

Lending Club Case Study

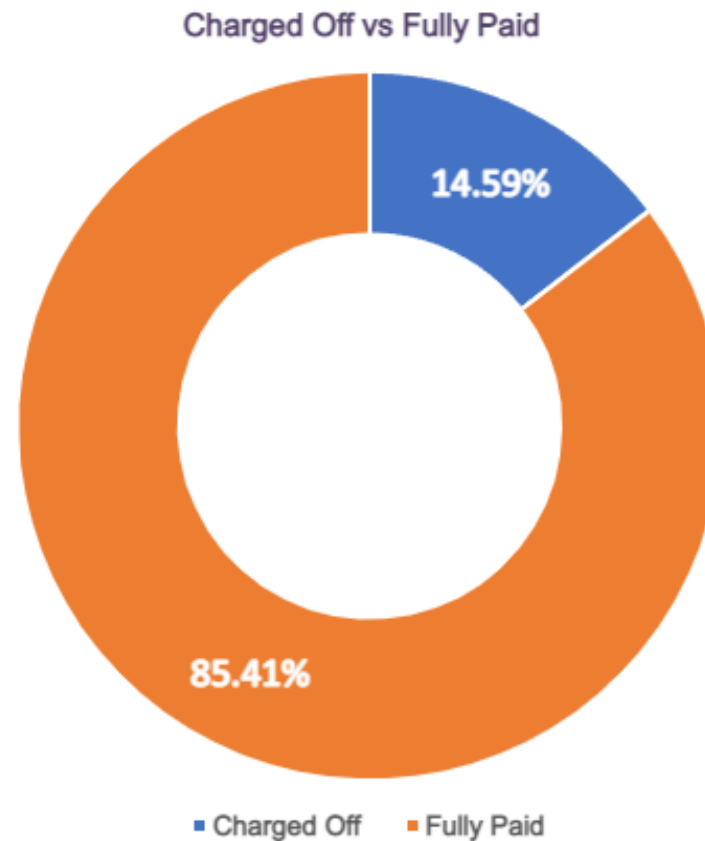
Quick overview

Lending Club 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.

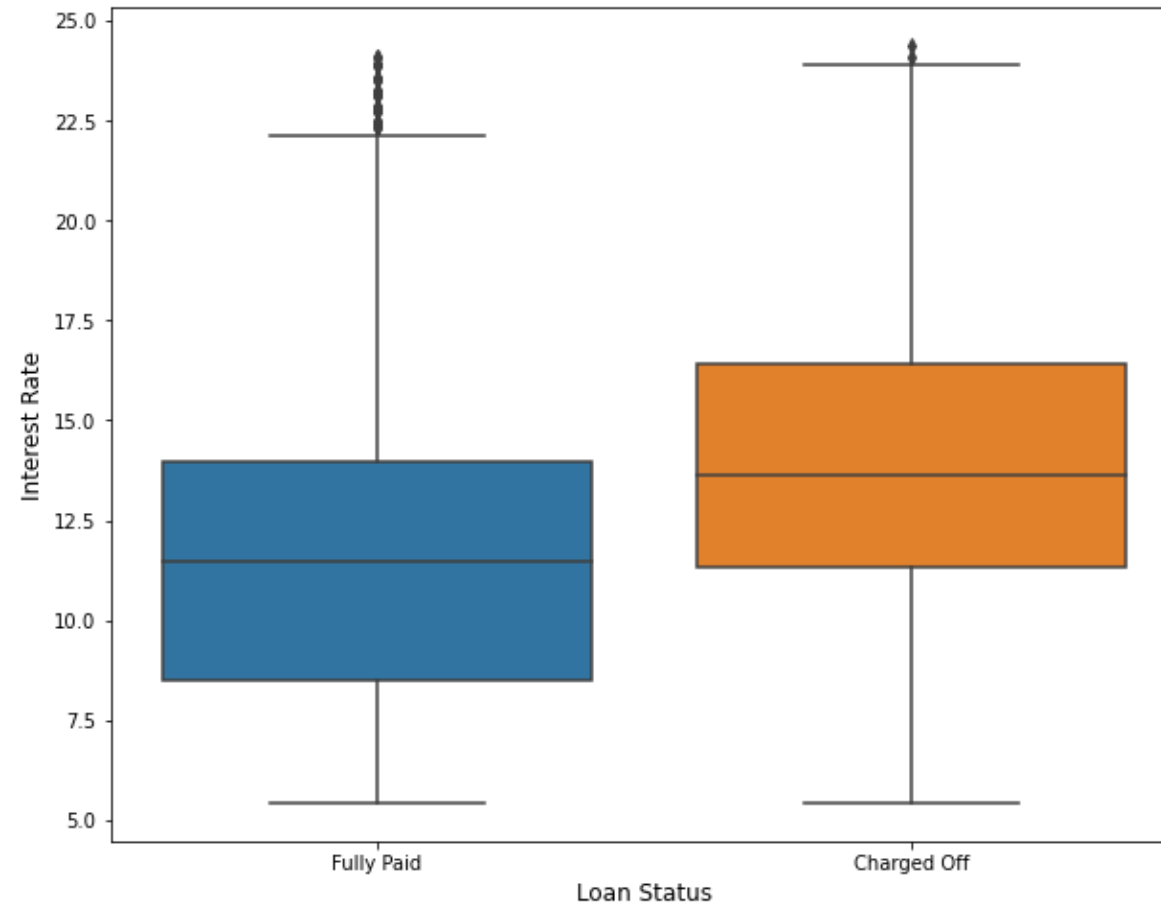
The company wants to understand the driving factors (or driver variables) behind loan default, i.e. the variables which are strong indicators of default. The company can utilise this knowledge for its portfolio and risk assessment.

