LENDING CLUB CASE STUDY

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Lending Club Case Study

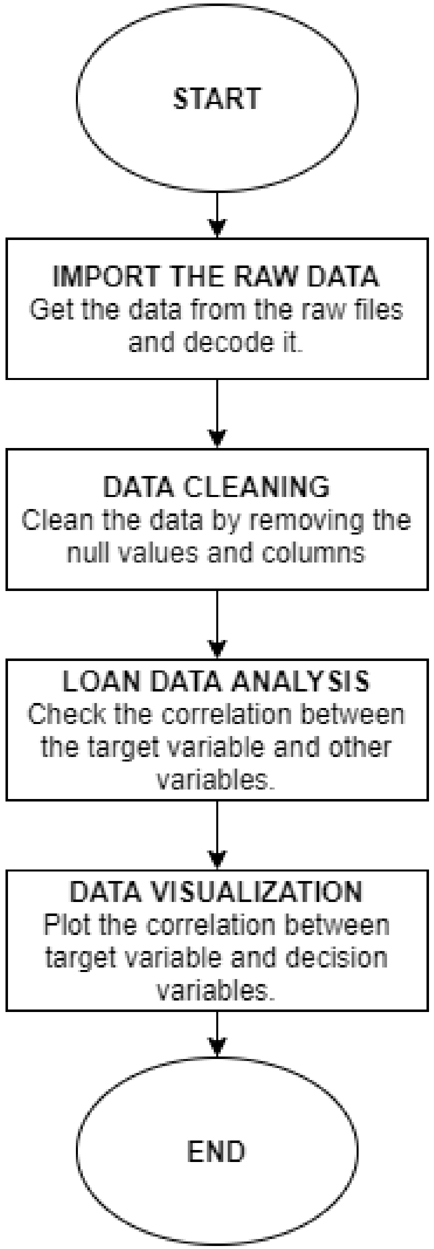
When the company receives a loan application, the company has to make a decision for loan approval based on the applicant's profile. Two types of risks are associated with the bank's decision:

- 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

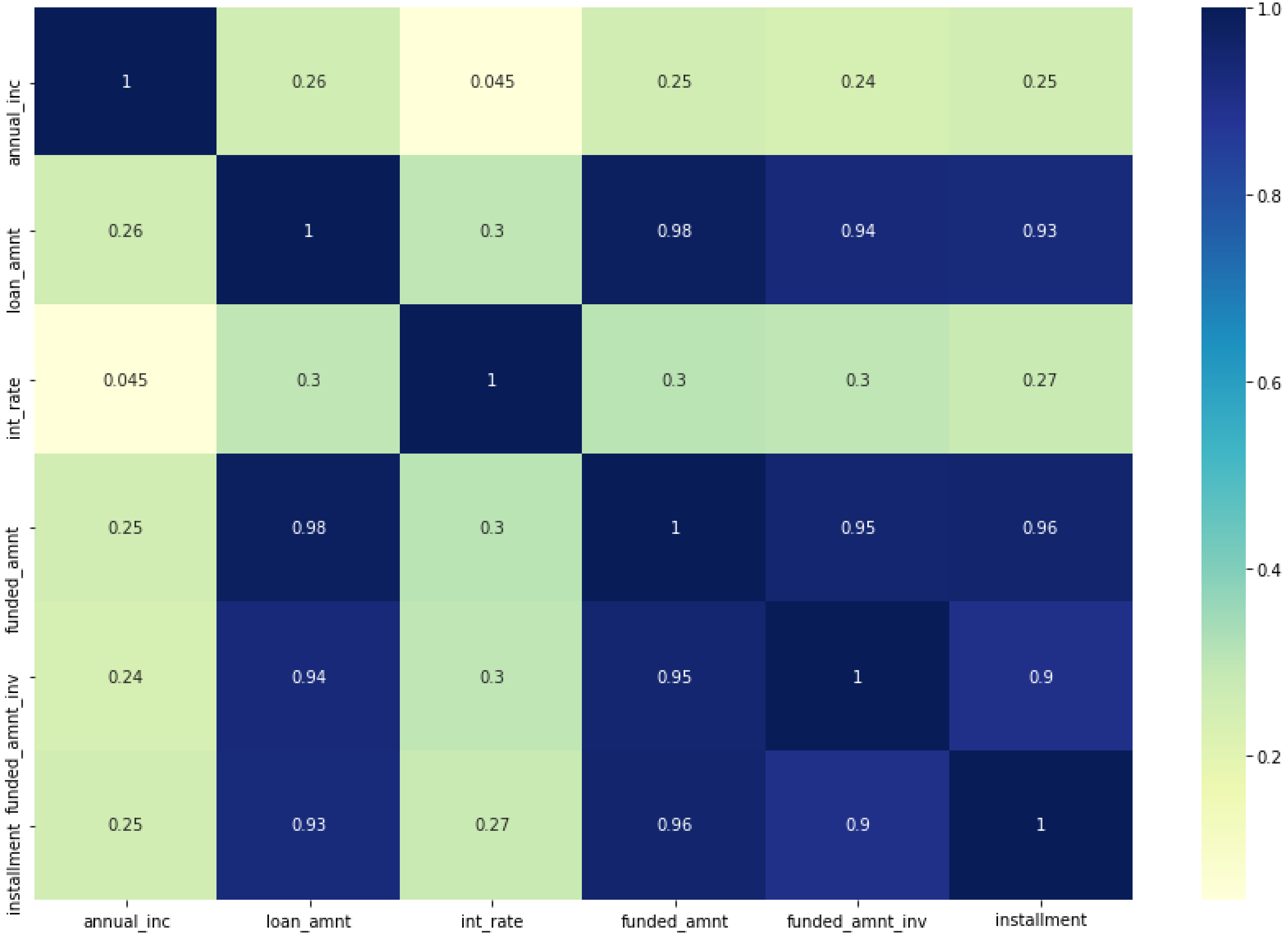
Business Objective:

