

Lending Club Case Study

Assignment

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Project Summary

Project Brief: 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 online interface.

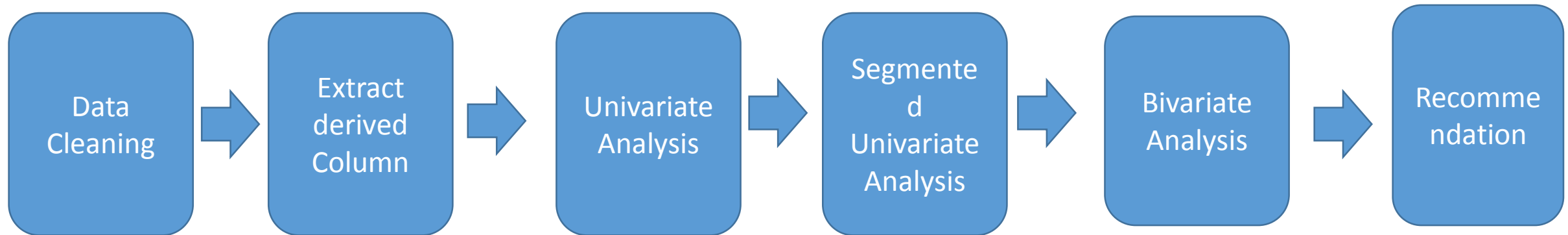
Business strategy: The company want to utilise this knowledge for its portfolio and risk assessment.

Business objective: Study the driving factors (or driver variables) behind loan default, i.e. the variables which are strong indicators of default. .

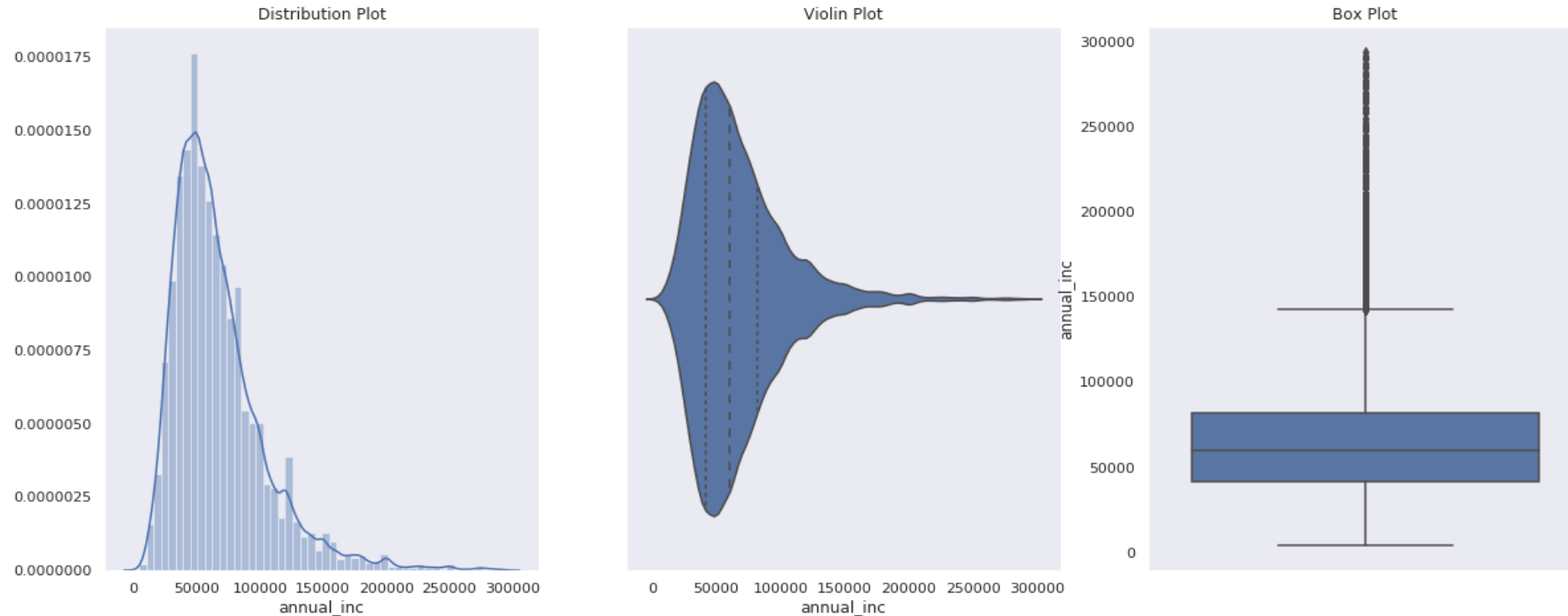
Business understanding :

