



Lending Case Study

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Lending Case Study – Problem Statement

Business is looking to reduce Credit loss by understanding risky loan application. Data analysis to be performed on past loan data and understand the driving factors of loan defaults.

- Identify pattern on past loan application
- Provide Insights to identify risky application
- Provide variable/variables which could lead to loan default

Lending Case Study – Loan Data Information

- No of records – 39717
- Attributes – 111
- Loan tenure 36 / 60 Months
- Loans given only to Individuals
- Earliest credit line start on 1946

Lending Case Study – Key Insights



Lending Case Study – Insights – 1



Top 3 risky
loans in
respective
purpose

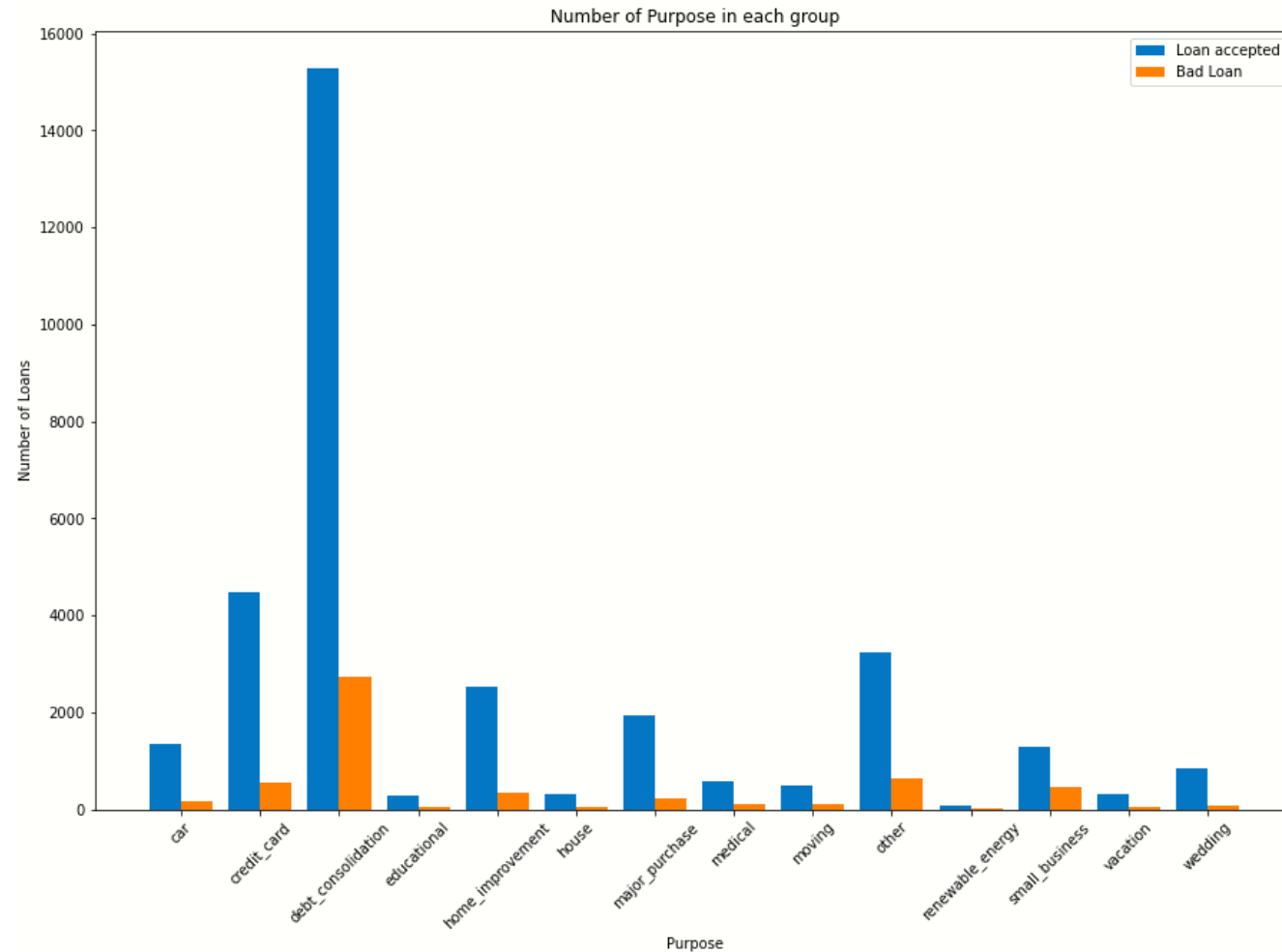
- Small Business (36.4 %)
- Renewable energy (21.7 %)
- Educational / Other / Moving (~19 %)



