

Case Study: Lending Club

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Agenda

1. Problem Statement
2. Data Analysis Results
3. Key Insights



Problem Statement

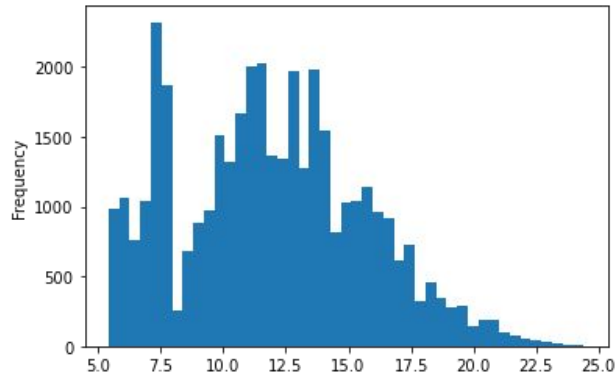
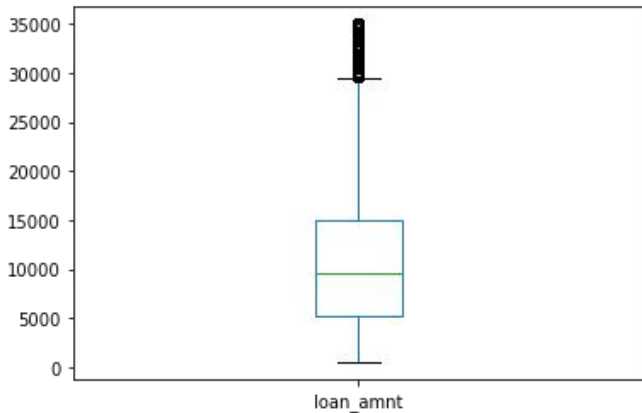
- Background
 - This company is the largest online loan marketplace, facilitating personal loans, business loans, and financing of medical procedures. Borrowers can easily access lower interest rate loans through a fast online interface.
- Challenge
 - Identification of high risk loan application and rejecting those
 - Identification of potential customer who are likely to pay Full Loan amount
- Objective
 - Perform Exploratory Data Analysis and derive the factors leads to “Loan Default”



Data Analysis Results

- Target Variable: loan_status
- Loan Features
 - a. loan_amnt
 - b. term
 - c. int_rate
 - d. installment
- Loan Applicants Features
 - a. purpose
 - b. grade
 - c. sub_grade
 - d. emp_title
 - e. emp_length
 - f. home_ownership
 - g. verification_status
 - h. dti
 - i. addr_state
 - j. inq_last_6mths
 - k. open_acc
 - l. revol_bal
 - m. pub_rec_bankruptcies