- 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

Flow chart

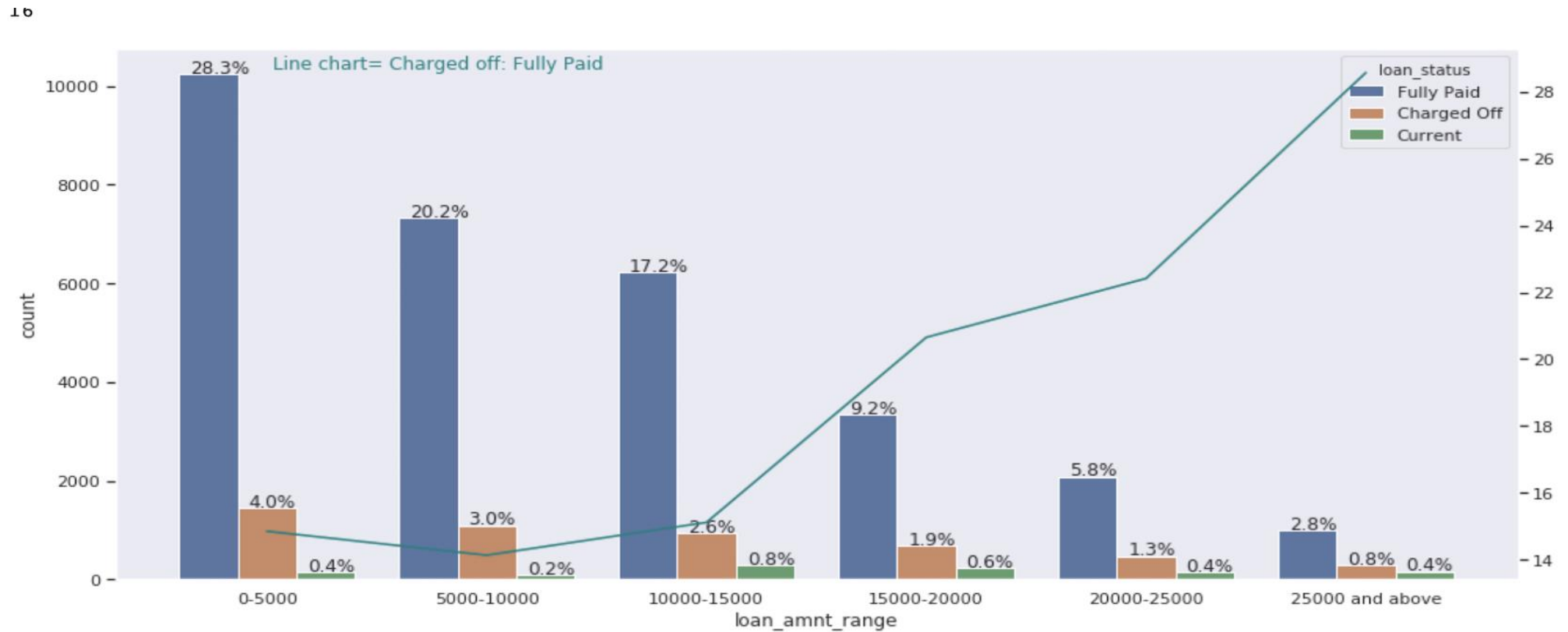


Loan amount analysis



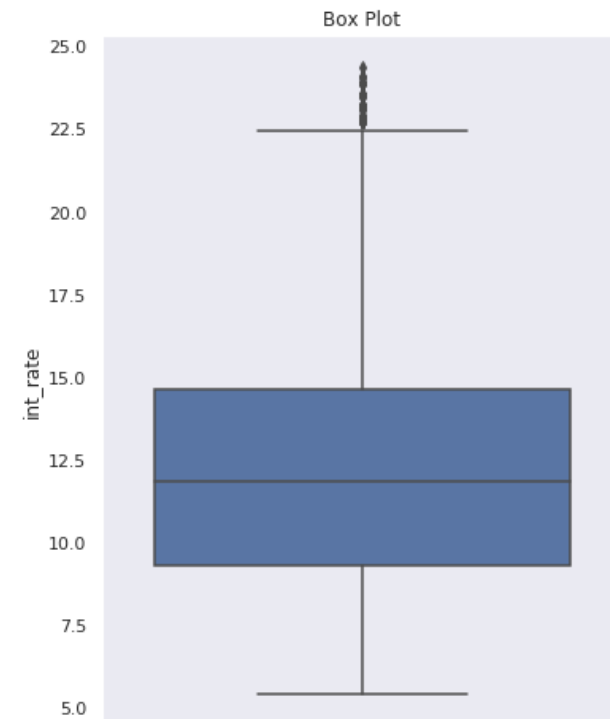
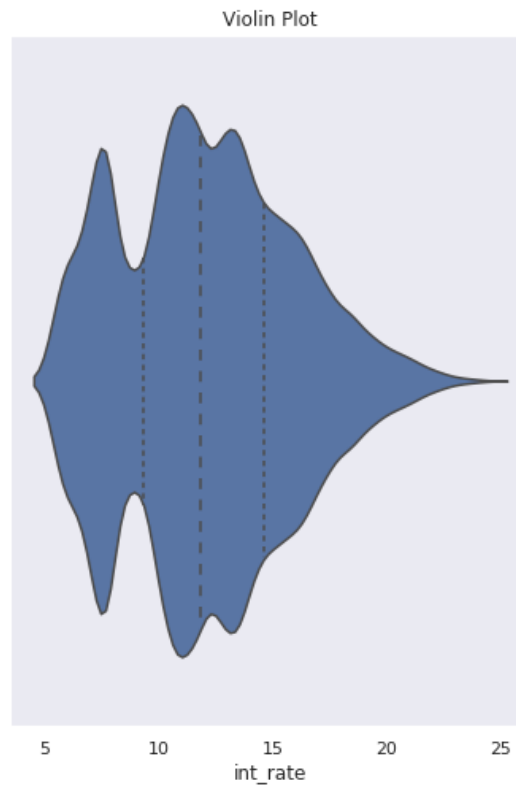
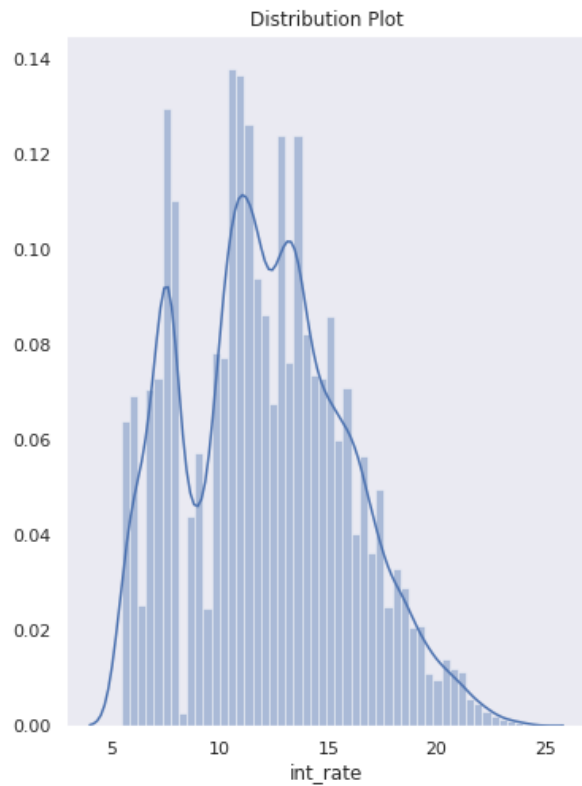
- *Loan amounts are mostly between 5500-15000*
- *Violin plot/Distribution plot suggests people likely to take loan on rounded figures like 20000/25000*

Loan amount analysis



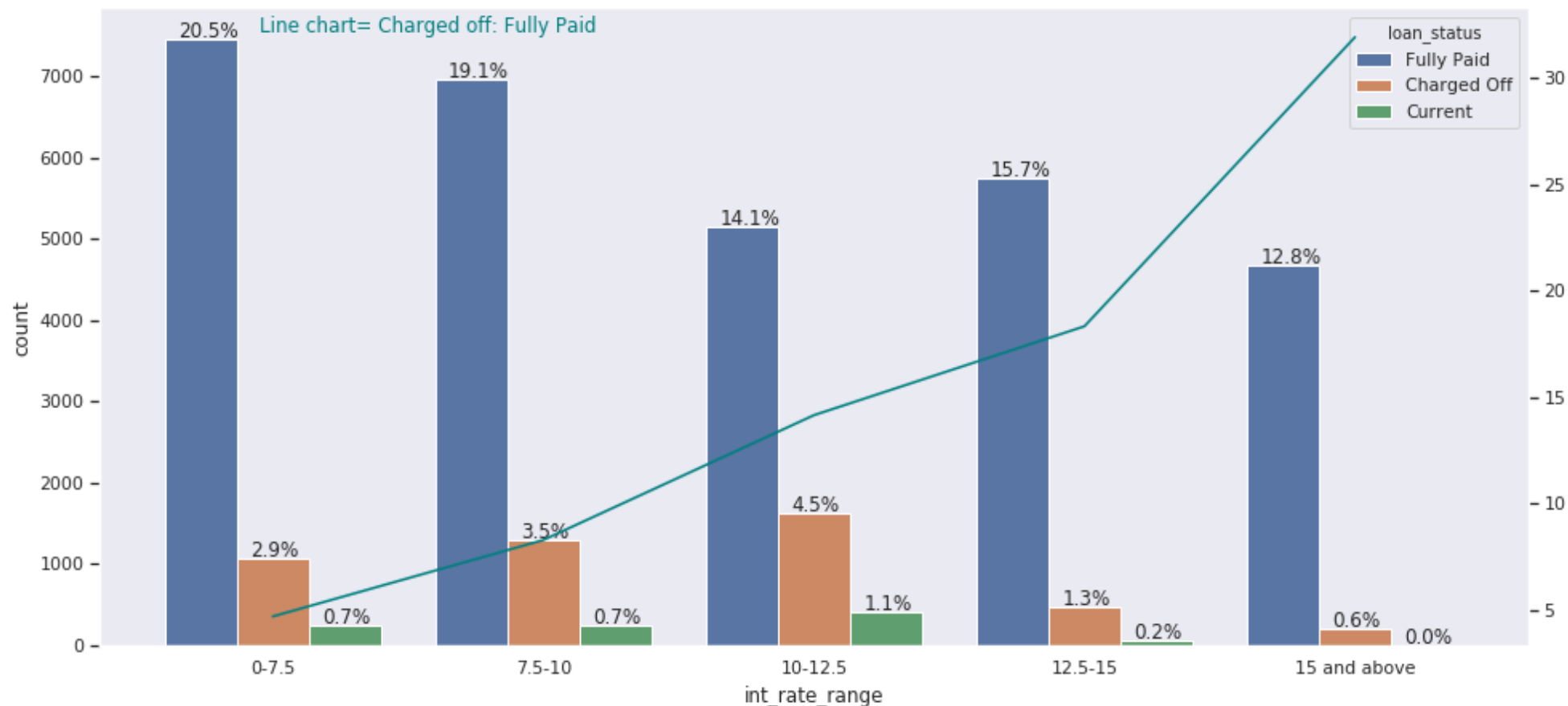
With higher range of loan amount likely to be Charged Off more.

