Lending Case Study

Group Members:-

Vivek Moningi (Group Facilitator)

Kuldeep

Purpose:-

Helping "Consumer Finance Company" to find most suitable applicants to lend money by

performing "Risk Analytics", and helping company to avoid financial Risks.

To Analyze the data set we are following below steps:

- ▶ 1:-Data Sourcing & Data Understanding
- ▶ 2:- Data Cleaning
- ▶ 3:- Handling Outliers
- ▶ 4:- Fixing Invalid Values
- ▶ 5:- Univariate Analysis
- ▶ 6:- Bivariate and Multivariate Analysis
- ▶ 7:- Risk And Recommendations

Analysis on Lending Case Study

There are total 14% of people who were found defaulted as per our analysis and the number of defaulters are increasing on yearly basis.
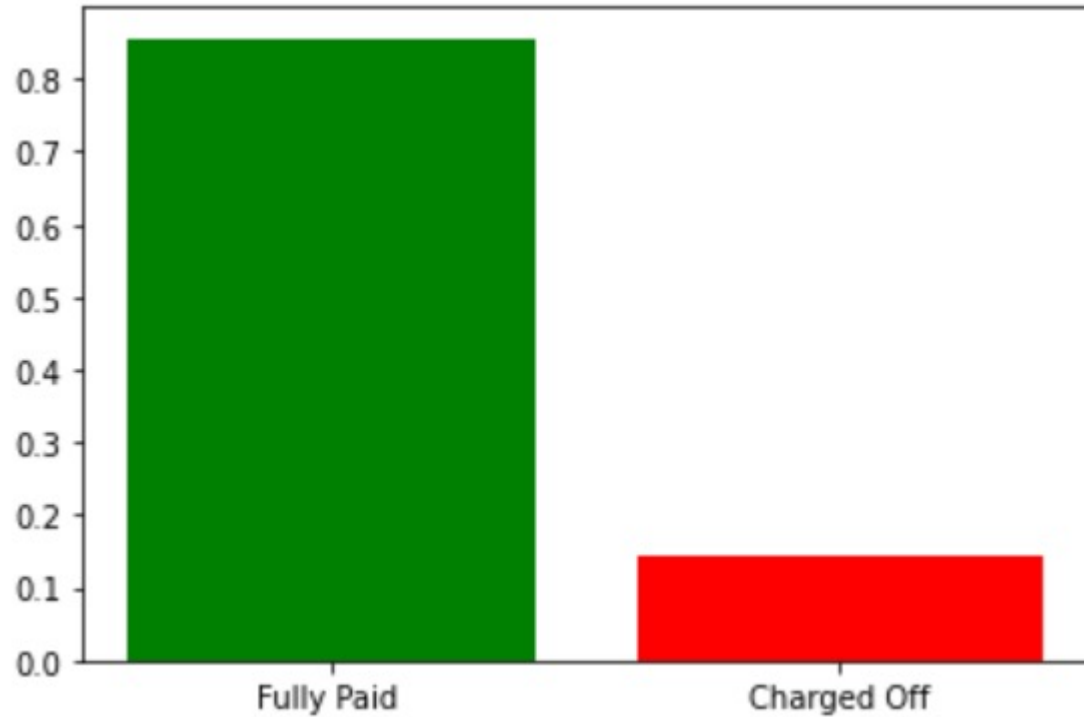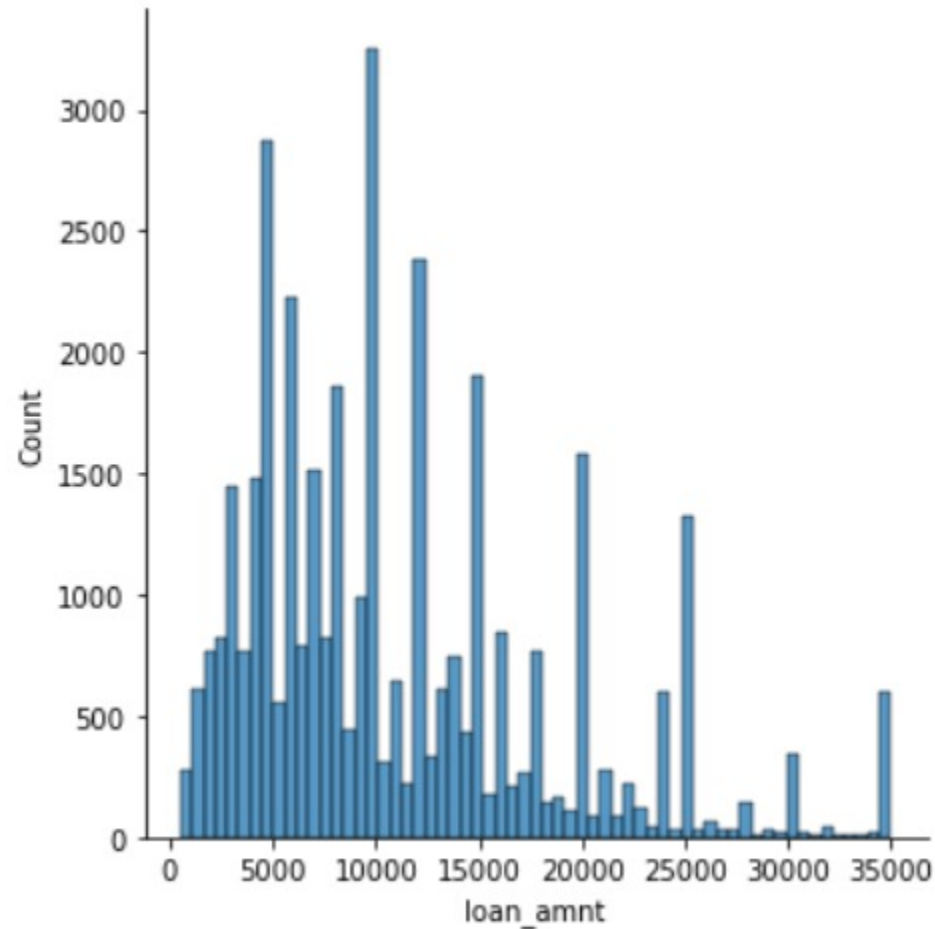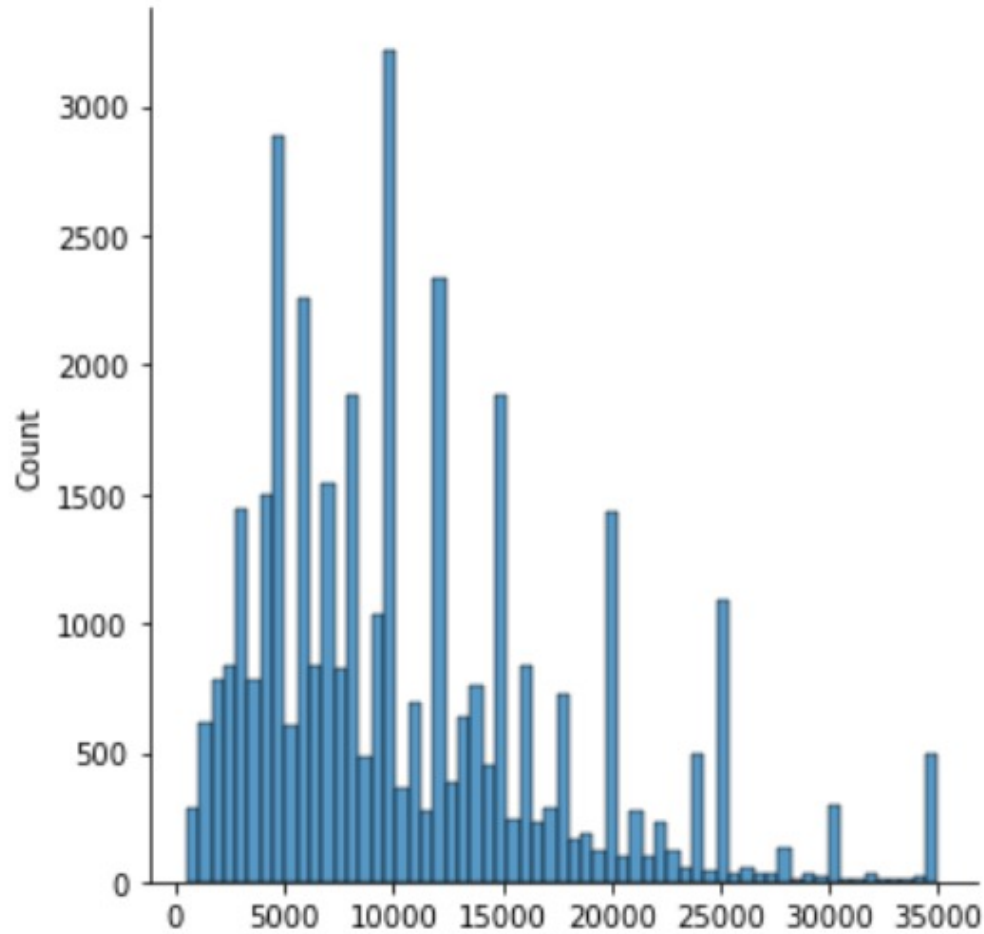


```
Fully Paid        0.856195
Charged Off       0.143805
Name: loan_status, dtype: float64
```
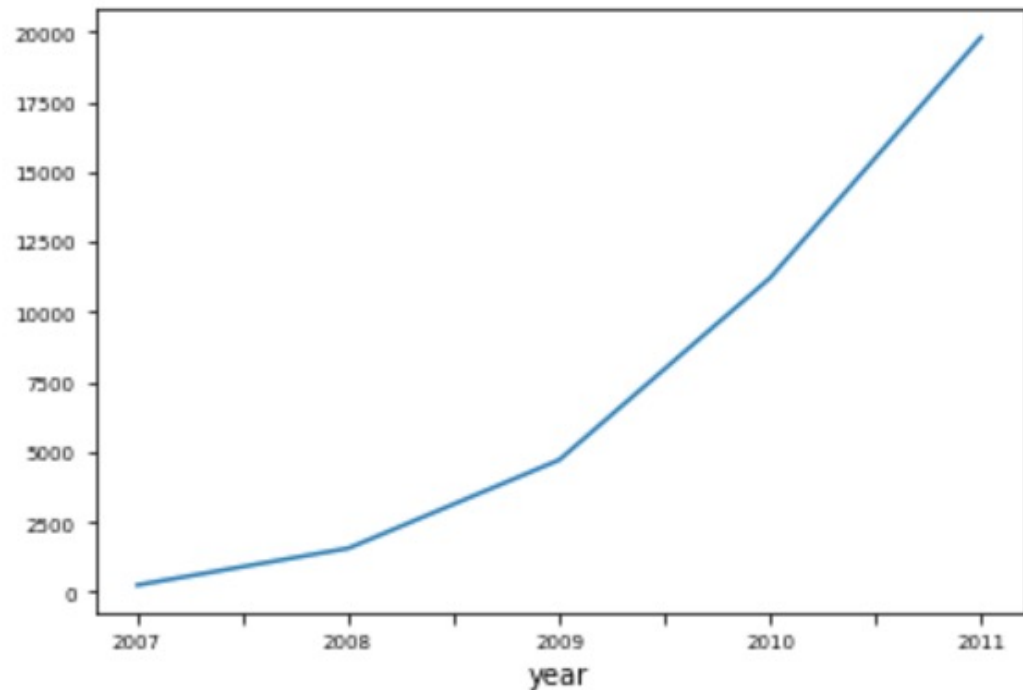
As we can see that no of people defaulting count is increasing every year linearly