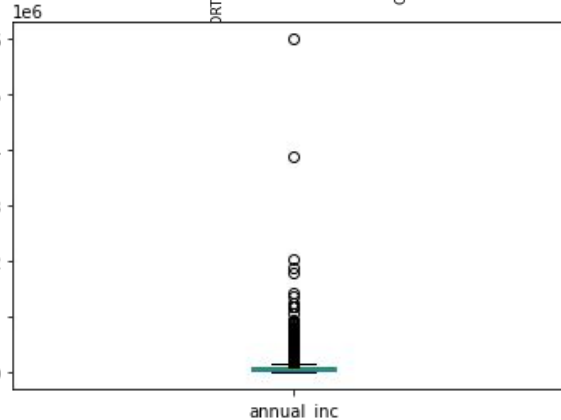
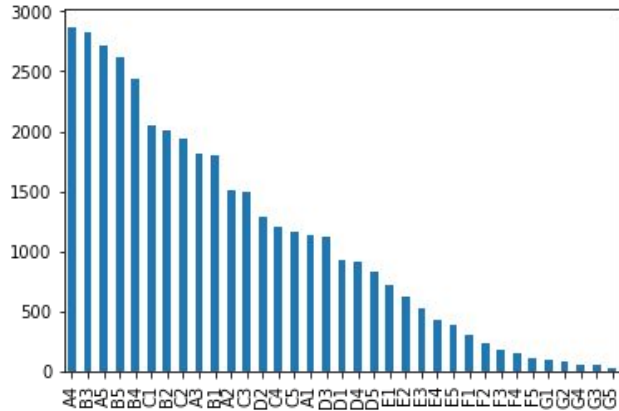
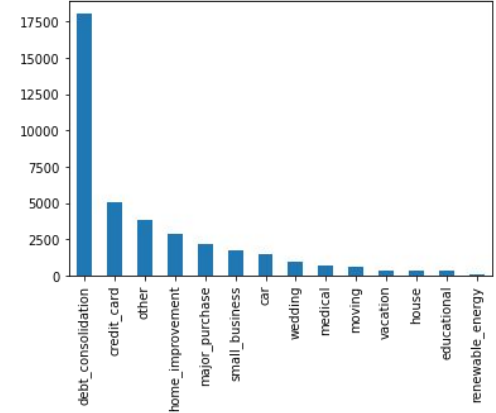
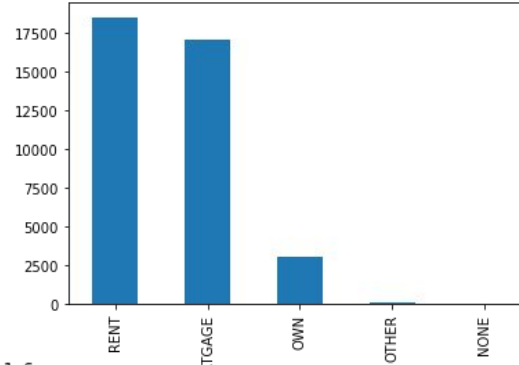
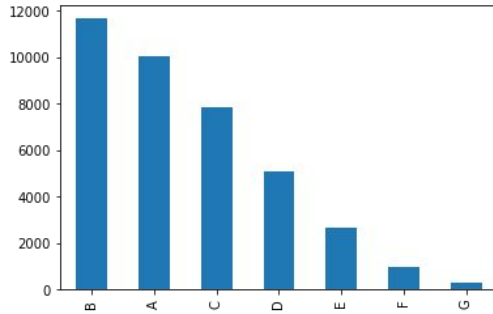
Data Analysis Results: Loan Features



Created Ordered Categorical Variable for loan_amnt and int_rate since Range is HIGH

Data Analysis Results: Applicants Features

[1/2]

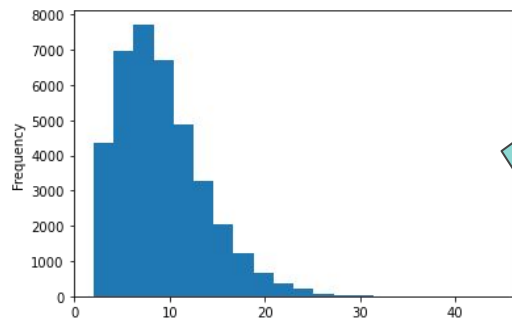
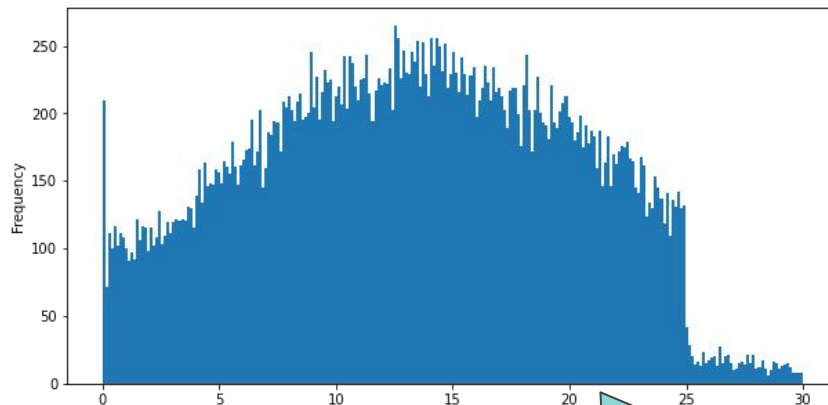
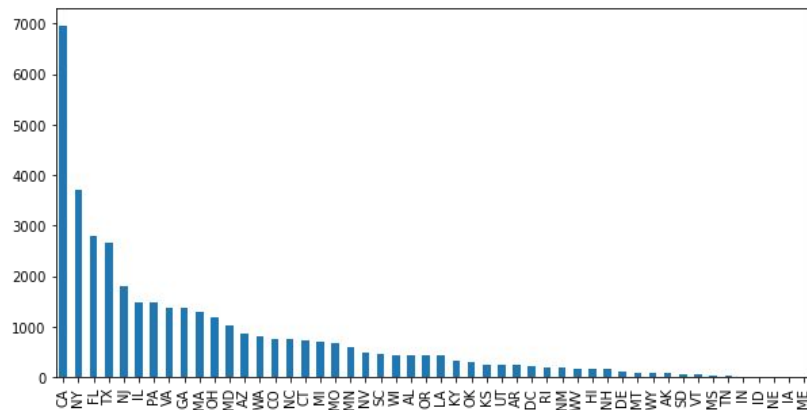