Interest rate Continuous



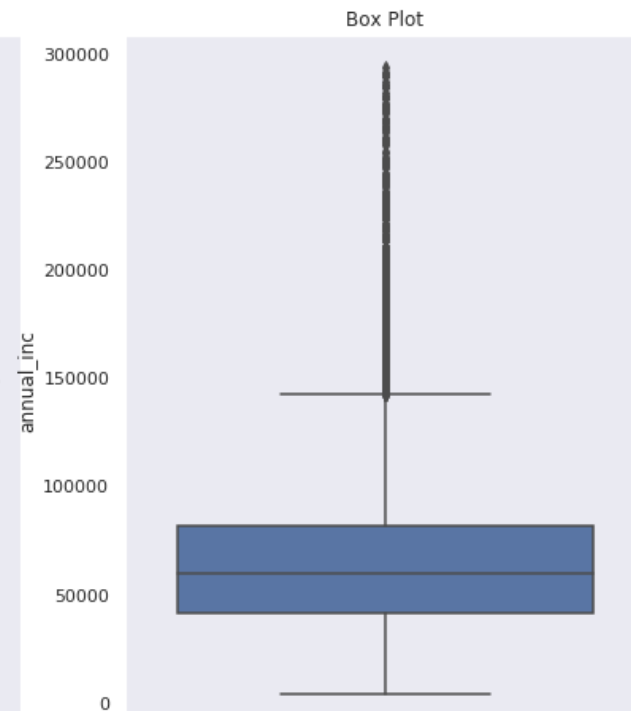
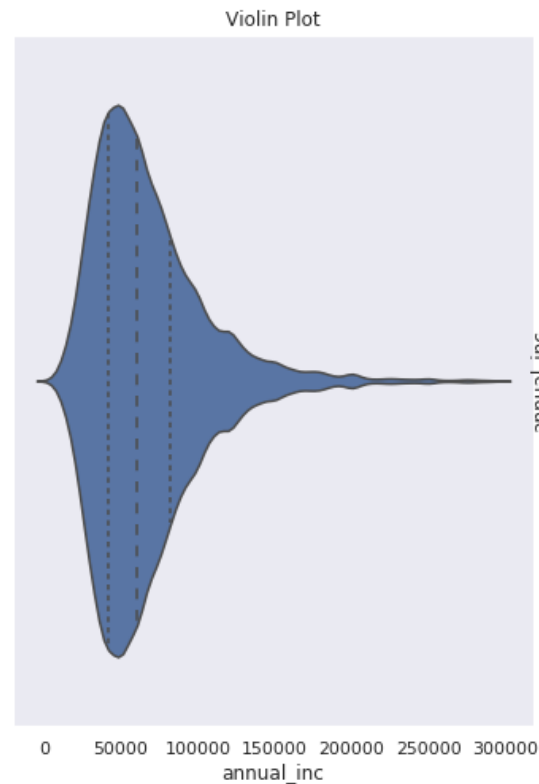
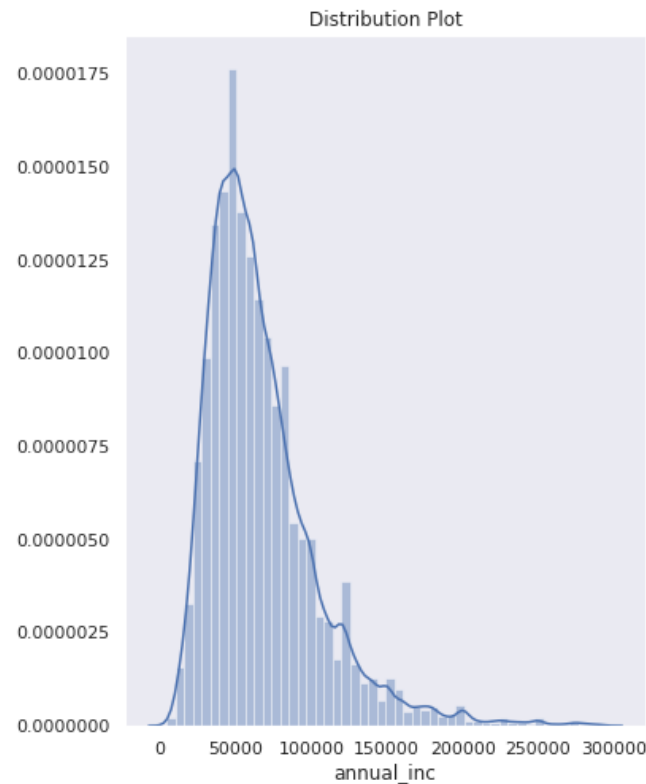
Interest Rate likely to be between 9-14.5 %