# Analysis on Lending Case Study - Continued

As we can see the loan amount and Funded amount follow same distribution so all the borrowers requested amount is funded lets see further analysis to understand clearly about why there is loss to the investors.
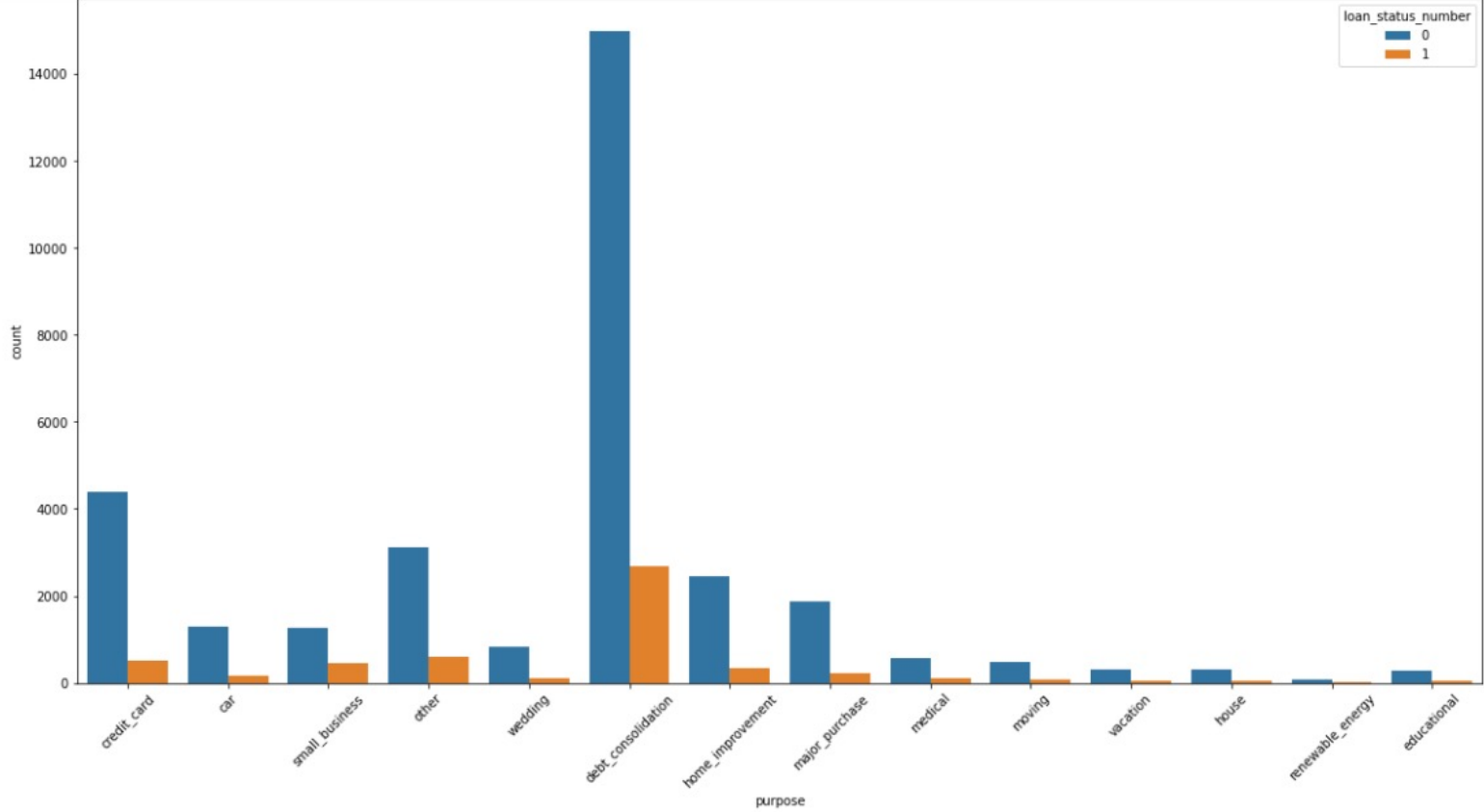
Analysis on Lending Case Study - Continued

```
Not Verified        0.38
Verified            0.36
Source Verified     0.26
Name: verification_status, dtype: float64
```