Extra due
diligence
Debt
Consolidati
on

- 17.9 % default in debt consolidation against all debt consolidation loans
- 46 % default loans of debt consolidation against all default loans
- Volume of debt consolidation is 3X to 10 X compared to Top 3 risky purpose

Lending Case Study – Insights – 1 Conti...



small_business	36.435	debt_consolidation	49.288929
renewable_energy	21.687	other	11.215122
educational	19.703	credit_card	9.702970
other	19.282	small_business	8.388839
moving	19.008	home_improvement	6.192619
house	18.506	major_purchase	3.906391
medical	18.261	car	2.880288
debt_consolidation	17.909	medical	1.890189
vacation	16.460	moving	1.656166
home_improvement	13.608	wedding	1.620162
credit_card	12.018	house	1.026103
car	11.949	educational	0.954095
major_purchase	11.255	vacation	0.954095
wedding	10.843	renewable_energy	0.324032

Lending Case Study – Insights – 2



Higher
Interest
rate

➤ On an average risky loans are charged 2 % higher interest rates

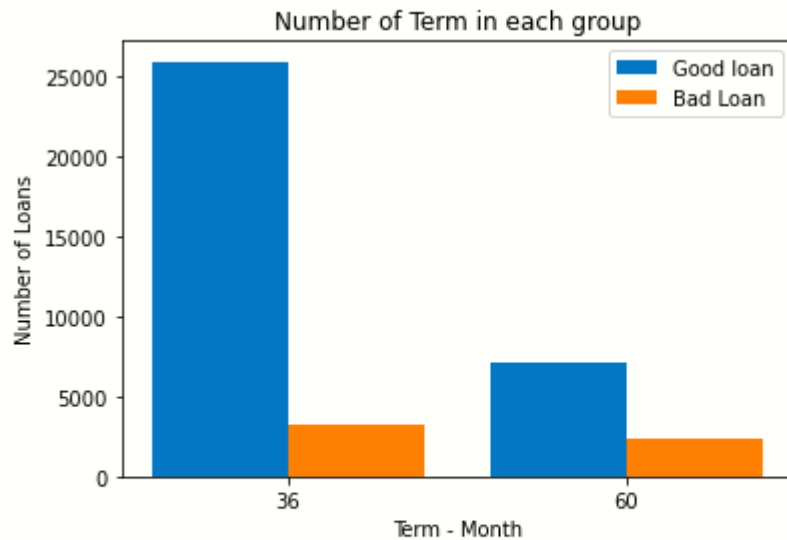
	count	mean	std	min	25%	50%	75%	max
loan_status								
0	32949.0	11.609897	3.599934	5.42	8.49	11.49	13.99	24.11
1	5555.0	13.818194	3.659818	5.42	11.28	13.57	16.40	24.40

Lending Case Study – Insights – 3



Long term
loans vs
Short term
loans

- 42 % Default loan are from 60 months term compared to all default loans
- Default Debt ratio of 60 months term is ~ 2.4 as compared to 36 months loan