Interest rate



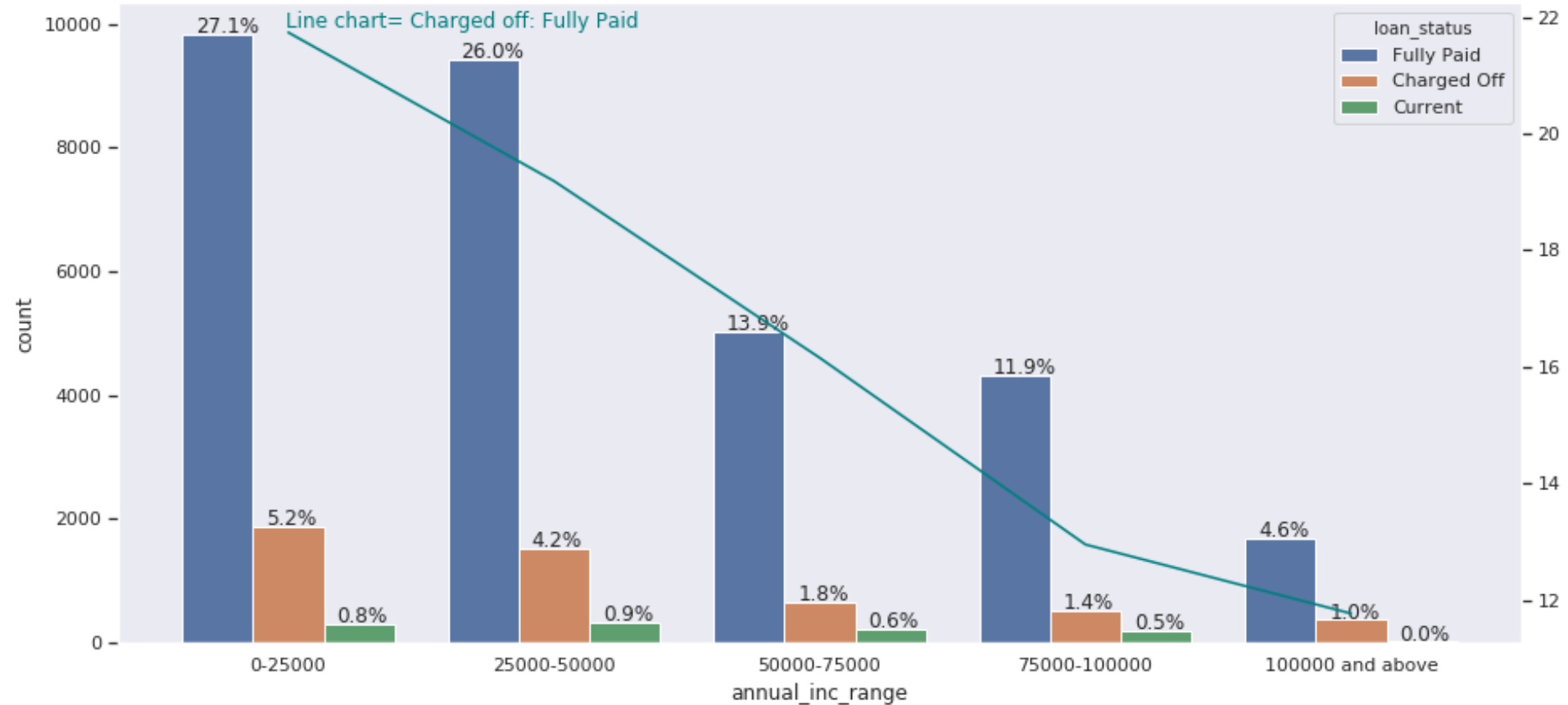
Higher interest rates leads to defaulter. It should be less than 12.5%

