Lending Club Case Study Analysis

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Problem Statement

▶ Need to analyse the Lending club data which has the information of loan status for the year 2007 to 2011.

▶ Need to analyse the data and find insight that which types of borrowers use to pay full loan and which type of borrowers are charged off.

▶ This will help the company to grow the business by approving loan to eligible borrowers and rejecting those who can't pay(charged off)

Approach of Analysis

▶ Data Cleaning

▶ Filling Blank cell value

▶ Filtering Object data type into integer and float

▶ Deriving Metrics

▶ Univariate Analysis(including Segmented Univariate)

▶ Bivariate Analysis

▶ Multi-variate Analysis

Approach of Analysis Explanation

► Data Cleaning

- Columns which does have information and irrelevant information has been deleted.

► Filling Blank cell value

- In emp_length and revol_util blank cell fields has been given 0 value
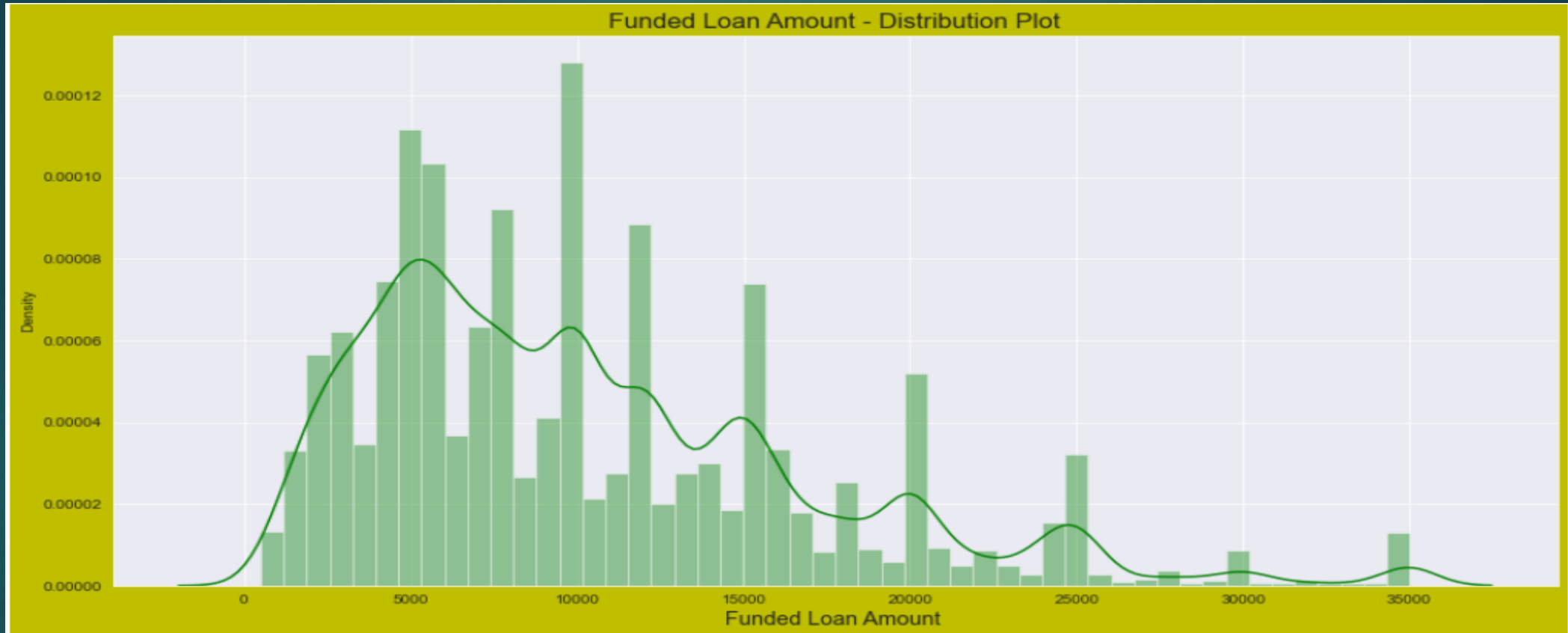
► Filtering Object data type into integer and float

- From columns term, int_rate, emp_length integer and float value is retrieve respectively.