High Range of Income, created Ordered Categorical Variable



Data Analysis Results: Applicants Features

[2/2]

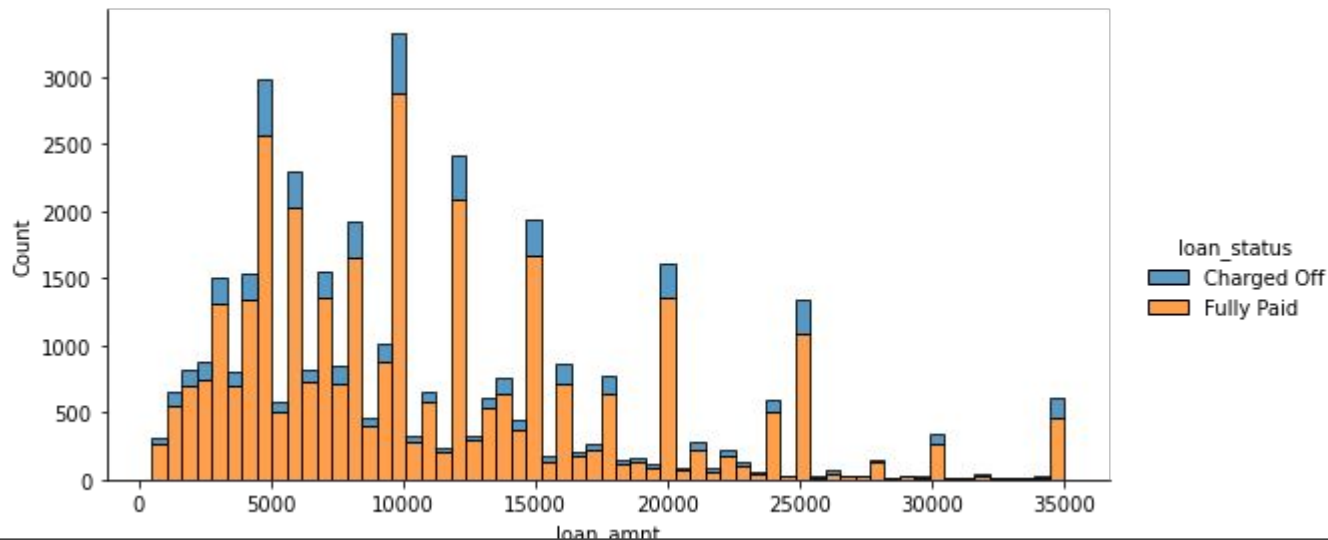


High Range of
open_acc, created
Ordered Categorical
Variable

High Range of dti,
created Ordered
Categorical Variable



Key Insights [1/10]