Annual income continuous



Most of the applicant income lies between 40000 - 80000 approx

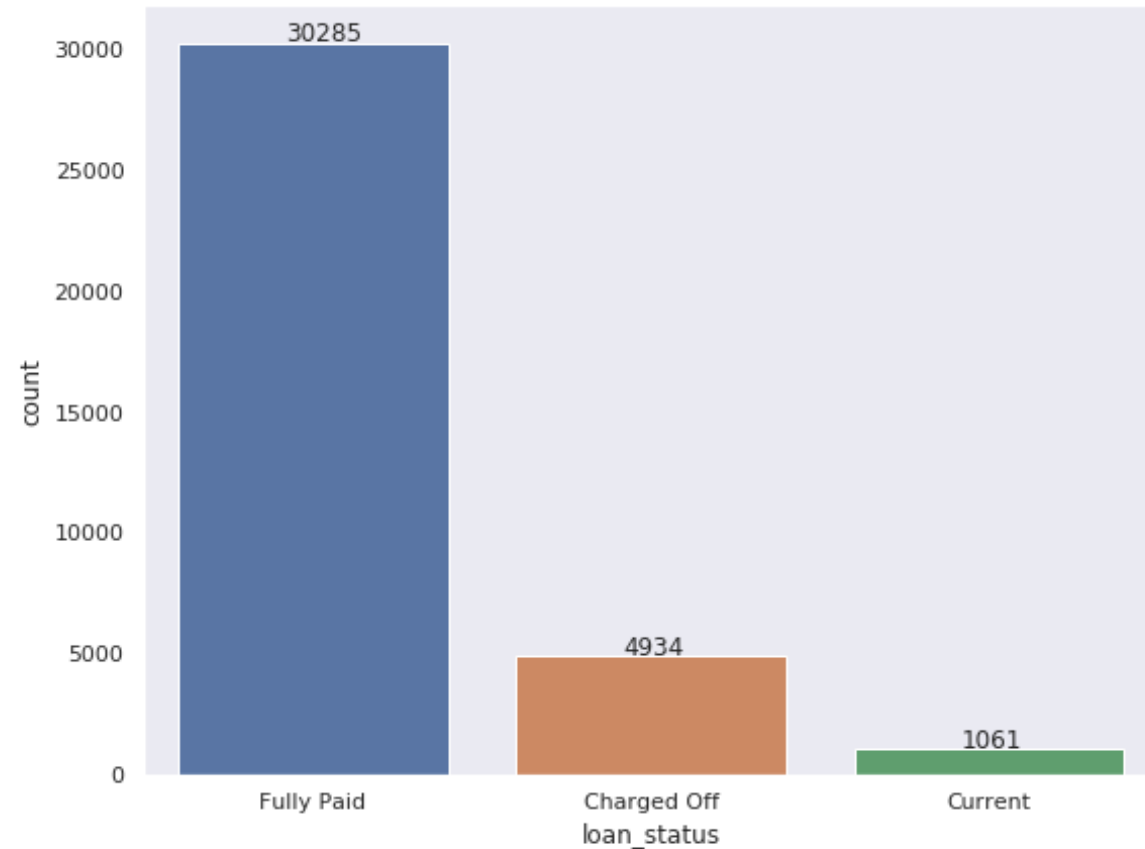
Annual income segmented



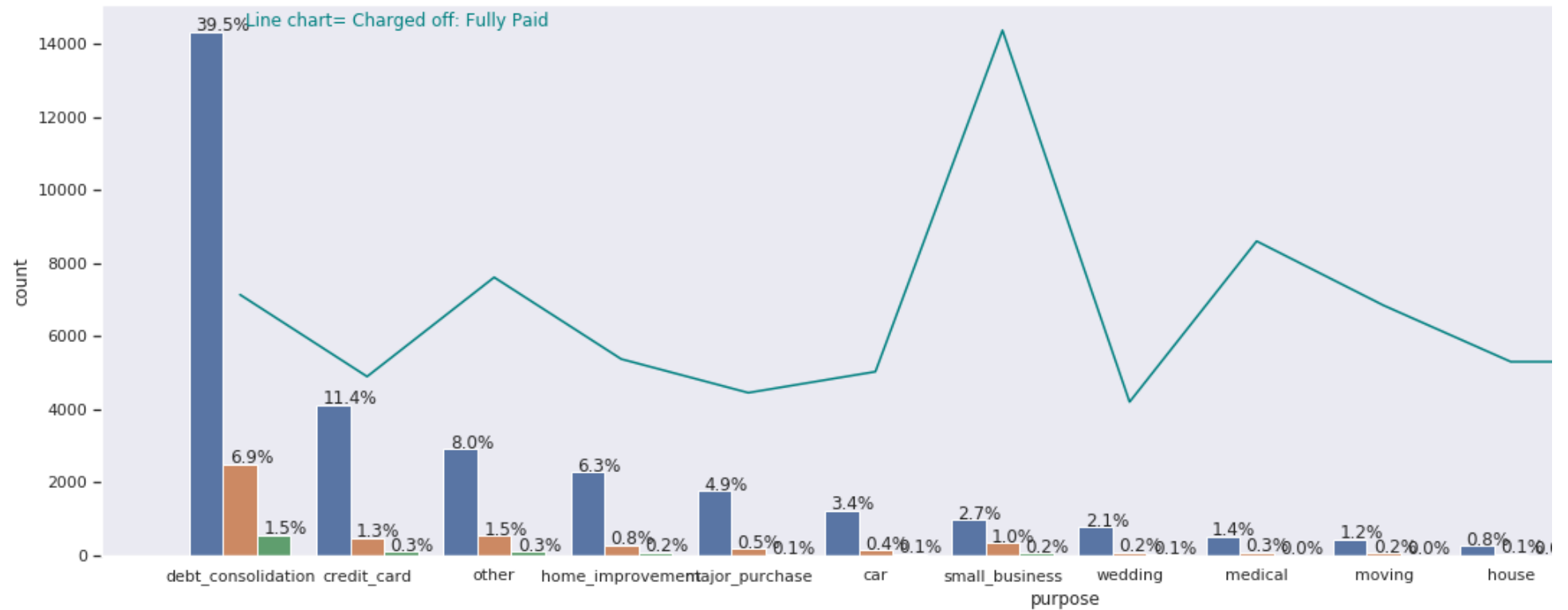
Charged Off Observation- Lower the income more likely to be defaulter. Not safe to distribute loan below 50000 salary

Loan status analysis

- Charged off amount 13.5%
- Charged off to fully paid ratio is 16%
- Average stat is mentioned above. We will consider 20% value more than value above for allowed limit.
- That is more than 18.5% charge off to fully paid ratio for any category prove to be vulnerable for distributing further loan