Around 38% of defaulted population is due to no proper verification prior to giving the loan and 25% of defaulted population is due to very low income
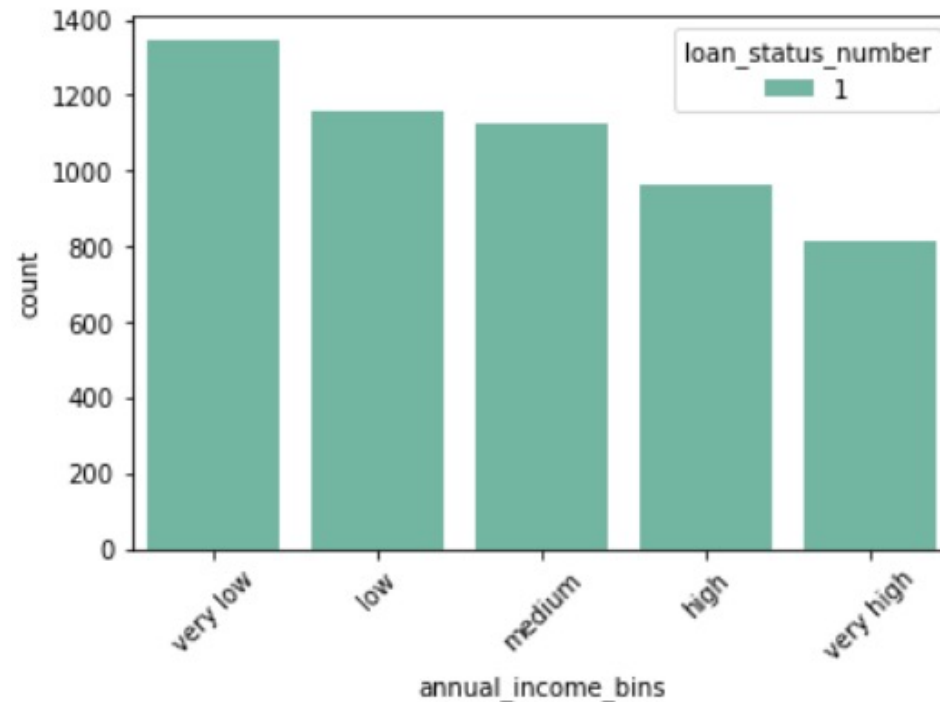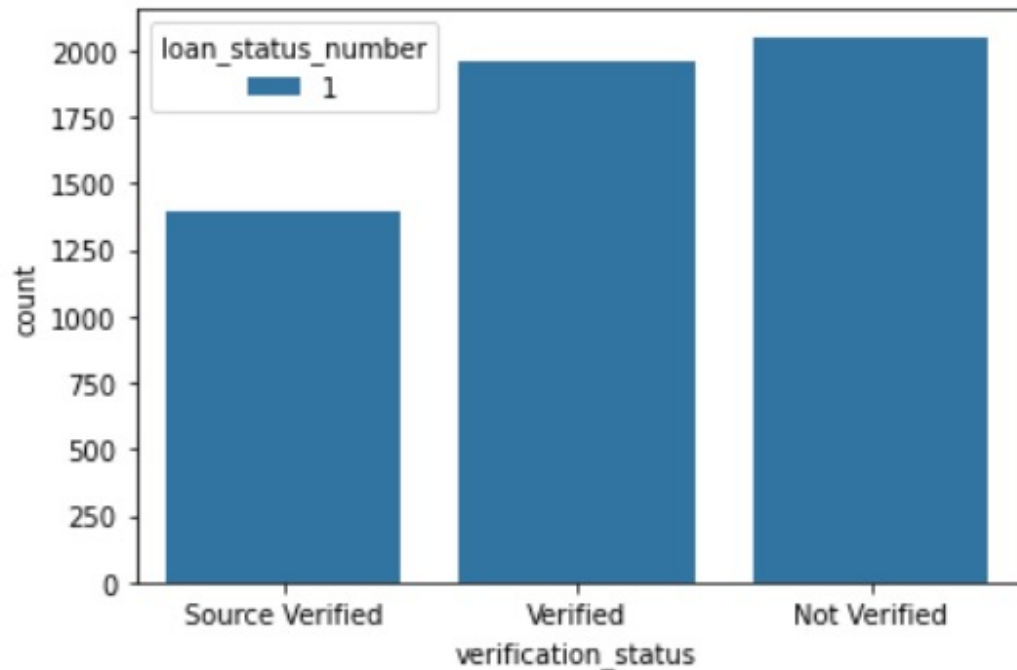
Lets see for what purpose of the population take loans

