

Lending Club Case Study

Exploratory Data Analysis in order to find applicants with potential risk of default

Case Study by:

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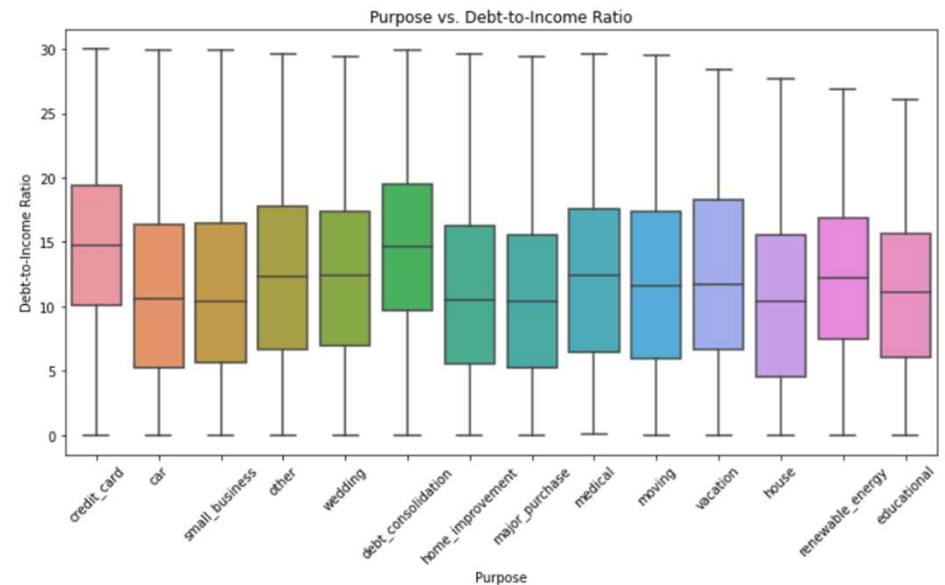
General Info

- The case study will use Exploratory Data Analysis to solve a business problem where the study will identify factors which are indicators of potential defaulter applicants.
- A dataset with the name 'loan.csv' which contains historical data of previously applied loan applicants along with a data dictionary which contains details of all the terms which has been used in the dataset.

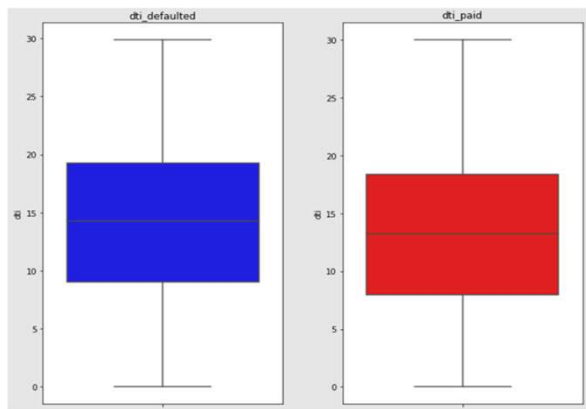


Finding No. 1 from EDA: Purpose Vs DTI

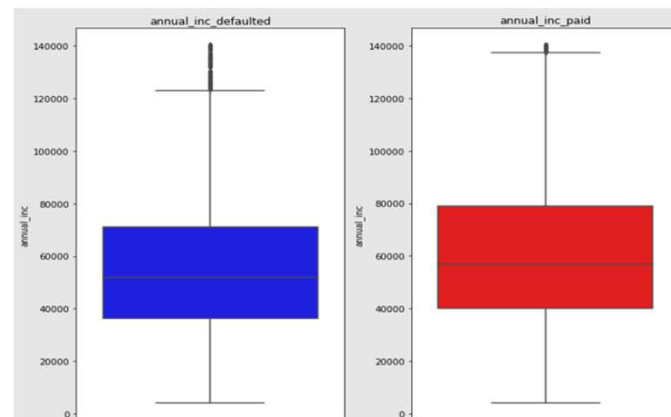
- DTI is higher for Credit card and Debt Consolidation.
- Loan applicants from these two categories are comparatively risky.



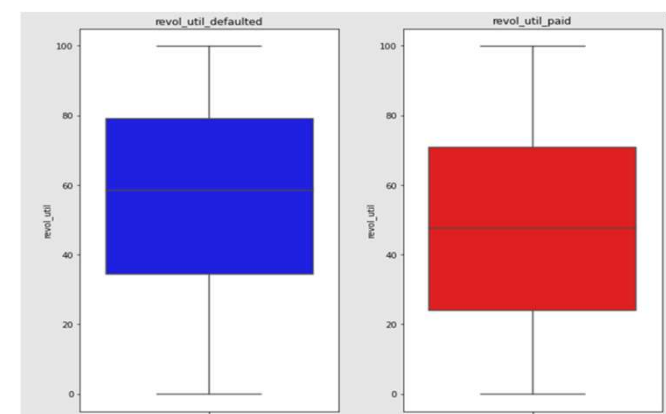
Finding No: 2 from EDA: Potential variables



Box plot of dti for defaulted (blue) and fully paid (red) category



Box plot of annual income for defaulted (blue) and fully paid (red) category



Box plot of revolving utilization rate for defaulted (blue) and fully paid (red) category

Summary of findings from EDA

Loan applicants are potentially risky and there are high chances of loan default when:

- loan is availed for the purposes of credit card and debt consolidation and with DTI more than 15.
- Applicants with income less than 40000.
- Applicants with revolving util more than the 58%.
- If the percentage of amount the applicant pays for loan installments is higher than 10% of his monthly income.
- If debt to income ratio is more than 15.

Recommendations

01	Risk Assessment	<ul style="list-style-type: none">The bank should revise its risk assessment and credit scoring models to include the identified variables 'dti,' 'annual_inc,' 'perc_installment_income,' and 'revol_util') more prominently. *
02	Customize Credit Limit	<ul style="list-style-type: none">Tailor credit limits and interest rates based on the risk profile of the borrowers.
03	Risk Mitigation	<ul style="list-style-type: none">Borrowers with higher 'dti' ratios, lower 'annual_inc,' and higher 'perc_installment_income' might be offered lower credit limits or higher interest rates to mitigate risk.
04	Education	<ul style="list-style-type: none">For borrowers with high 'dti' ratios, provide financial education and counseling services to help them manage their debts more effectively.This proactive approach can reduce the risk of default.

*

dti : Debt to Income ratio

annual_inc : Annual Income

Perc_installment_income : percentage of loan installments in monthly income

Revol_util: Revolving line utilization rate



Conclusion

- The four variables 'dti', 'annual_inc', 'perc_installment_income' and 'revol_util' have significant influence in deriving the pattern of defaulters.
- It can be found that the 'dti', 'perc_installment_income' and 'revol_util' are much more for the defaulters compared to the paid category.
- 'annual_inc' is much more for the paid category when compared to the defaulters
- The risk is higher if the loan purpose is 'credit card' or 'debt consolidation'