We need to understand the driving factors behind why the loans default i.e strong indicators of default. The company can utilize this knowledge for its portfolio and risk assessment.

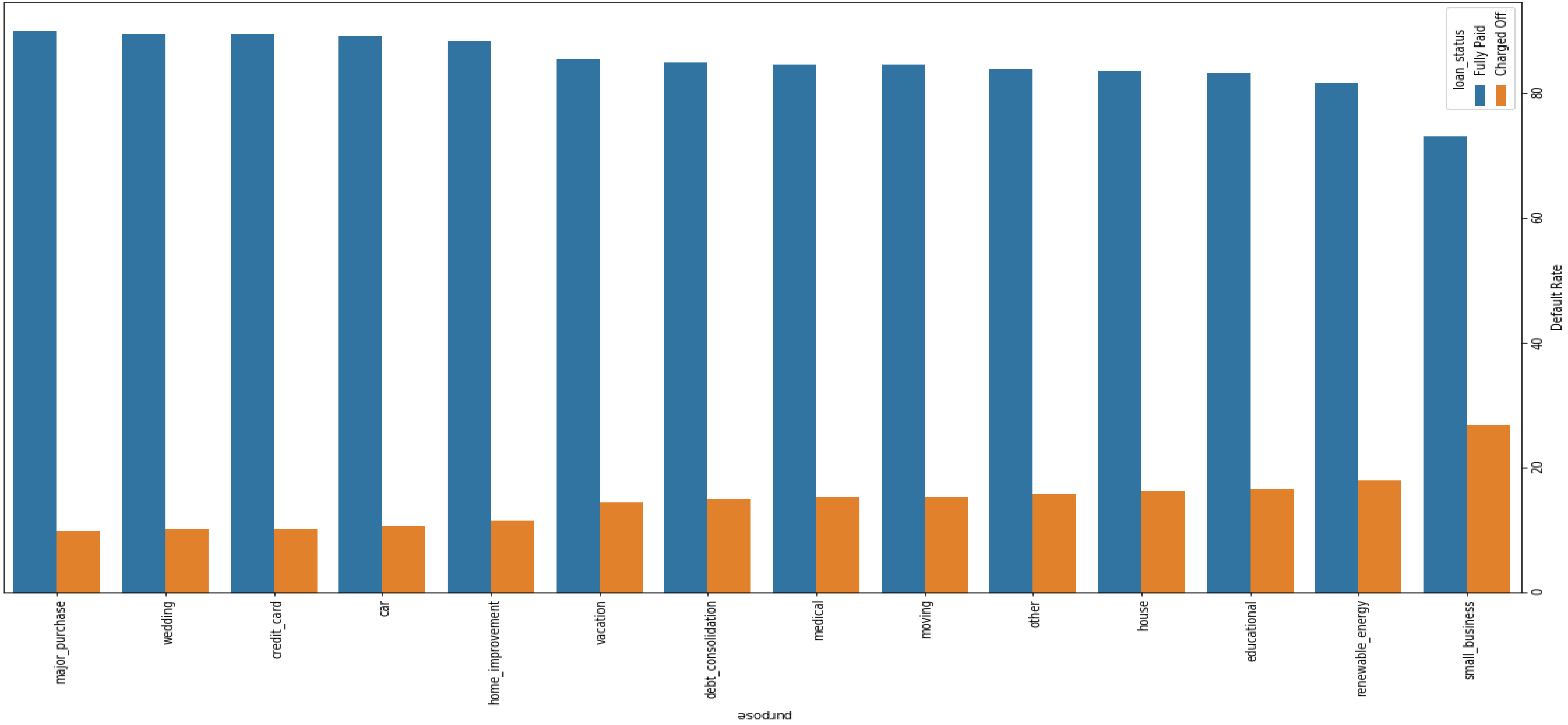
Problem Solving Methodology



Correlation Analysis



Lending Analysis (Purpose vs Default rate)



Lending Analysis (Purpose vs Default rate)

- On plotting the purpose of taking the loan against the default rate (as seen in the previous slide), we see that default rates are most when it lend to the small business.