Some Analysis of the dataset

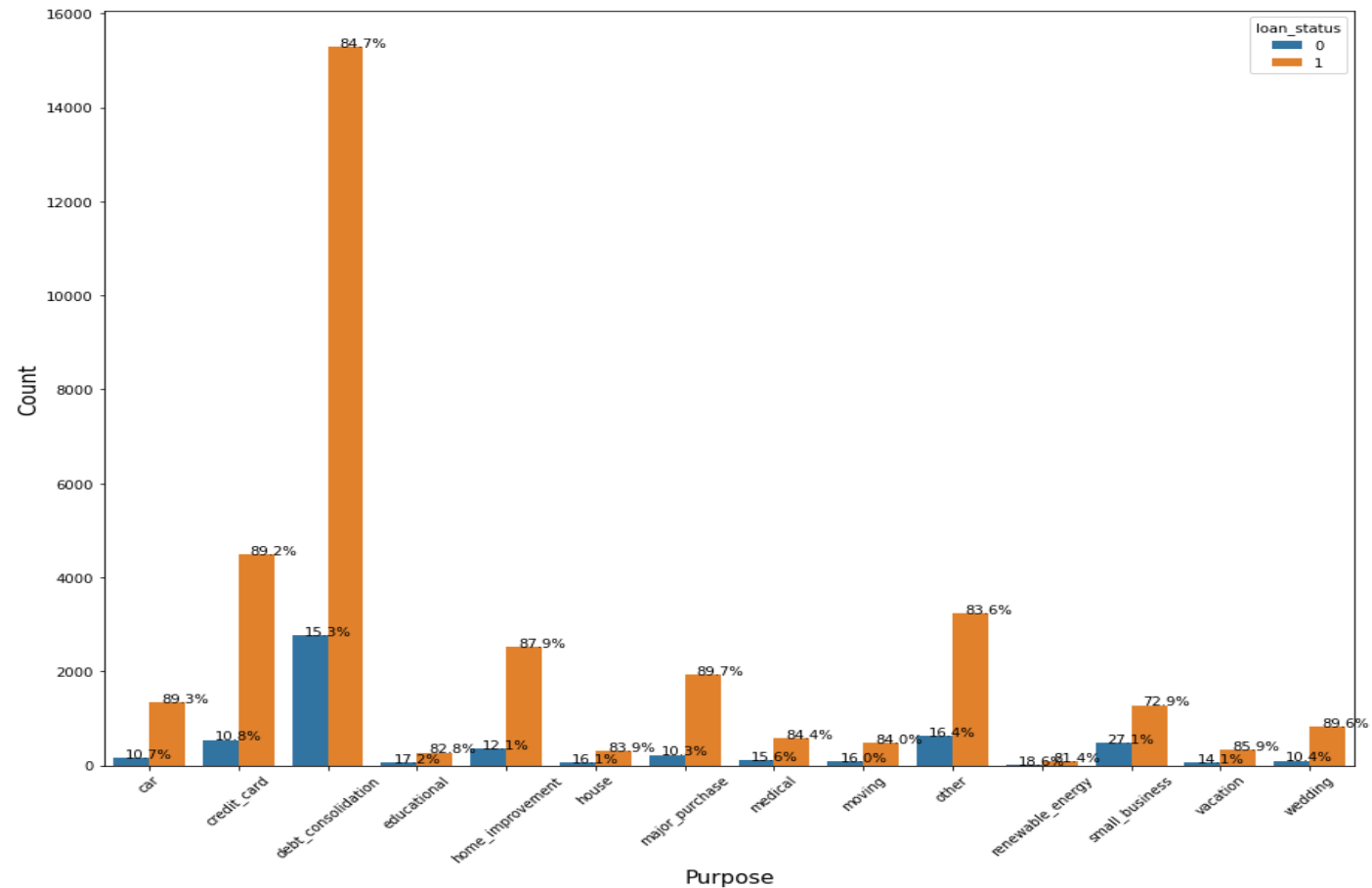
Given the nature of our dataset, we'd expect that we're dealing with an imbalanced classification problem, meaning that we have considerably more non-default cases than default cases. Using the code below, we confirm that this is indeed the case with 85.41% of our dataset containing non-default cases.