annual_income_bins	very low	low	medium	high	very high
purpose					
car	47	37	28	25	18
credit_card	104	118	94	108	86
debt_consolidation	637	587	596	488	371
educational	23	10	4	9	6
home_improvement	48	59	71	76	76
house	14	11	10	9	15
major_purchase	78	48	43	19	23
medical	30	16	21	23	11
moving	39	16	14	7	8
other	192	130	107	77	90
renewable_energy	7	3	0	6	2
small_business	90	89	106	90	87
vacation	15	15	10	6	4
wedding	19	21	19	19	14

47% of the population takes loan for debt consolidation and 50% of defaulted borrowers also took for debt consolidation.

As per the graph 1227 people with low income who took loan for debt consolidation has defaulted out of which 787 people have rented properties and 330 people have mortgage

| purpose	annual_income_bins home_ownership	very low	low	medium	high	very high
debt_consolidation	MORTGAGE	130	200	281	270	236
	OTHER	3	0	1	2	1
	OWN	68	36	33	26	14
	RENT	436	351	281	190	120

Few more observations :
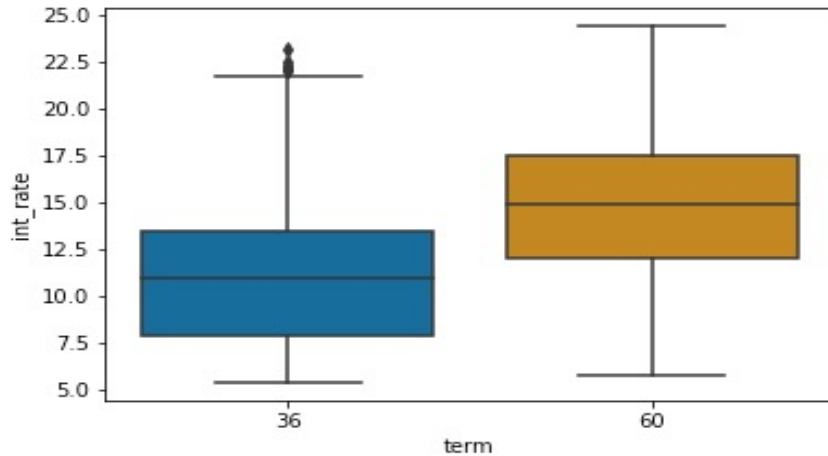
It can be observed that the interest rates are based on terms means the longer the loan the higher the interest rates.
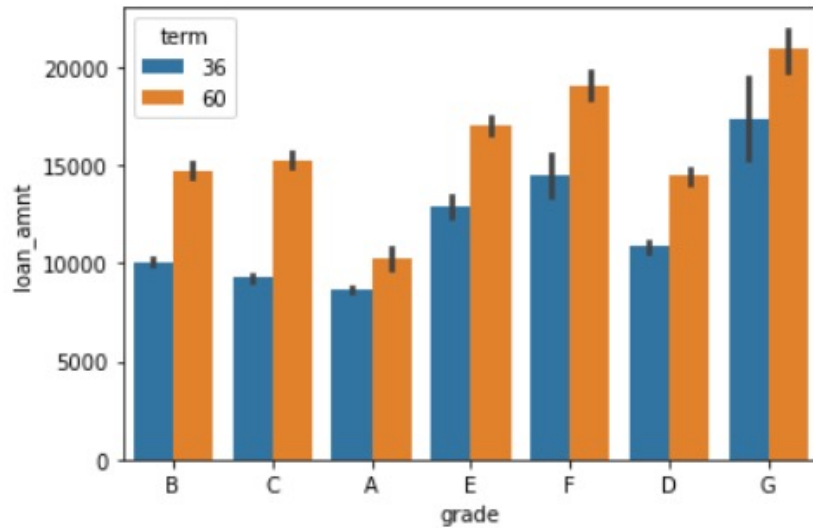
It can be observed by this analysis that the higher amount are approved in longer terms but has lower grade to because of it's high charged off frequencies