► Deriving Metrics

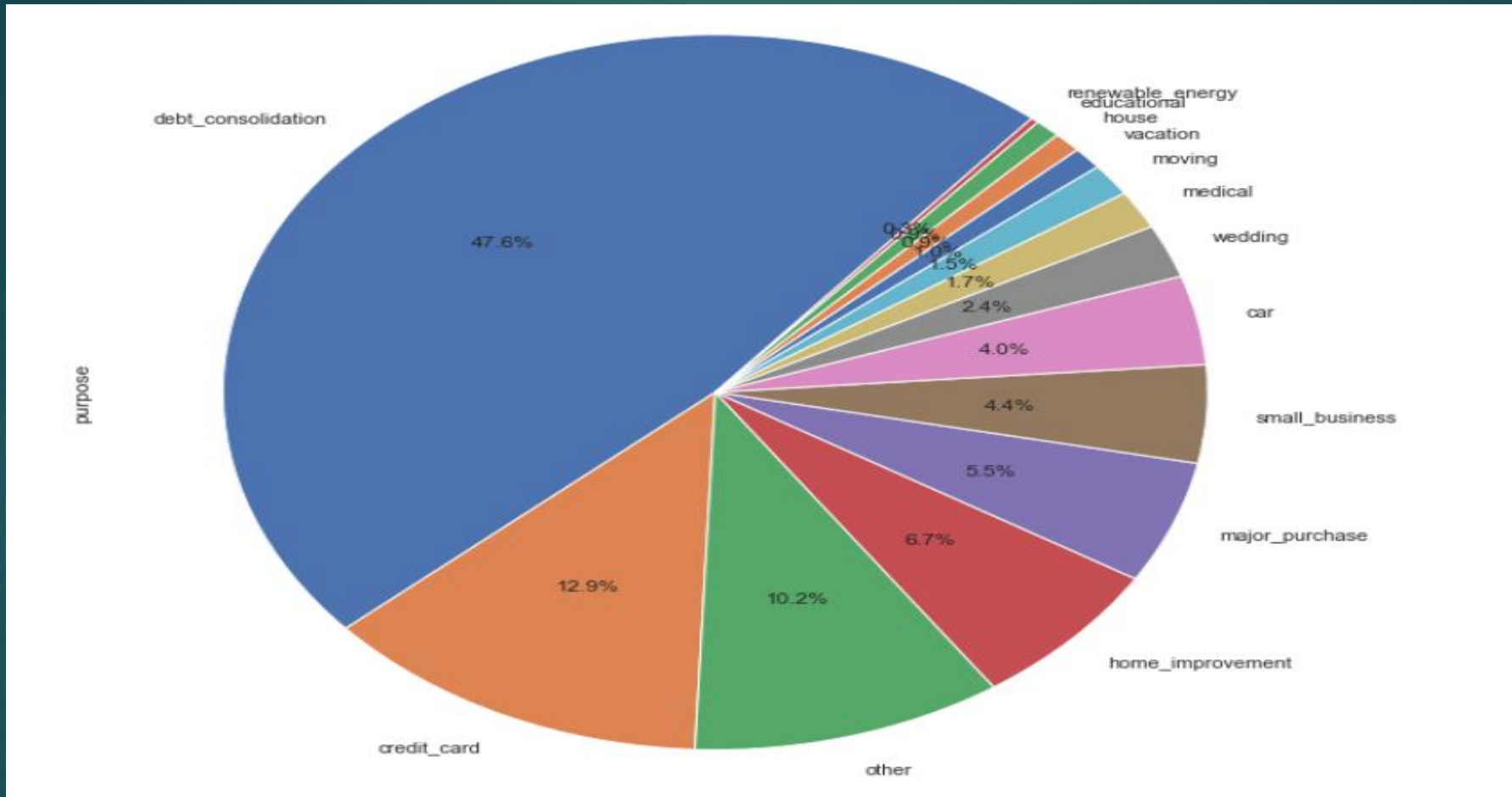- month,year, int_rate_catg, loan_amnt_catg, dti_catg, open_acc_catg, revol_util_catg

Univariate Analysis Result.