Ratio of bad debt to total outstanding loans in each Term Group

Grade 36:	0.109	Total : 29041
Grade 60:	0.252	Total : 9463



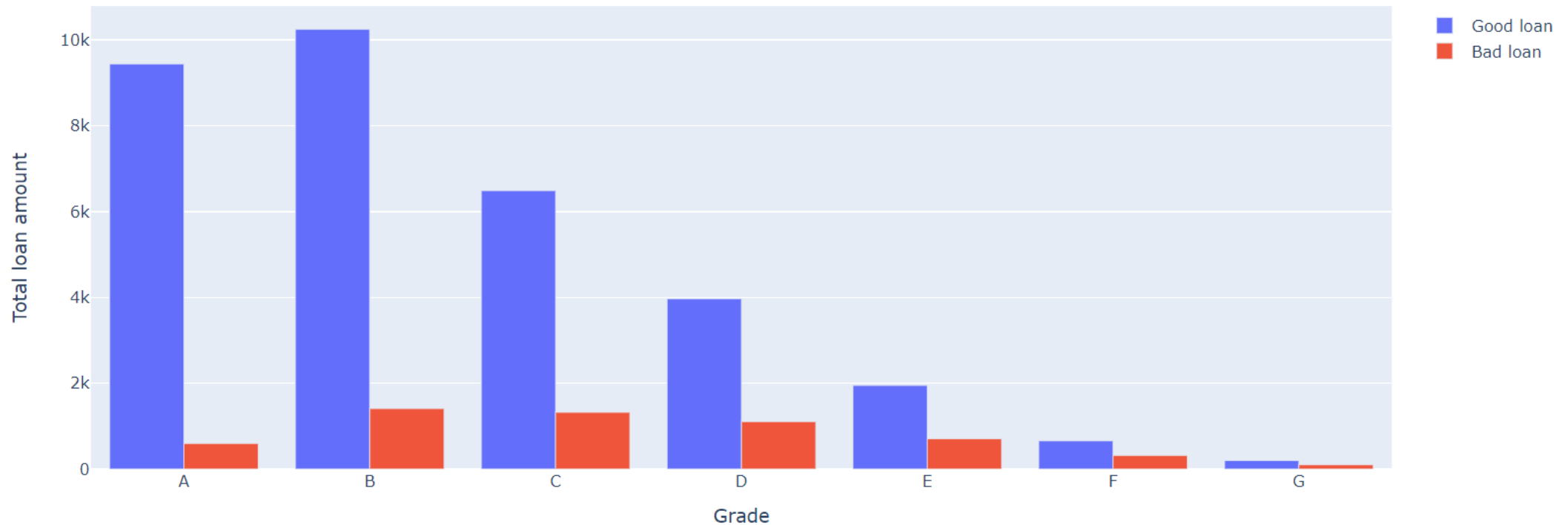
42.88028802880288