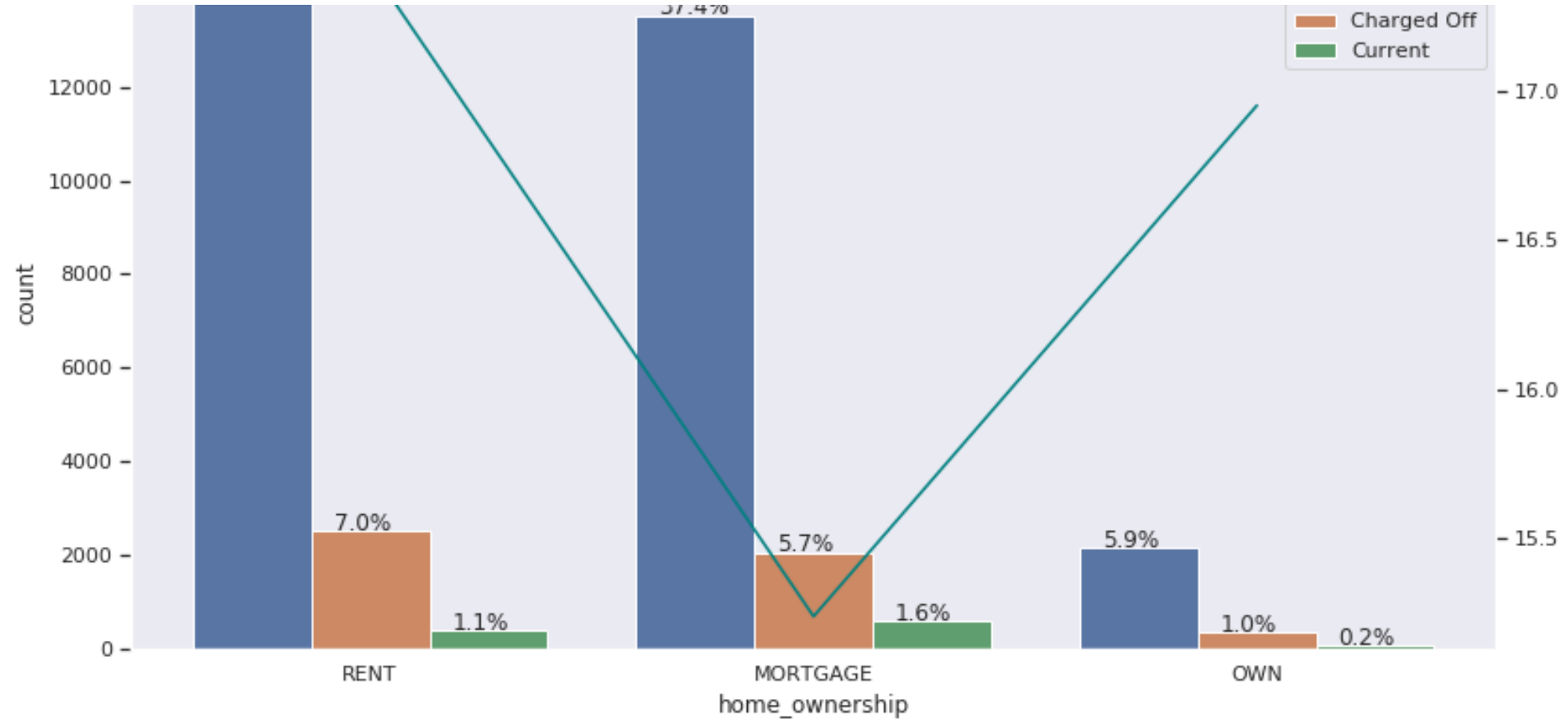


Purpose analysis



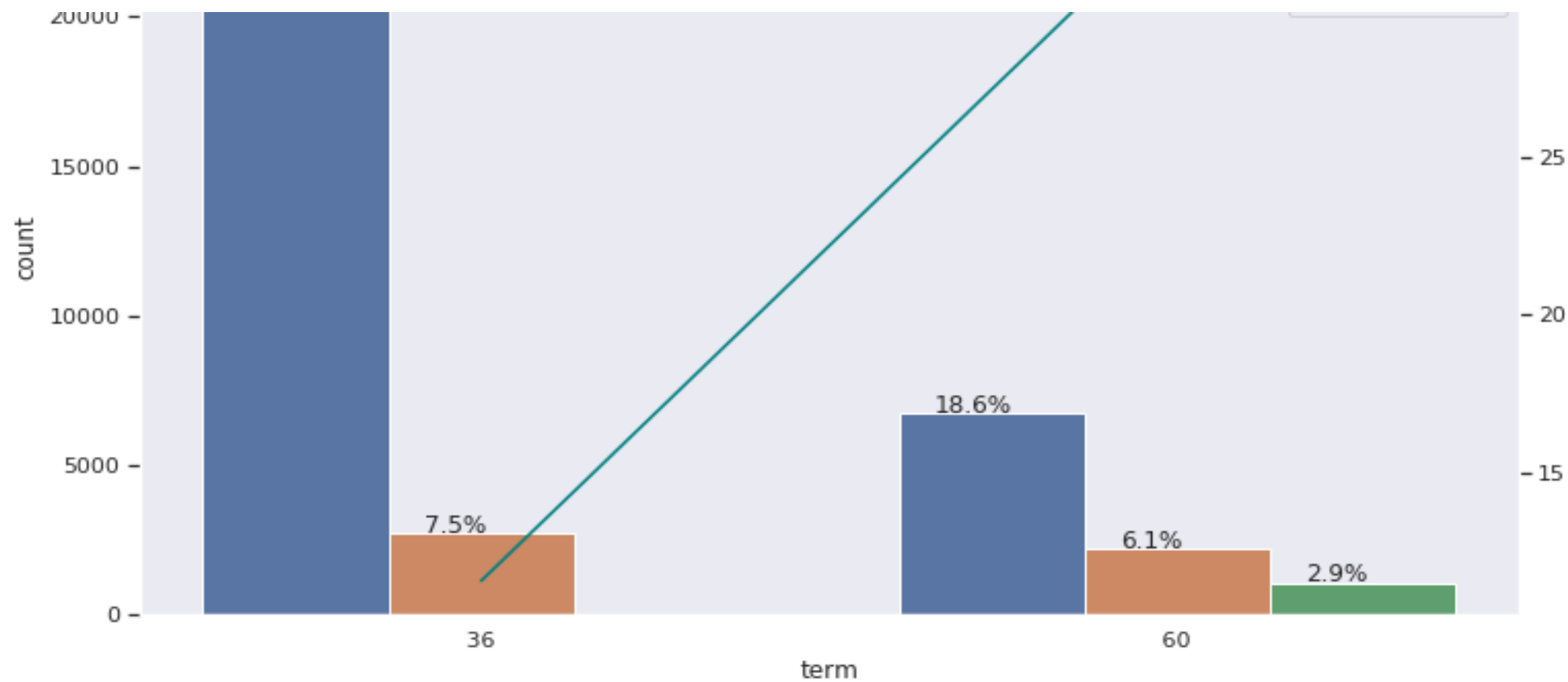
- For small business distributing loan is risk
- 47% of the loan distributed for debt consolidation

Home Ownership analysis



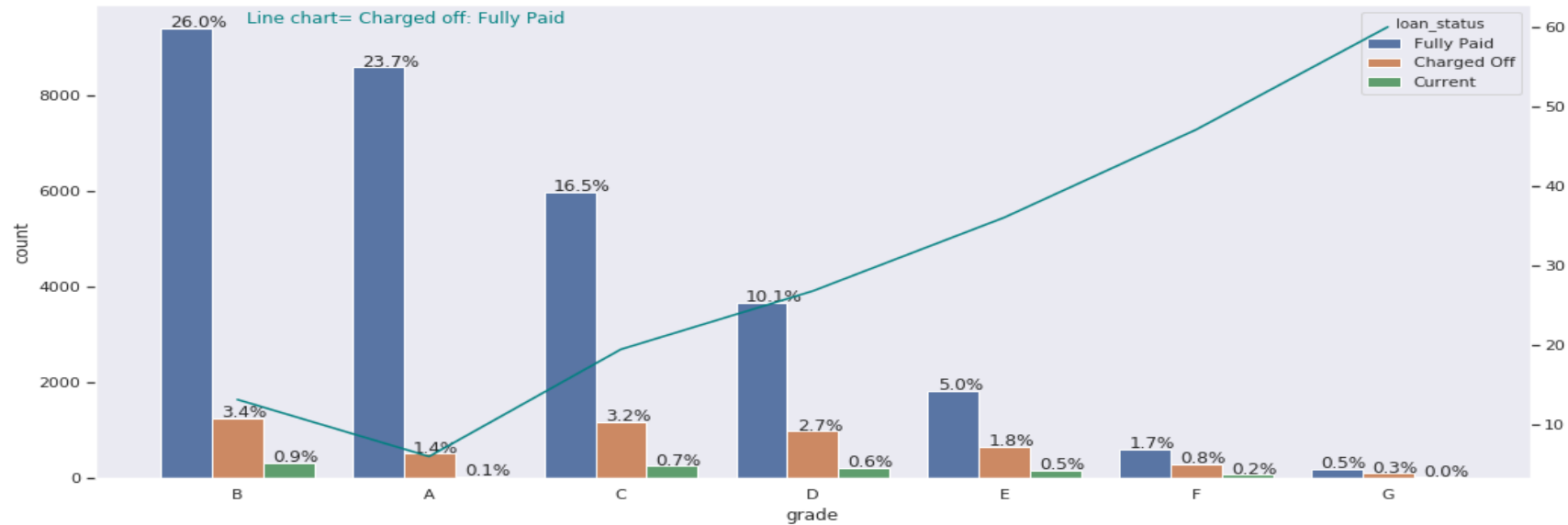
People Mortgaged home likely to repay loan more than compared to others