Funded Loan Amount - Distribution Plot
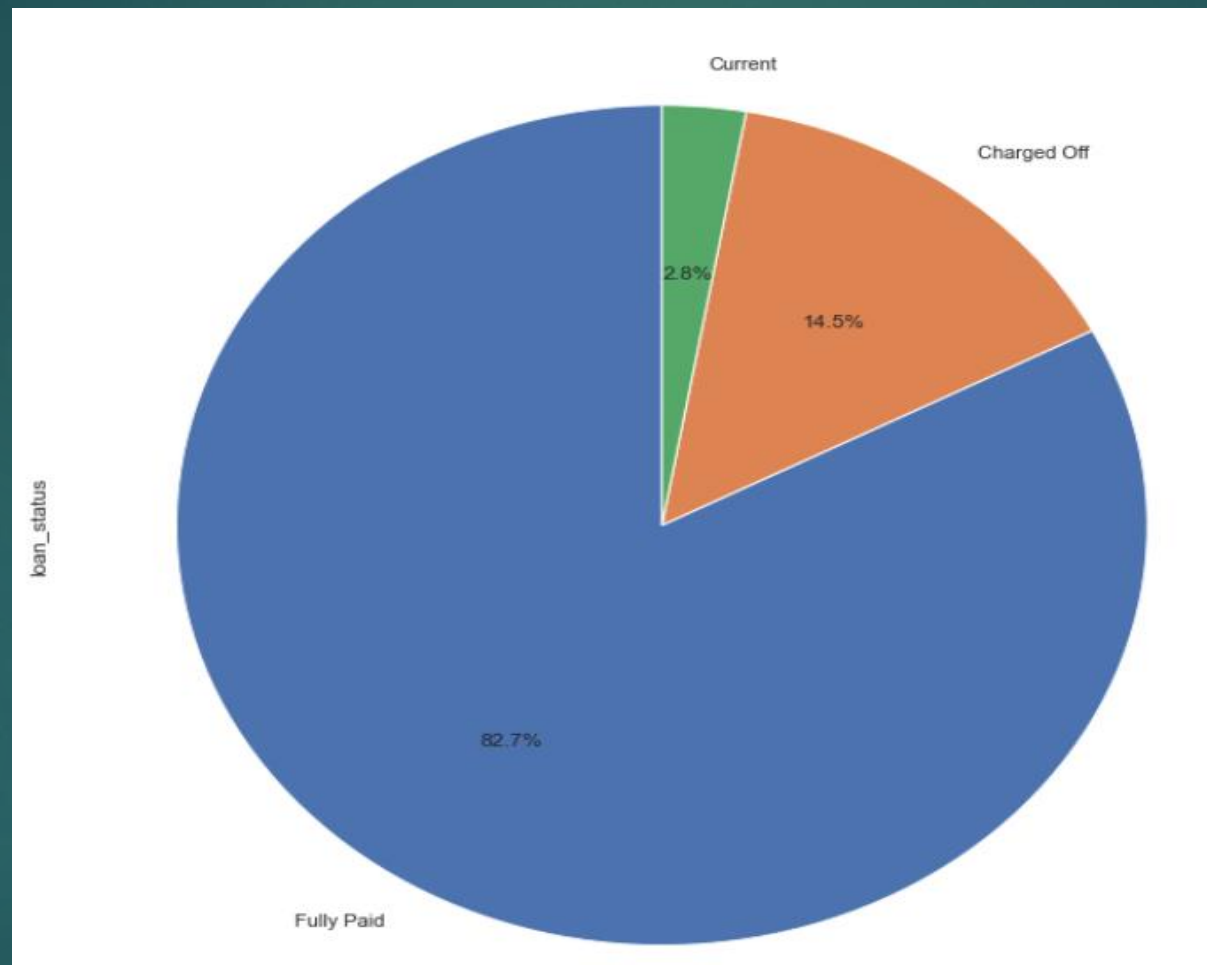
► Majority of borrowers funded_amount is between 5k-10k.