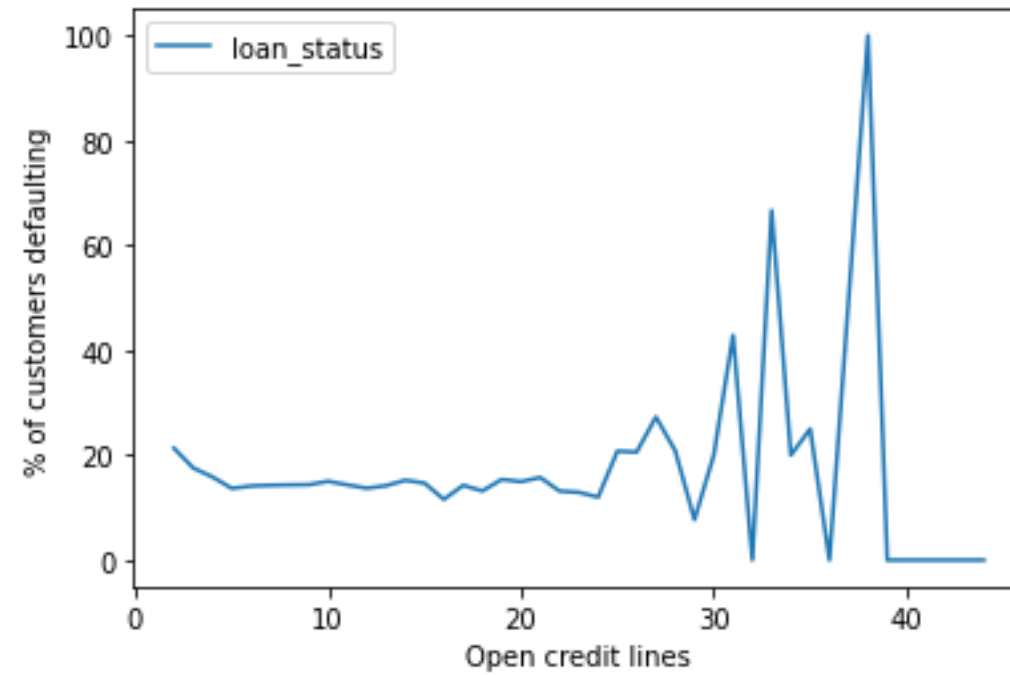
You can clearly see that the customers which have higher interest rate have higher chance to default.