Lending Case Study – Insights – 4

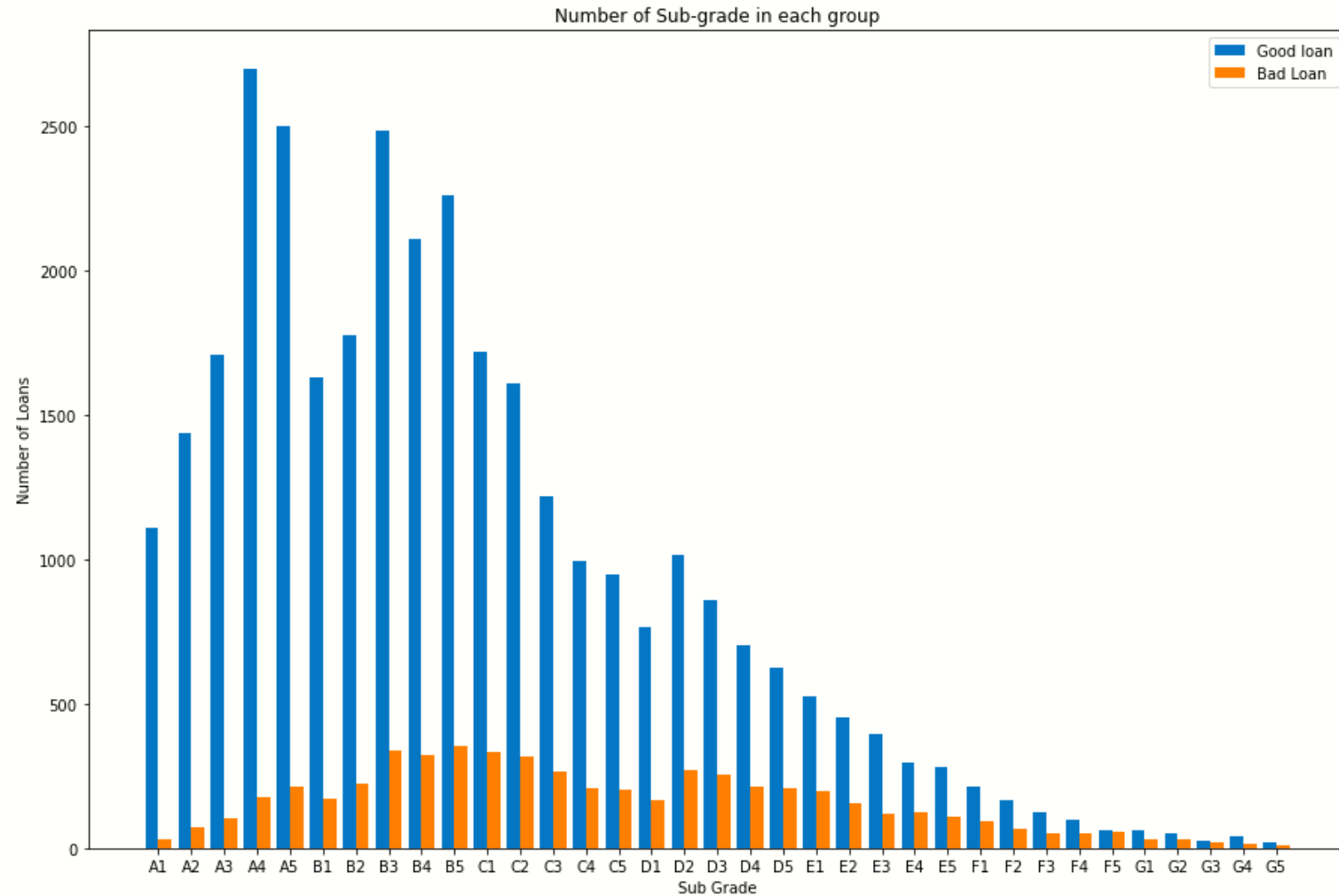


Grade & Sub Grade

- Grade A is most reliable group
- Grade F & G are more riskier group



Lending Case Study – Insights – 4 Conti...