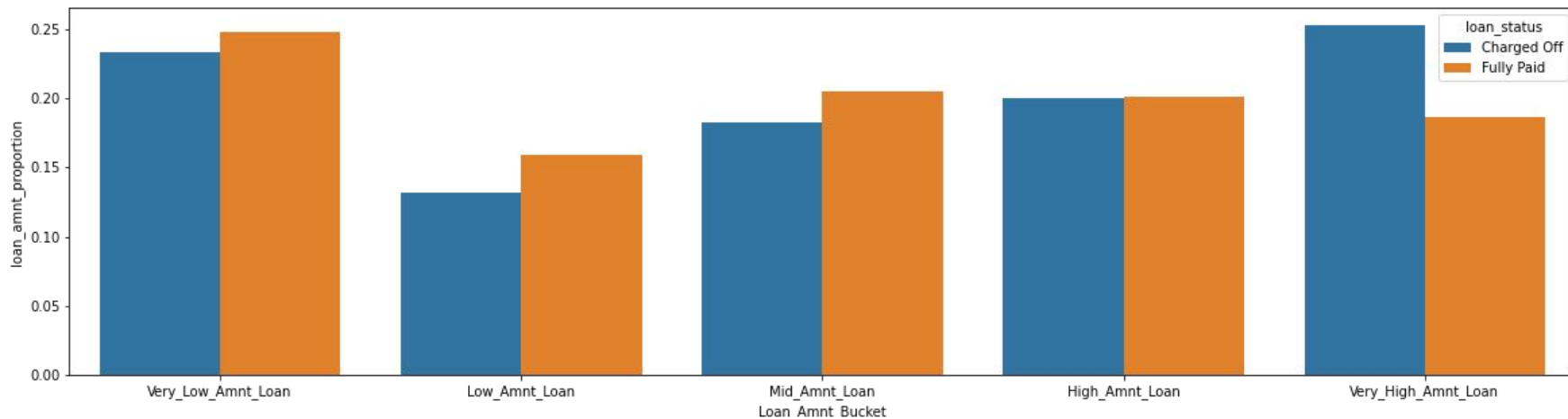


Observation: There is PEAK of loan application around multiple of 5000

Hypothesis: Some loan applications are being rounded off; loan amount may be higher than the need



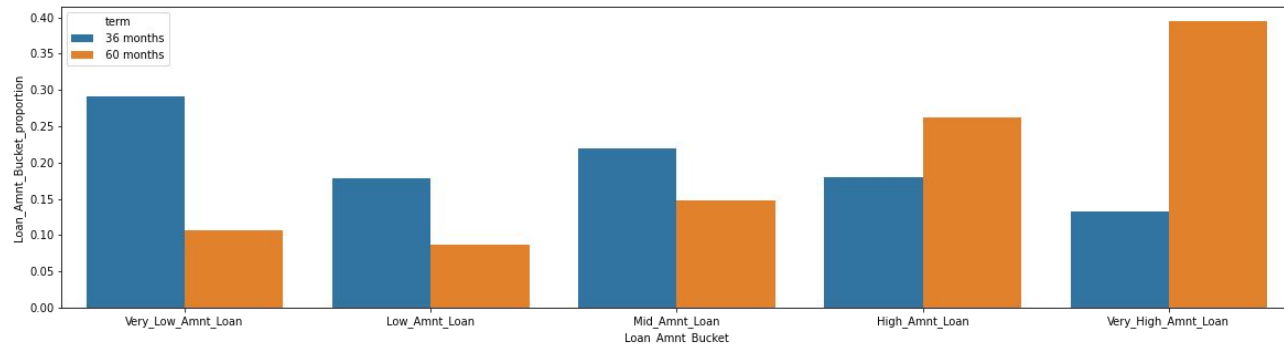
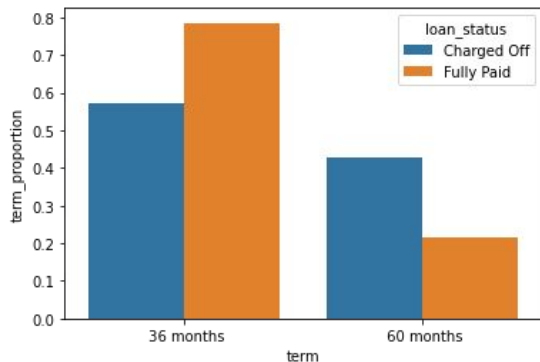
Key Insights [2/10]