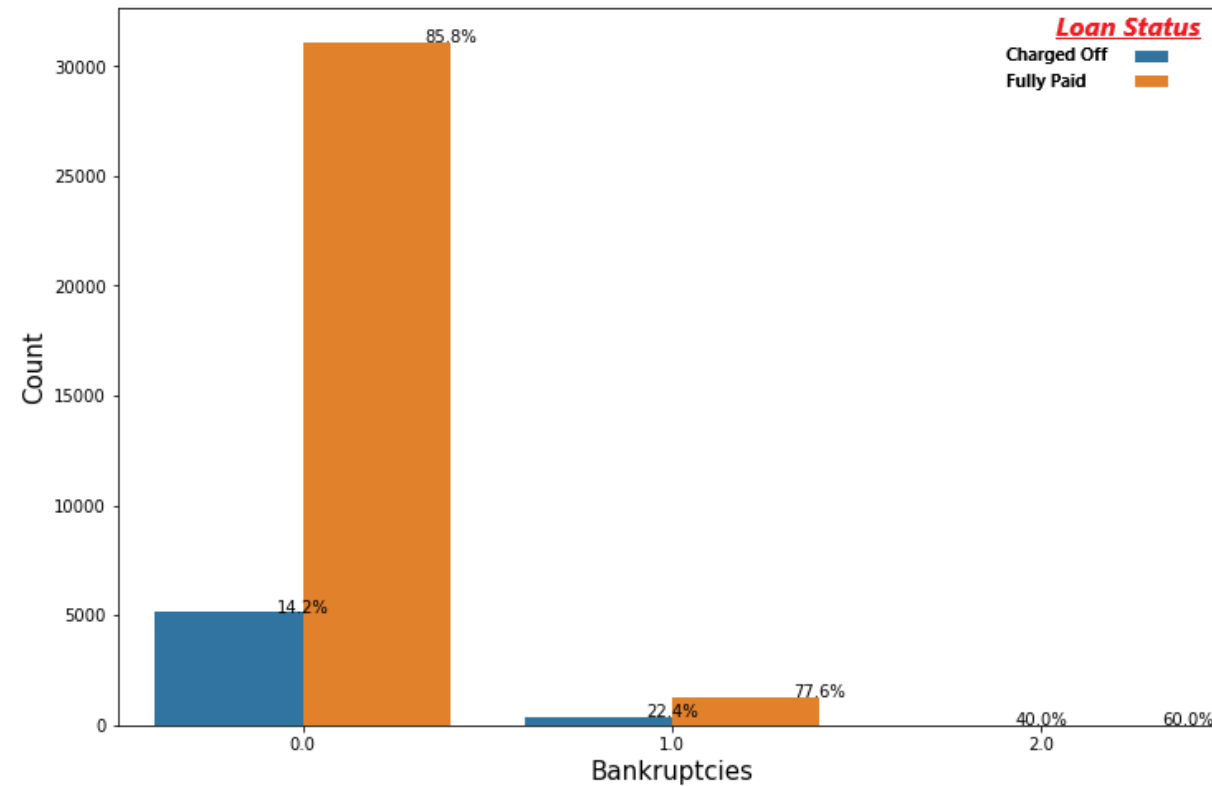
From the bar graph we can clearly say that the loan taken for small business purpose is the most riskier followed by renewable energy, education and so on.



You can clearly see that customers with 25 or higher open credit lines are more likely to default



Here it is clear that more the number of bankruptcies more is the risk of getting defaulted



The below table is the percentage of customers defaulting with respect to employment length and purpose.

- Here you can see the maximum customers defaulting are those who are not employed.
- Customers taking education loan with less years of employment (less than 5) are more likely to default.
- Customers taking loan for home improvements with less than 2 years of employment are more likely to default.
- As discussed earlier small business loans are the riskiest.
- Customers taking vacation loan with more than 6 years of employment tend to default more than others.
- Customers taking wedding loan with more than 10 years of employment tend to default more than others.

Purpose /Employed for	Car	Creditcard	Debt consolidation	Educational	Home improvement	House	Major purchase	Medical	Moving	Other	Renewable energy	Small business	Vacation	Wedding
Not Employed	9.80	25.00	23.16	50.00	18.89	0.00	15.71	20.00	33.33	24.34	12.50	29.55	11.11	30.77
Less than 1 Year	12.43	9.00	14.48	18.57	15.18	14.29	11.03	19.48	14.29	14.79	0.00	26.41	25.00	8.40
More than 1 year	12.50	8.46	14.84	11.11	18.37	15.63	10.75	18.33	19.67	15.36	28.57	30.36	0.00	3.53
More than 2 years	7.10	8.58	13.58	17.39	11.35	21.57	9.50	13.16	15.63	17.57	14.29	22.00	9.38	11.81
More than 3 years	11.56	9.96	14.10	26.92	9.52	7.32	13.06	15.15	11.67	16.49	36.36	26.83	7.89	10.07
More than 4 years	12.00	10.94	13.48	27.27	11.01	15.15	8.29	12.28	16.98	16.83	42.86	31.41	12.20	6.74
More than 5 years	9.45	13.16	14.54	17.39	13.39	6.67	11.46	12.77	20.00	14.05	20.00	27.48	10.81	14.71
More than 6 years	10.87	12.45	15.50	0.00	8.59	28.57	10.66	15.15	7.41	16.02	0.00	21.35	21.05	9.26
More than 7 years	14.29	13.10	16.13	11.11	12.50	25.00	4.88	21.43	10.00	16.77	18.18	23.17	35.71	8.11
More than 8 years	8.62	9.58	15.27	0.00	8.82	23.08	6.76	21.43	28.57	14.96	50.00	31.15	20.00	8.70
More than 9 years	6.25	8.43	15.46	11.11	11.22	11.11	9.26	0.00	20.00	11.40	0.00	18.75	18.75	5.56
More than 10 years	10.46	11.31	17.40	10.53	11.64	19.74	9.84	14.79	11.43	17.23	14.29	29.50	13.83	15.74

Conclusions

To summarize, the major factors on which we can predict if the customer will default or not on giving them loan are

- High interest rates
- Small business loan
- High open credit lines
- Number of bankruptcies
- Those who are not Employed
- Customers taking education loan with less years of employment

Thank You!

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