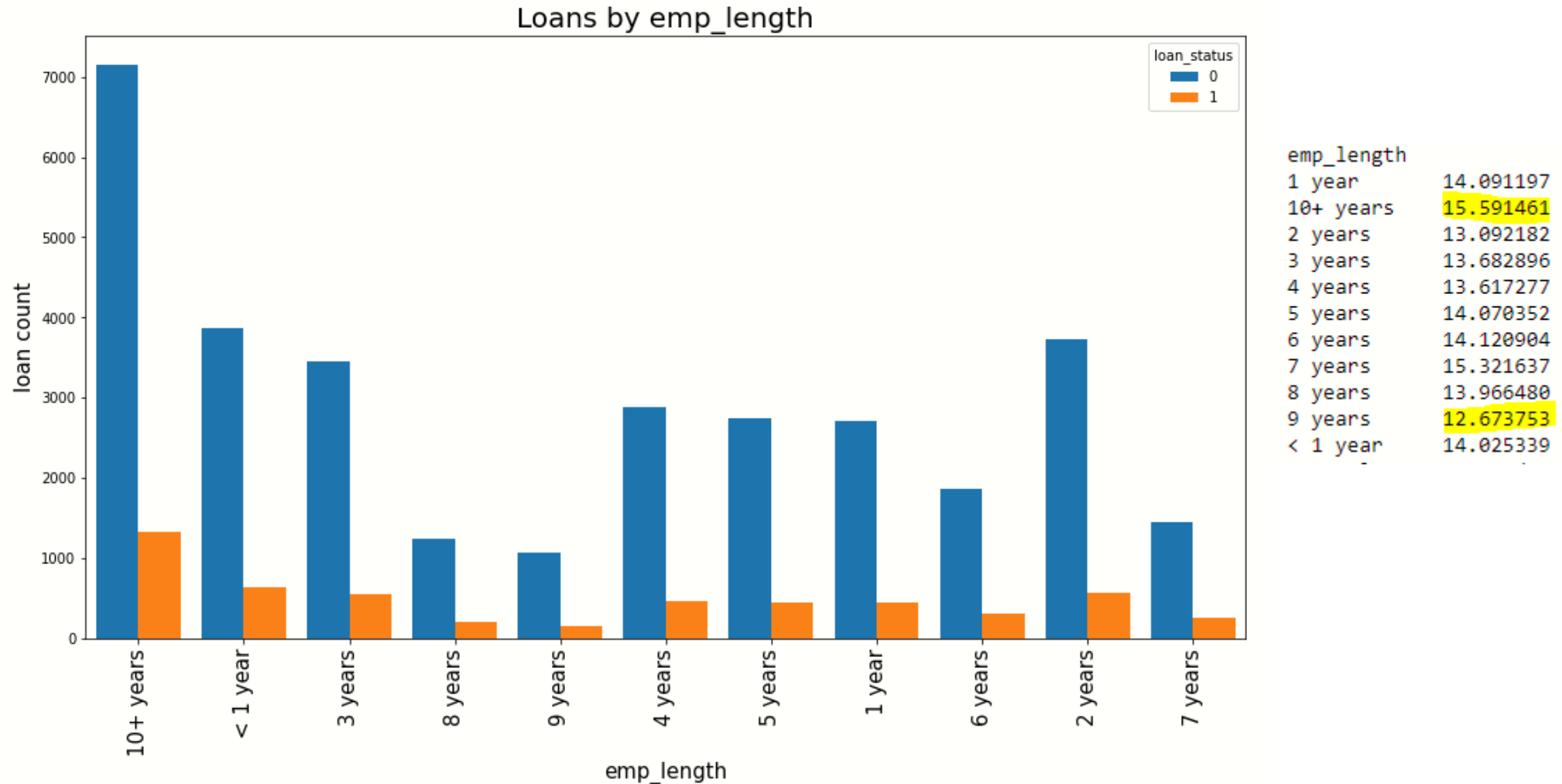
Lending Case Study – Insights – 5



Applicant
work
experience

- Close to 3% increase in loan default with applicant experience more than 9

Lending Case Study – Insights – 5



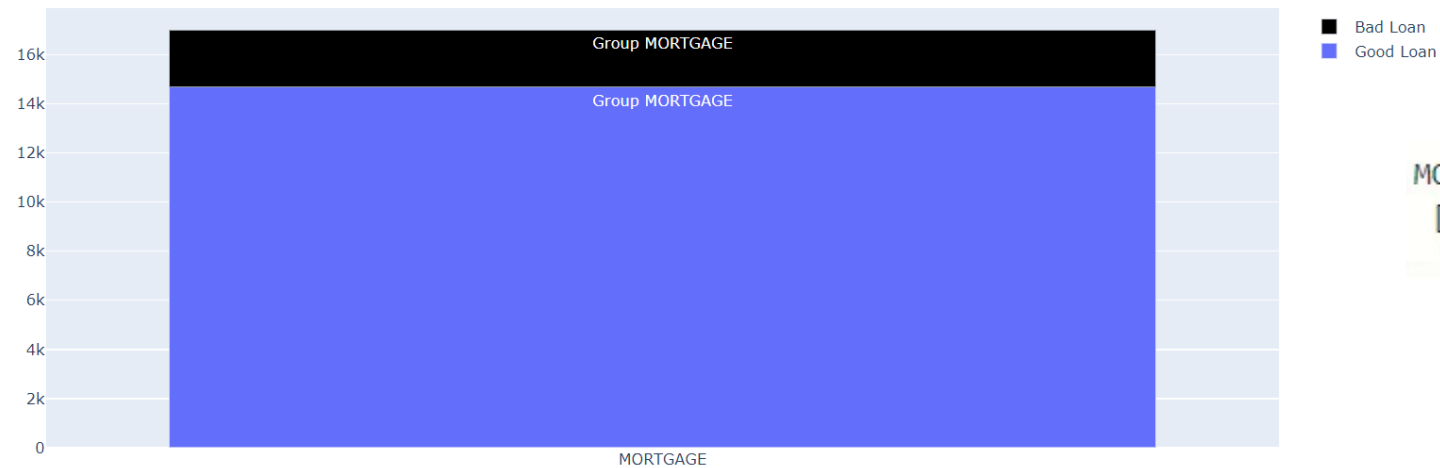
Lending Case Study – Insights – 6



Home
Ownership

- Mortgage Home Ownership loan are least riskier than all others home ownership loans