Observation: Very High Loan Amount has high risk of Charged off

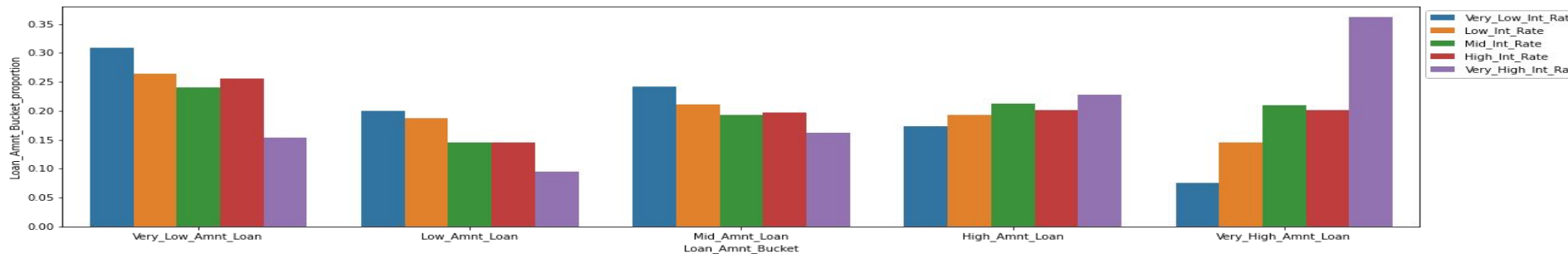
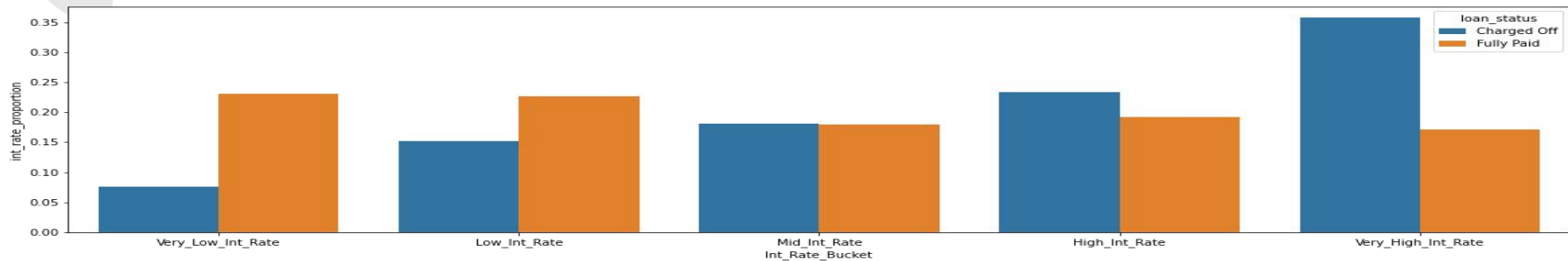


Key Insights [3/10]



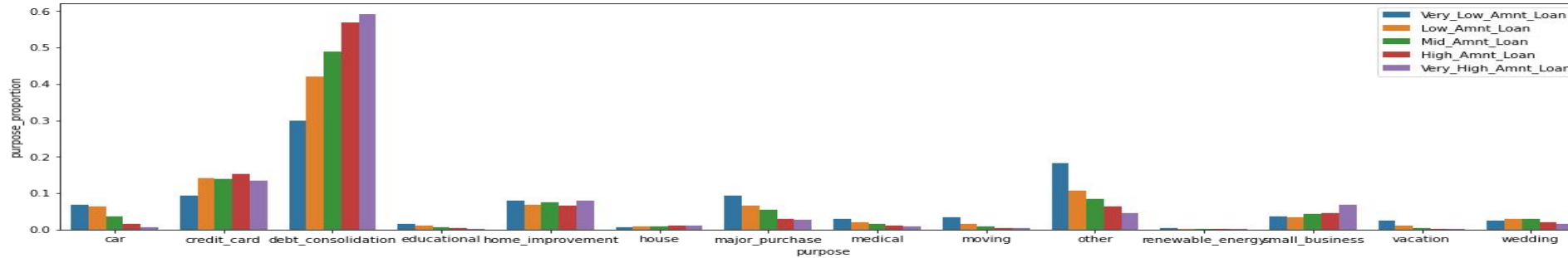
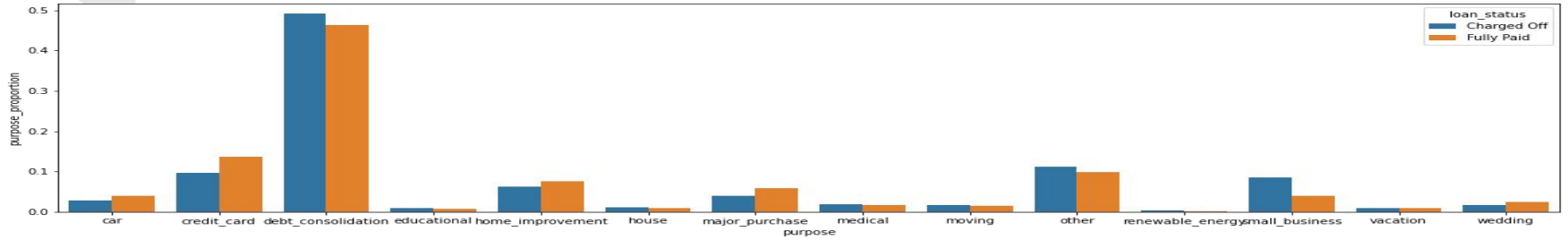
Observation: High Loan Amount with 36 months duration has high risk of Charged Off