Term analysis



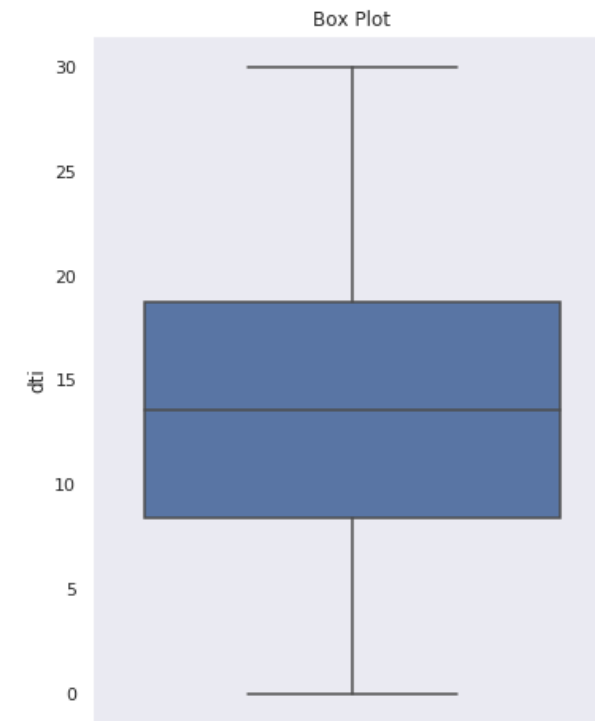
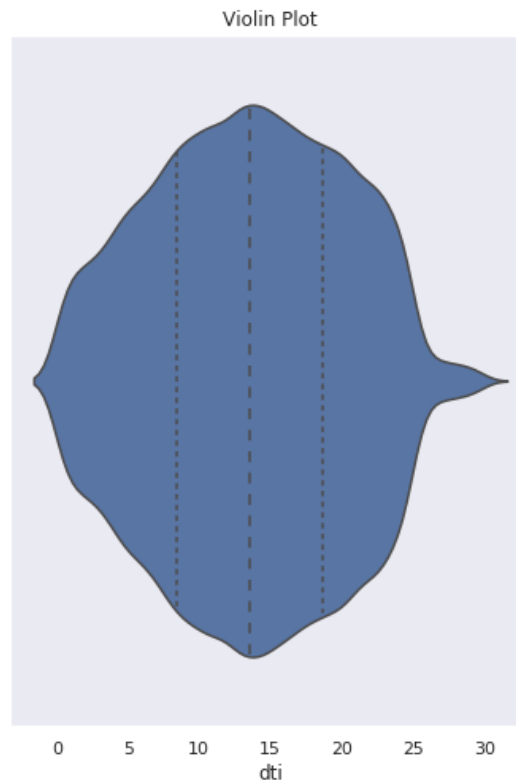
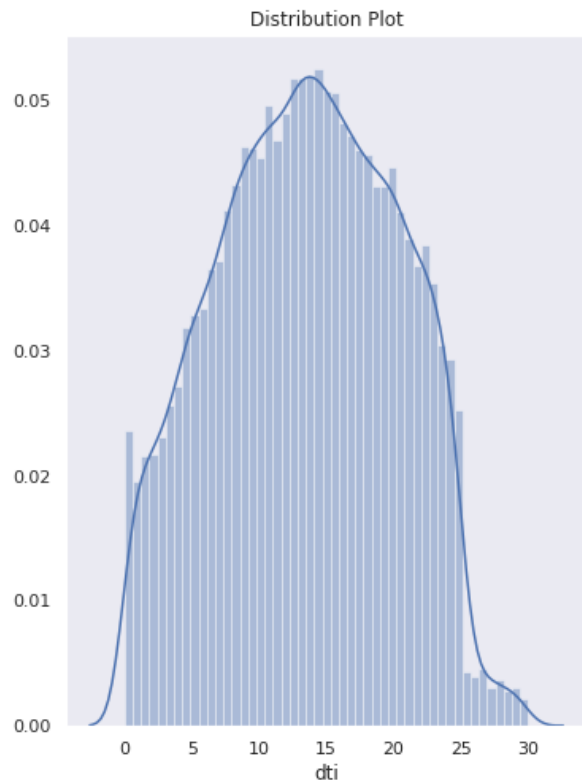
60 months category people more likely to charged off

Grade Analysis



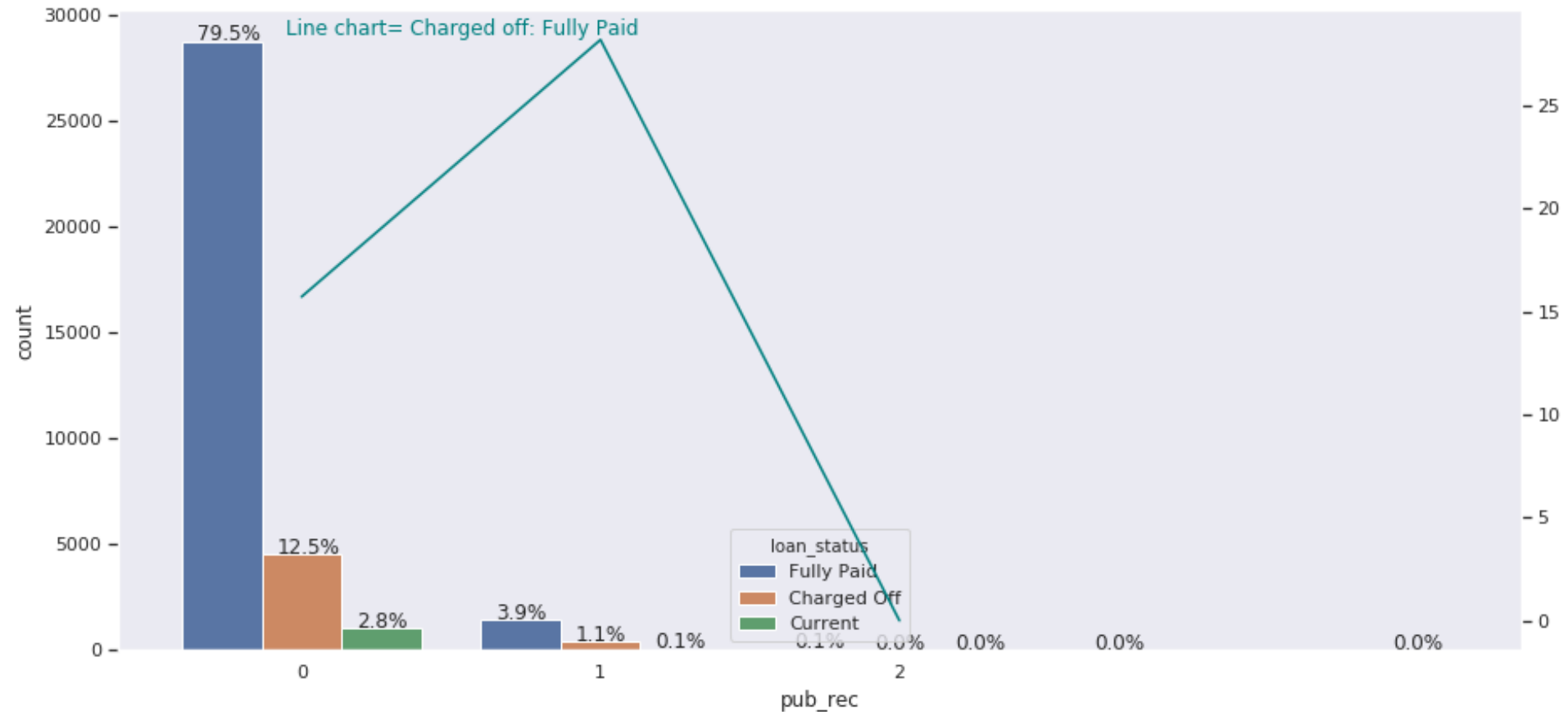
- For A and B graded loans likely to get repaid
- For D, E 20-25 % probability of not returning loan
- For F and G 30- 40% probability of not returning loan.
- B and A grade loans are disbursed more frequently

DTI (Debt to income)