- It can also be seen that changes of the fully being paid are more when the loan is issued for the major purchases.

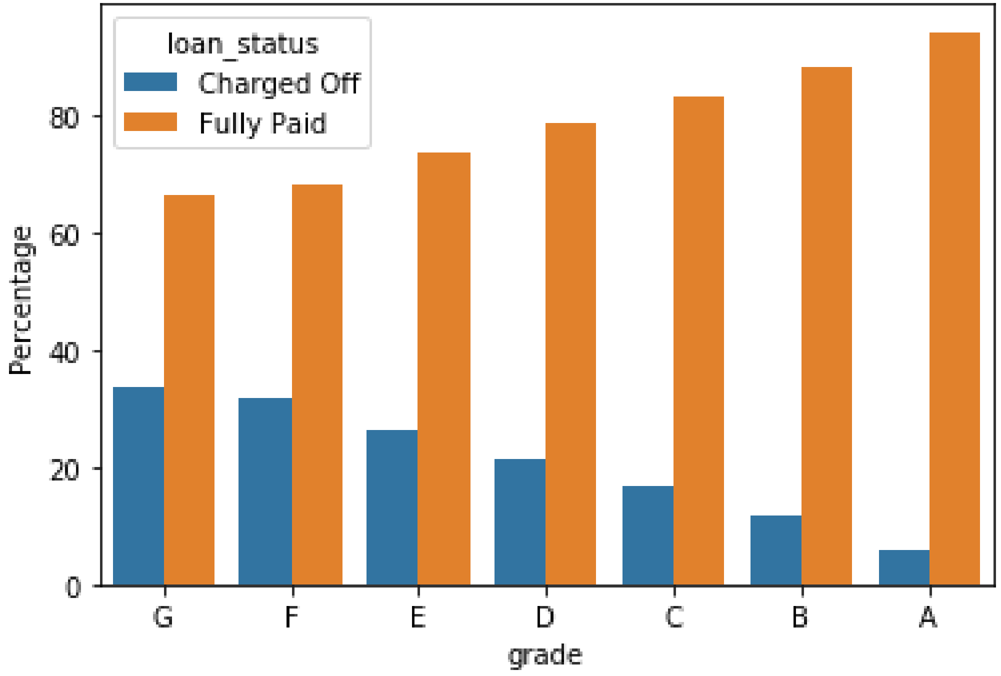
Lending Analysis (Term vs Default)

Term	Loan status	Count
36	Charged off	2899
60	Charged off	2232

- On studying the table displaying the term vs default, we can see that lesser loans defaulted when the term of the loan was 60 instead of 36.

- Thus one of the recommendations here can be that company should provide the loans for the longer term.