home_ownership	annual_income_bins	sum	mean	median
MORTGAGE	very low	1994250	7851.38	7162.5
	low	4476000	11360.41	10000.0
	medium	7249250	13350.37	12000.0
	high	8416625	16001.19	15000.0
	very high	9789725	18541.15	18000.0
OTHER	very low	48200	9640.00	10000.0
	low	17400	8700.00	8700.0
	medium	61000	15250.00	14500.0
	high	88850	17770.00	15850.0
	very high	32000	16000.00	16000.0
OWN	very low	1000625	7096.63	6000.0
	low	942975	10477.50	10000.0
	medium	893700	12952.17	12000.0
	high	922125	15898.71	15000.0
	very high	801175	19075.60	19000.0
RENT	very low	6833475	7246.53	6250.0
	low	6554650	9725.00	8400.0
	medium	6253175	12333.68	11200.0
	high	5529850	14825.34	13000.0

Rented and Mortgage people tend to take high amount of loans when compared to others
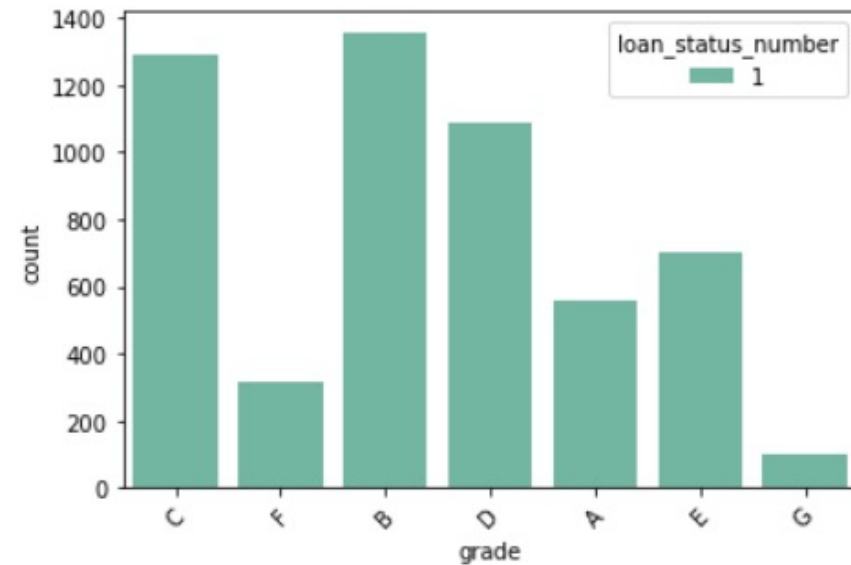
People with Grade B and in which sub grade B3,B4 and B5 tend to take high amount of loans and default
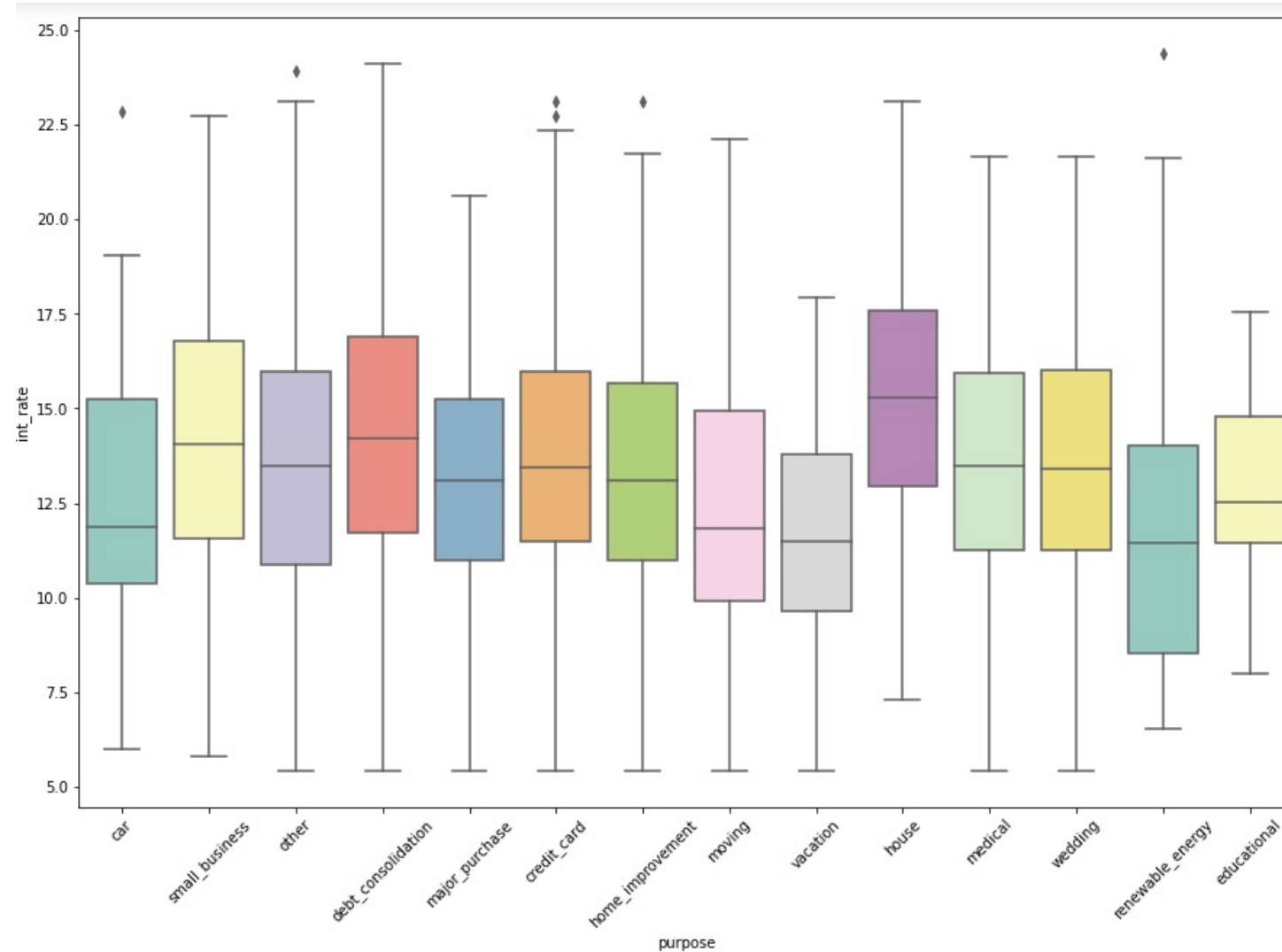
Housing have higher range of interest rate when compared to other purposes where as debt consolidation have highest interest rate

Recommendations:

- Reduce approving the loans where purpose is debt consolidation
- Stop approving loans with very low to low income range
- Increase the verification process before approving the loan
- Reduce the approval of loan with rented and mortgage houses
- Reduce the interest rate for people with low income category.