Univariate Analysis Result.

▶ Majority(47.6%) of borrower have taken loan for "Debt_consolidation" followed by "credit_card"(12.9%)

Univariate Analysis Result.

▶ Majority(82.7%) of borrower have "Fully Paid" laon and 14.5% are "Charged Off" .

Segmented Univariate Analysis Result

emp_length	loan_amnt	int_rate	annual_inc	dti	revol_util
0	8435.432692	10.866067	41385.826923	13.073827	42.731846
1	9285.628743	11.915292	52143.951817	12.935984	48.314048
2	9615.705765	12.034284	53169.911034	13.373683	48.589622
3	10099.203349	11.955866	55476.621118	13.457742	48.001807
4	10438.044515	12.107208	57329.722734	13.444649	49.461332
5	10709.497487	11.974315	57813.845561	13.731662	48.254221
6	10904.509611	11.925791	58587.607196	14.005461	49.077250
7	11161.321627	12.100530	59599.016020	13.950912	49.505632
8	11101.114527	11.813912	60508.106072	14.179700	48.521537
9	11440.610961	11.891240	62176.663073	13.905247	49.374025
10	12326.905608	11.988955	65525.958794	14.132108	49.294910

► With the increase of the working experience the annual income of the borrower increases along with loan amount also increases.

cont…

Bivariate Analysis Result

Time of Job Vs Credit Status
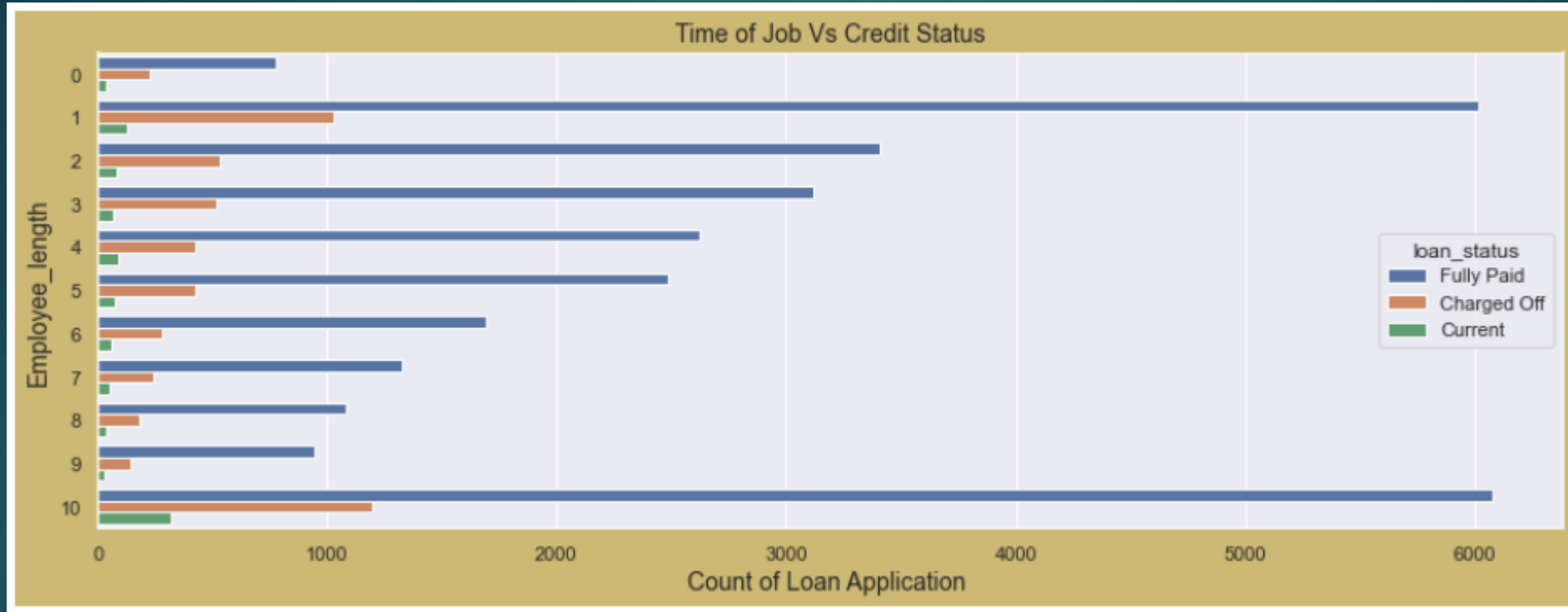
▶ 1) borrower at starting of their job around 1 year people takes more loan which decreases from 2,3,4,5 consecutively.