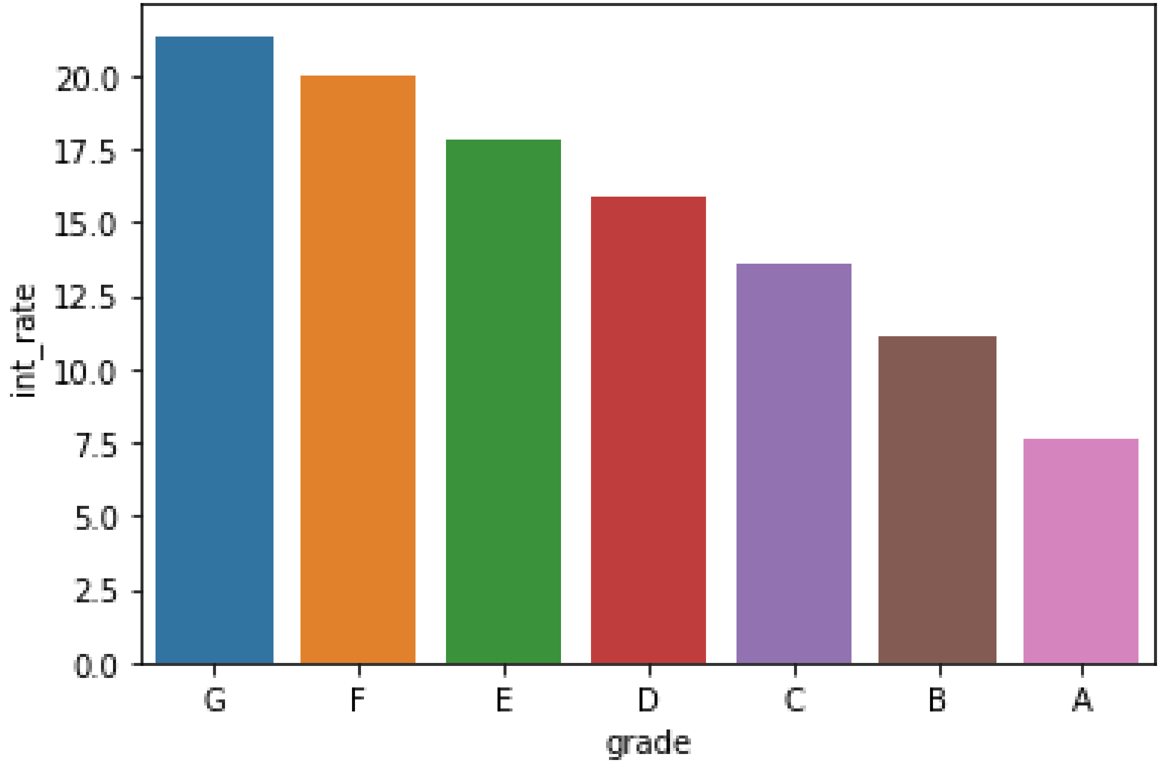
Lending Analysis (Grade vs Default rate)



	Grade	Loan Status	Percentage
12	G	Charged Off	33.68056
13	G	Fully Paid	66.31944
10	F	Charged Off	31.8872
11	F	Fully Paid	68.1128
8	E	Charged Off	26.45085
9	E	Fully Paid	73.54915
6	D	Charged Off	21.38247
7	D	Fully Paid	78.61753
4	C	Charged Off	16.59223
5	C	Fully Paid	83.40777
2	B	Charged Off	11.82766
3	B	Fully Paid	88.17234
0	A	Charged Off	5.653253
1	A	Fully Paid	94.34675

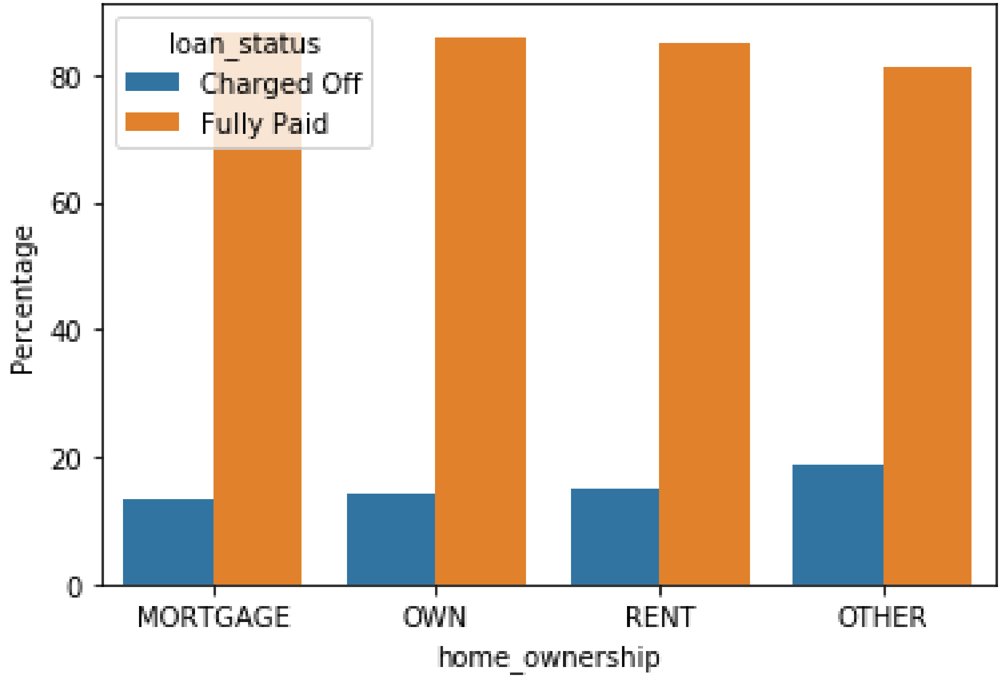
We can see the grade A loans are full paid. Hence we the company could issue more grade A since the risk on these loans are less. However as we see in the next slide, the interest rates on these loans are less.