Key Insights [4/10]



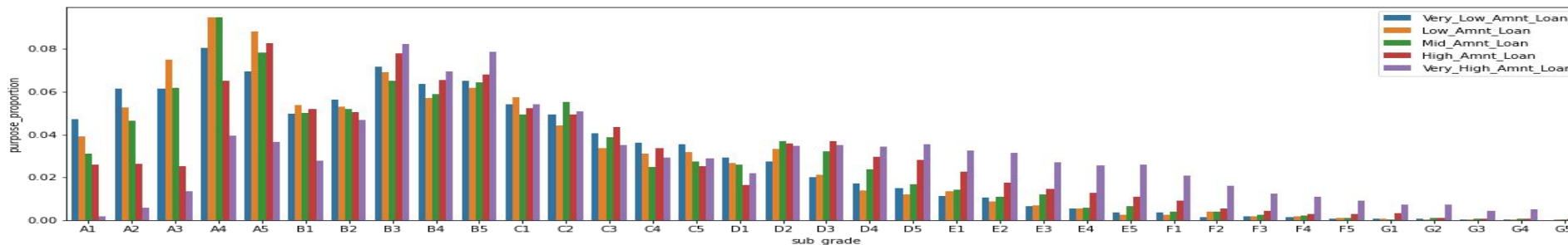
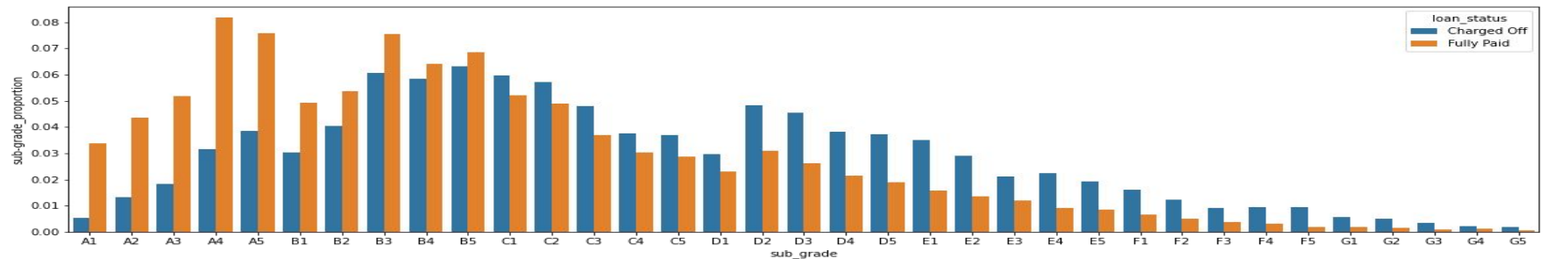
Observation: High Loan Amount with High Interest rate has high risk of Charged Off

Key Insights [5/10]



Observation: High Loan Amount with purpose of Debt Consolidation has high risk of Charged Off

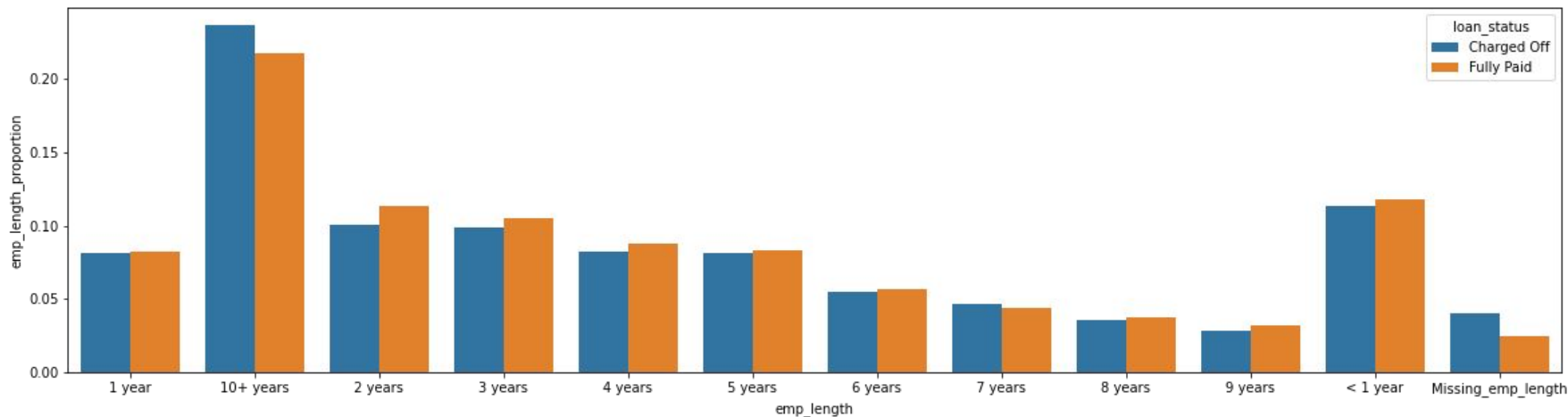
Key Insights [6/10]