▶ 2) Majority of borrower with less than 3 years of experience has paid their loans amount before given time (as loan term is of 36 and 60 months).

▶ 3) borrower with working experience of 10+ year takes maximum loans as their responsibility increased.

cont…

Bivariate Analysis Result

Home Status Vs Purpose Of Loans
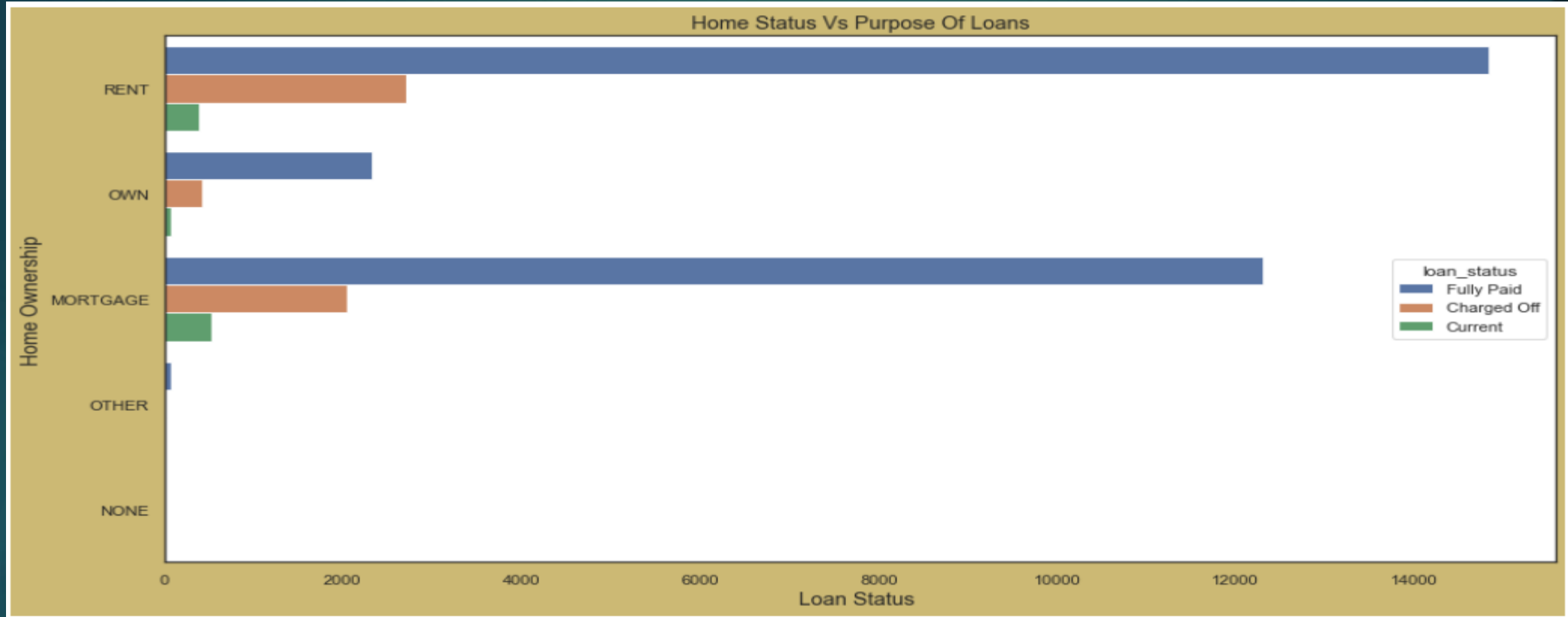
▶ 1) The highest proportion of the borrowers use to live in rented housing followed by mortgage house