Lending Analysis (Grade vs Interest rate)



We can see from the plot that interest rate on the Grade A loans are very less compared and it gradually increases the grade of the loan degrades.

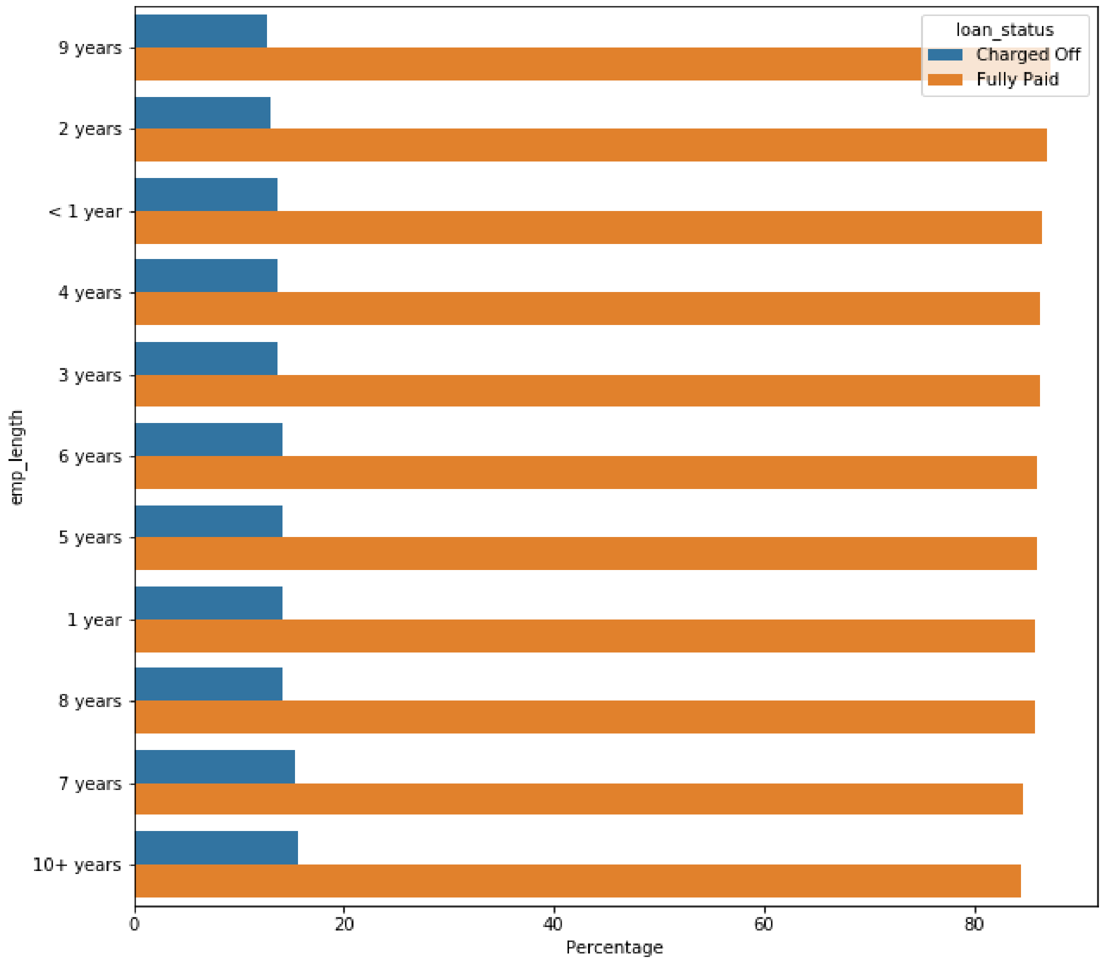
Lending Analysis (Home ownership vs Default rate)



