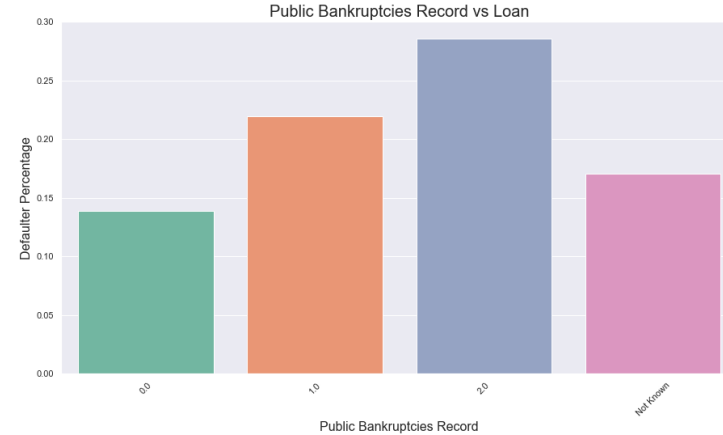
Bivariate Analysis

1. Clients are with high graded more likely to become defaulter.
2. Clients with higher rate of interest for loan are more likely to become defaulters.
3. Clients taking loan for small business purpose, renewable energy, education are more likely to become defaulters.
4. As observed from the 4th graph, as the loan amount increases, the rate of interest also increases.



Bivariate Analysis

1. Clients who have defaulted before are more likely to default again.
2. As observed from 2nd graph, as client's annual income increases the chances of client defaulting decreases.
3. Clients from state NE has highest chances of defaulting. Also clients from states like NV, CA and FL are also likely to default.
4. Clients with no experience or unemployed clients are more likely to default.



Conclusion

Through this Case Study, we aimed to understand the factors that lead to loan defaults for different types of customers. Furthermore, we can roughly conclude which audience to target for giving loans on the basis of their repayment capabilities. Following is the rough criteria for loan defaults:

1. Annual Income
2. Interest Rate
3. Employment Length
4. Loan Amount
5. State
6. Grade
7. Public Bankruptcies Record
8. Purpose

(Above mentioned features are not rigid and it does not mean that any candidate that does not fall in this would defaulter. But If a candidate does satisfy these features, then they are most likely to Repay)

Thank You