▶ 2) Maximum charged off borrowers lives in a rented house followed by mortgage.

▶ 3) Borrowers with own house takes less number of loans in comparison to rented and mortgage borrowers

cont…

Bivariate Analysis Result

DTI Vs Loan_status
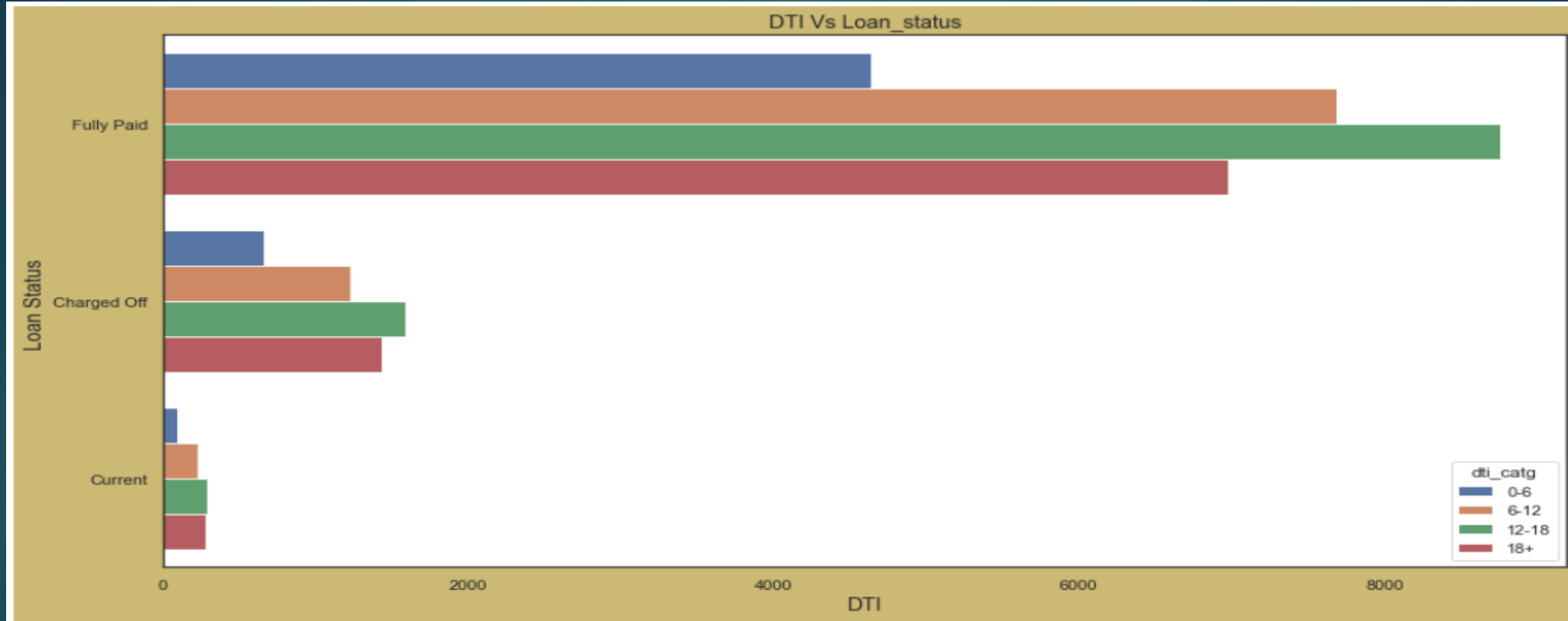
- 1) Majority of borrowers use to pay loan using revolving balance.