	Home Ownership	Loan Status	Percentage
0	MORTGAGE	Charged Off	13.277774
4	OWN	Charged Off	14.141414
6	RENT	Charged Off	15.023421
2	OTHER	Charged Off	18.75
3	OTHER	Fully Paid	81.25
7	RENT	Fully Paid	84.976579
5	OWN	Fully Paid	85.858586
1	MORTGAGE	Fully Paid	86.722226

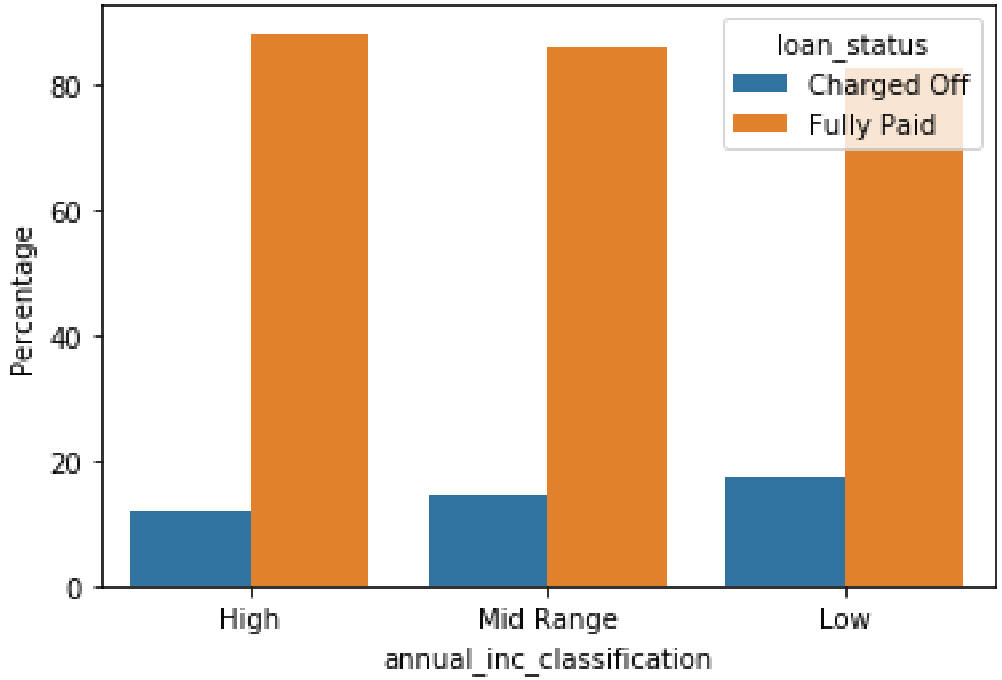
From the plot we can see that the people who live in rented house and have other living arrangements are more prone to defaults, possible reasons might be the extra burden of paying loans and rent.

Lending Analysis (Employee experience vs Default rate)



From the plot above, we can see the employees who has more number experience is found to default more compared to the ones with lesser experience. So experience in work is definitely a contributing factor to the person being “Default”. Possibly because of more job risk and firing factor is more

Lending Analysis (Income classification vs Interest rate)



From the plot above, we can see that when the income is high the number of the default cases are lesser, and the persons with lower income are said to default more as it is a direct contributing factor to the default.

Conclusion

From the analysis, we can conclude that below variables are driver variables for predicting the defaulting of loans,

- Annual Income
- Term
- Grade
- Purpose
- Home Ownership

We can also recommend from the analysis the company should try to achieve balance between various grades of loans in it's portfolio. Company cannot just issue Grade A loans although it is risk free since the interest rate on such loans are less. It cannot also give out Grade G loans although it has the highest interest rate since such loans are more likely to default. And the Lending club should issue loans to people with who's income is at a higher band, and also take consideration the purpose of the loan. The living condition of the applicant also matters and should be taken into consideration and must issue loans to people who are having a Own house.