- Risk Order for home Ownership is Mortgage < OWN < Rent < Others

Lending Case Study – Insights – 6 Conti...

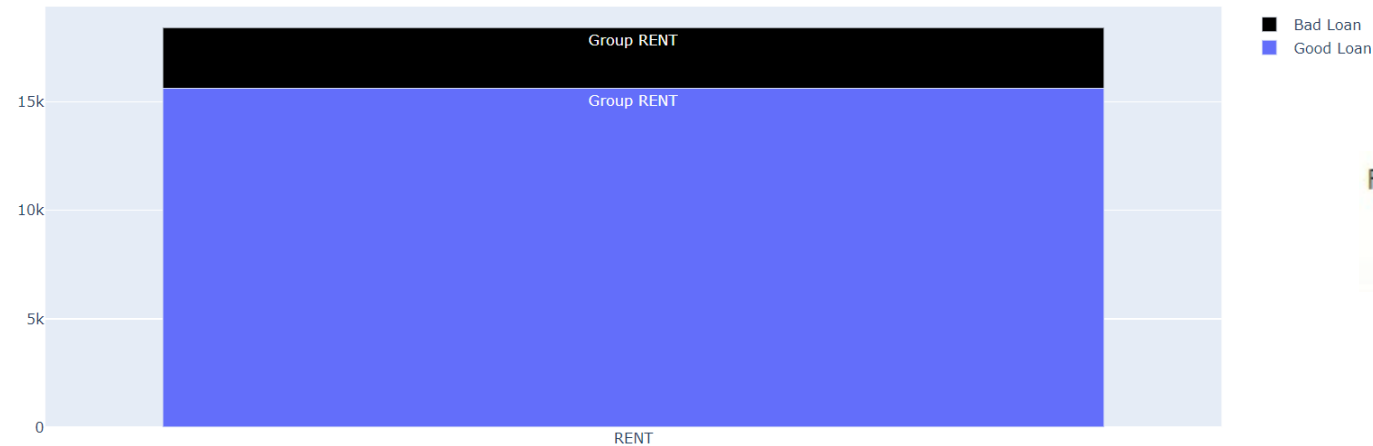


MORTGAGE ownership Bad loan rate:
[13.60108197]



OWN ownership Bad loan rate:
[14.74747475]

Lending Case Study – Insights – 6 Conti...



RENT ownership Bad loan rate:
[15.11911868]



OTHER ownership Bad loan rate:
[18.36734694]

Lending Case Study – Questions