Observation: Grade C and lower has higher risk of Charged Off



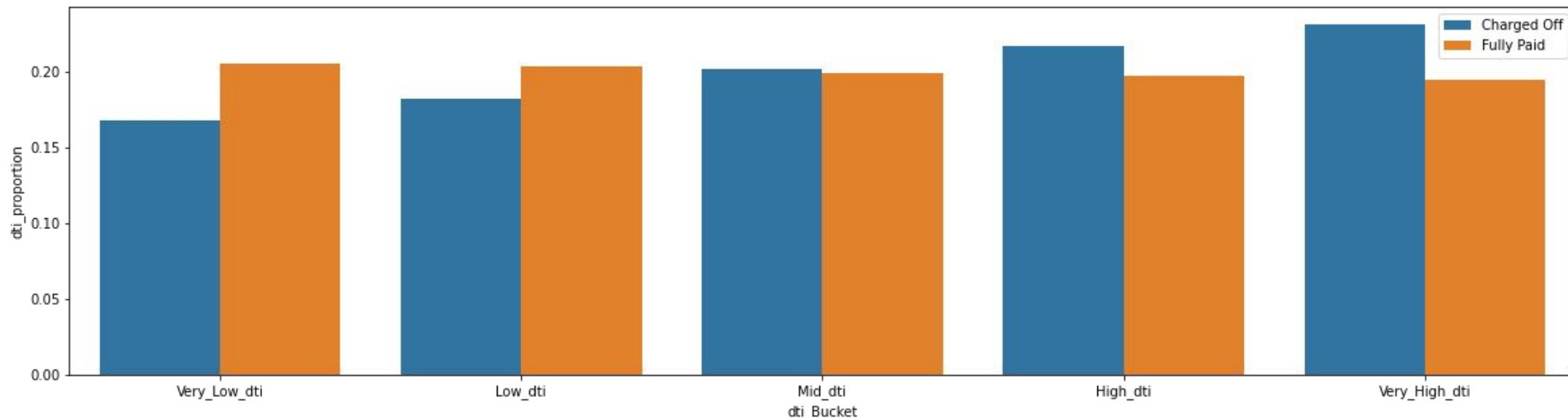
Key Insights [7/10]



Observation: Applicant with employment length of less than 1 year and higher than 10 years has high risk of Charged Off