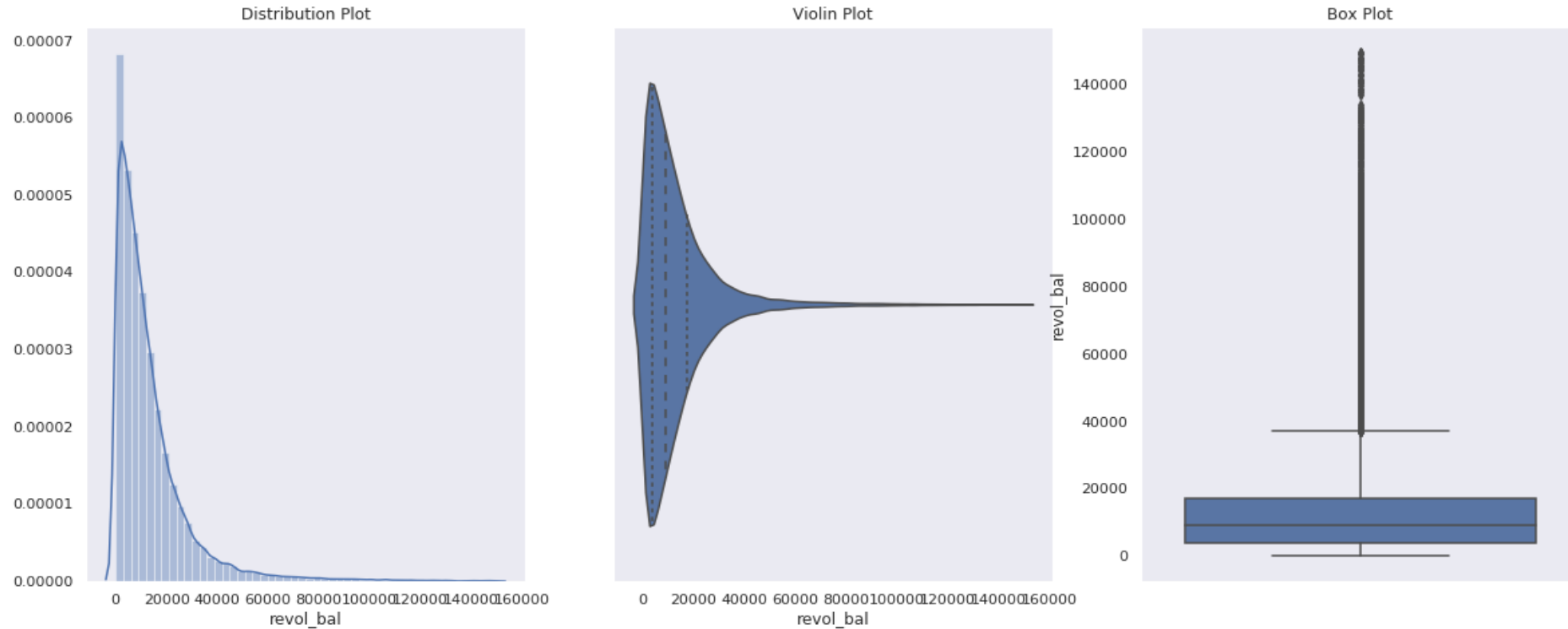
Applicant DTI likely to be between 8 to 19

Public record analysis



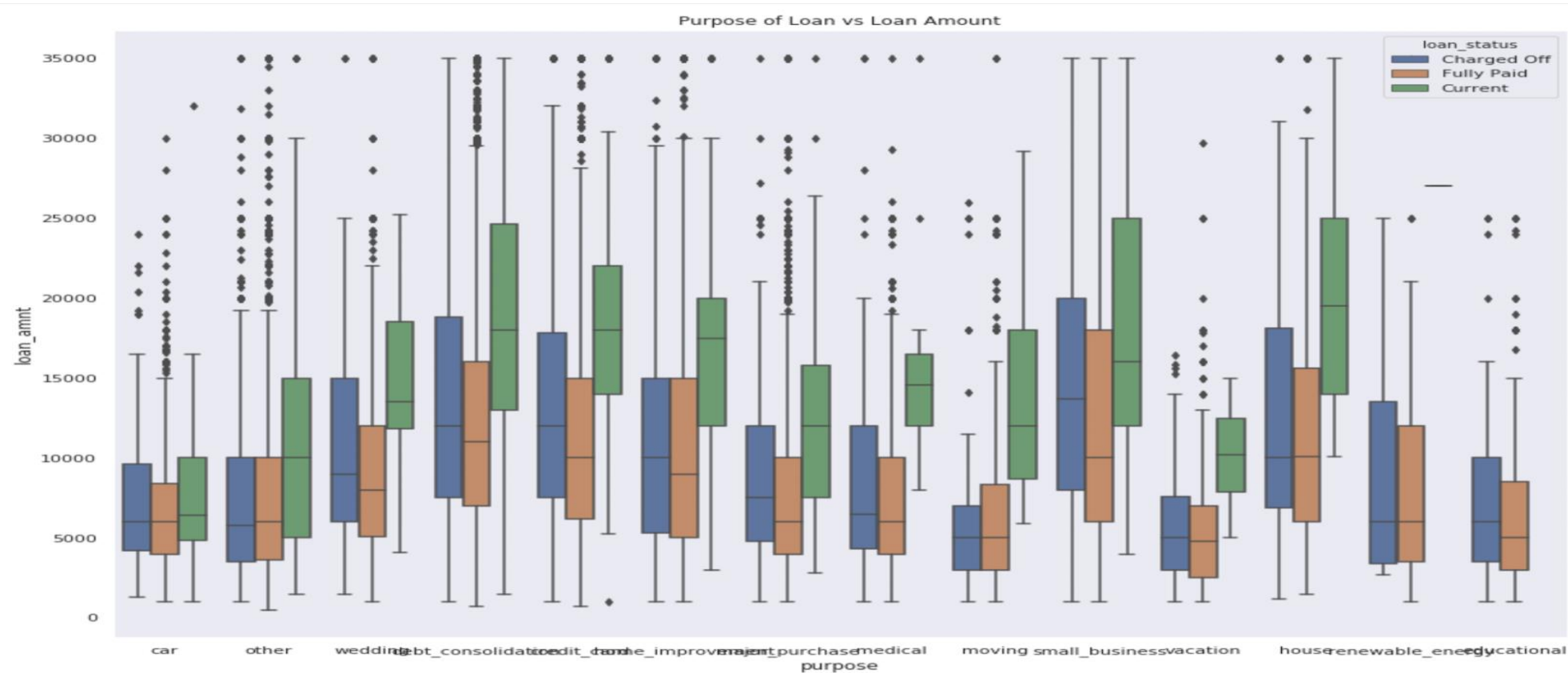
- more derogatory public record leads to charge of
- 95% applicant don't have pub_rec

Revolve Balance



- Revolving balance will be ideally between 3500 to 17000
- Violin plot has a long tail which suggests that few people has very large amount of revolving balance

Purpose of loan vs loan amount for each loan status



- For house, small business and debt consolidation current will be more
- no current loan for renewable and education
- small business, credit card has higher charged off amount

Heat Map correlation analysis



- Loan_amount, funded_amnt, funded_amnt_inv and installment are strongly correlated
- int_rate is not correlated with most of the column
- DTI and annual_inc is negatively related

Recommendation

Reduce	Reduce number of approvals where purpose is small industries
Stop	Stop approving high value loans where revolving line utilization rate is higher than 75%.
Stop	Stop approving loans to people with prior bad records.
Start	Start charging higher interest rate with DTI value greater than 15.
Start	Start giving loan to A and B graded people
Stop	Stop giving loan with lower graded borrowers