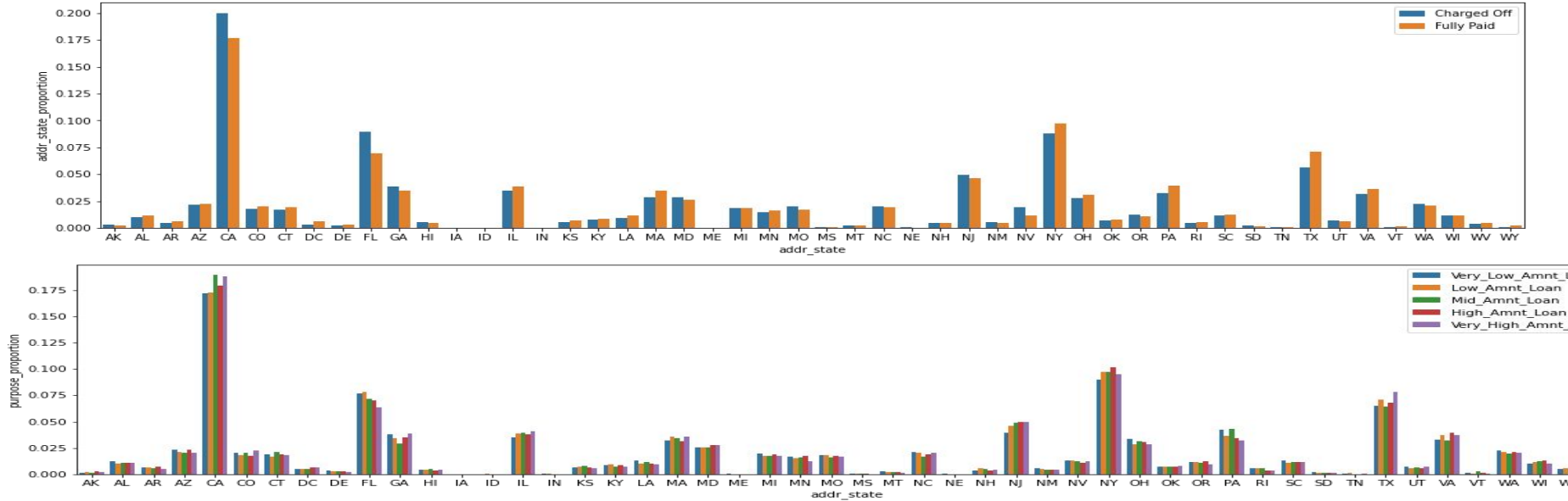


Key Insights [8/10]



Observation: Applicant with high & very high debt to Income ratio has high risk of Charged Off

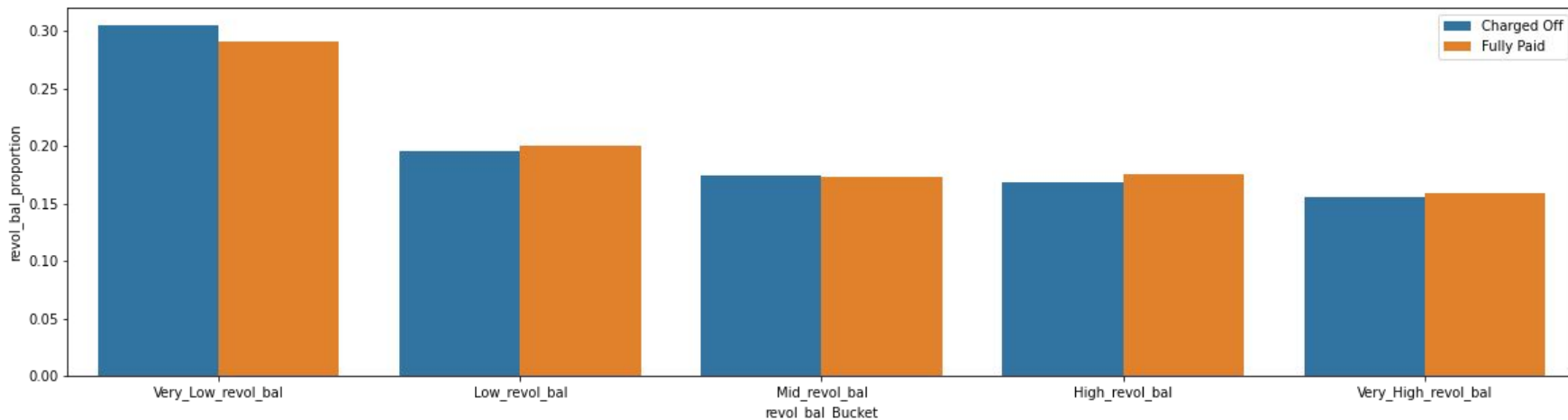
Key Insights [9/10]



Observation: Applicant from CA with high loan amount request has high risk of Charged Off



Key Insights [10/10]



Observation: Applicant from VERY low revolving balance high risk of Charged Off



Summary: High Risk Loan Attributes

1. Very High Loan Amount
2. High Loan Amount with 36 months duration
3. High Loan Amount with High Interest rate
4. High Loan Amount with purpose of Debt Consolidation
5. Grade C and lower has higher risk
6. Employment length of less than 1 year and higher than 10 years
7. High & very high debt to Income ratio
8. Applicant from CA with high loan amount
9. VERY low revolving balance



Thank You