- 2) From above countplot we observe dti ratio between 12-18 have maximum paid their full loan followed by 6-12 dti.

- 3) while dti ratio of 12-18 also have maximum number of Charged_Off followed by dti ratio of 18+

cont…

Bivariate Analysis Result

Grade Vs Loan Status
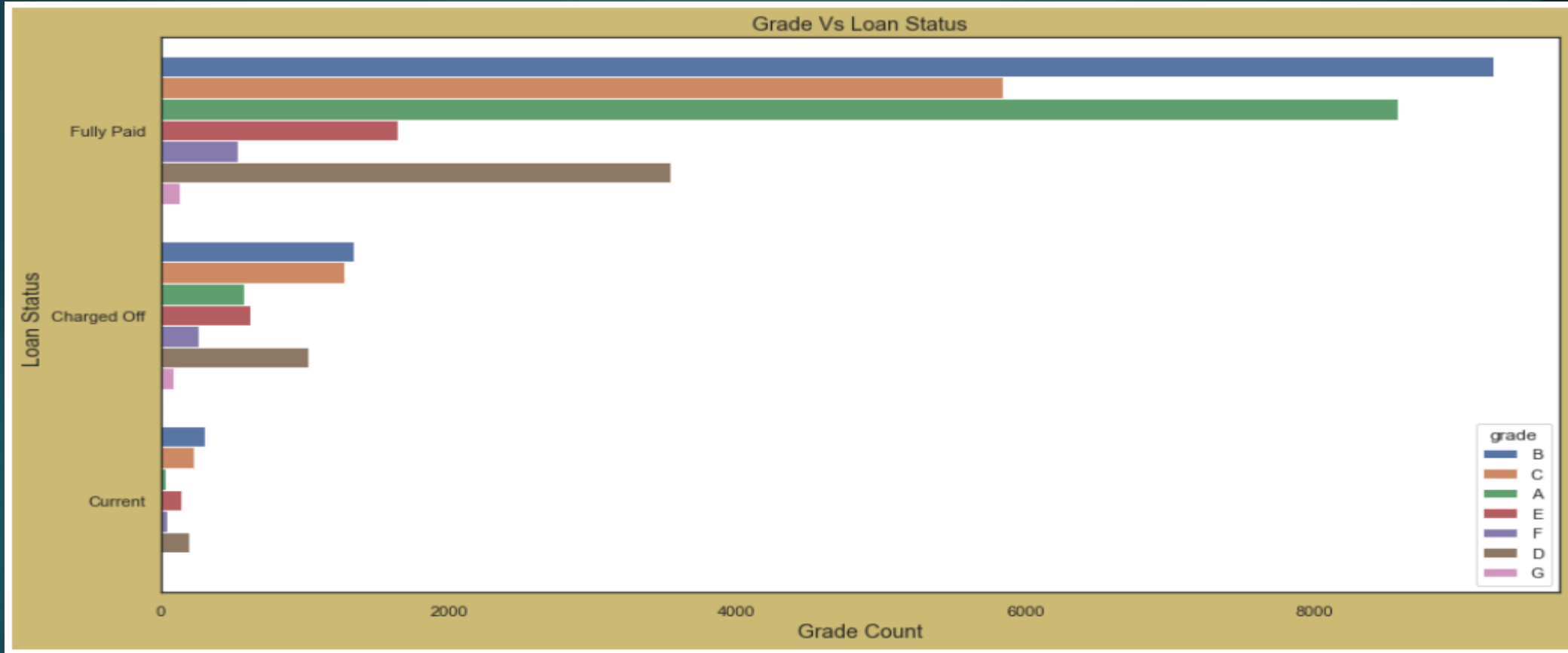
-)Grade A and B have high number of ratio of paying their full loan.
- 2)Grade B and C have high number of ratio of not paying their in time in case of Charged_Off.
- 3)Borrowers with B grade is maximum in the category of fully_paid,charged_off and current.
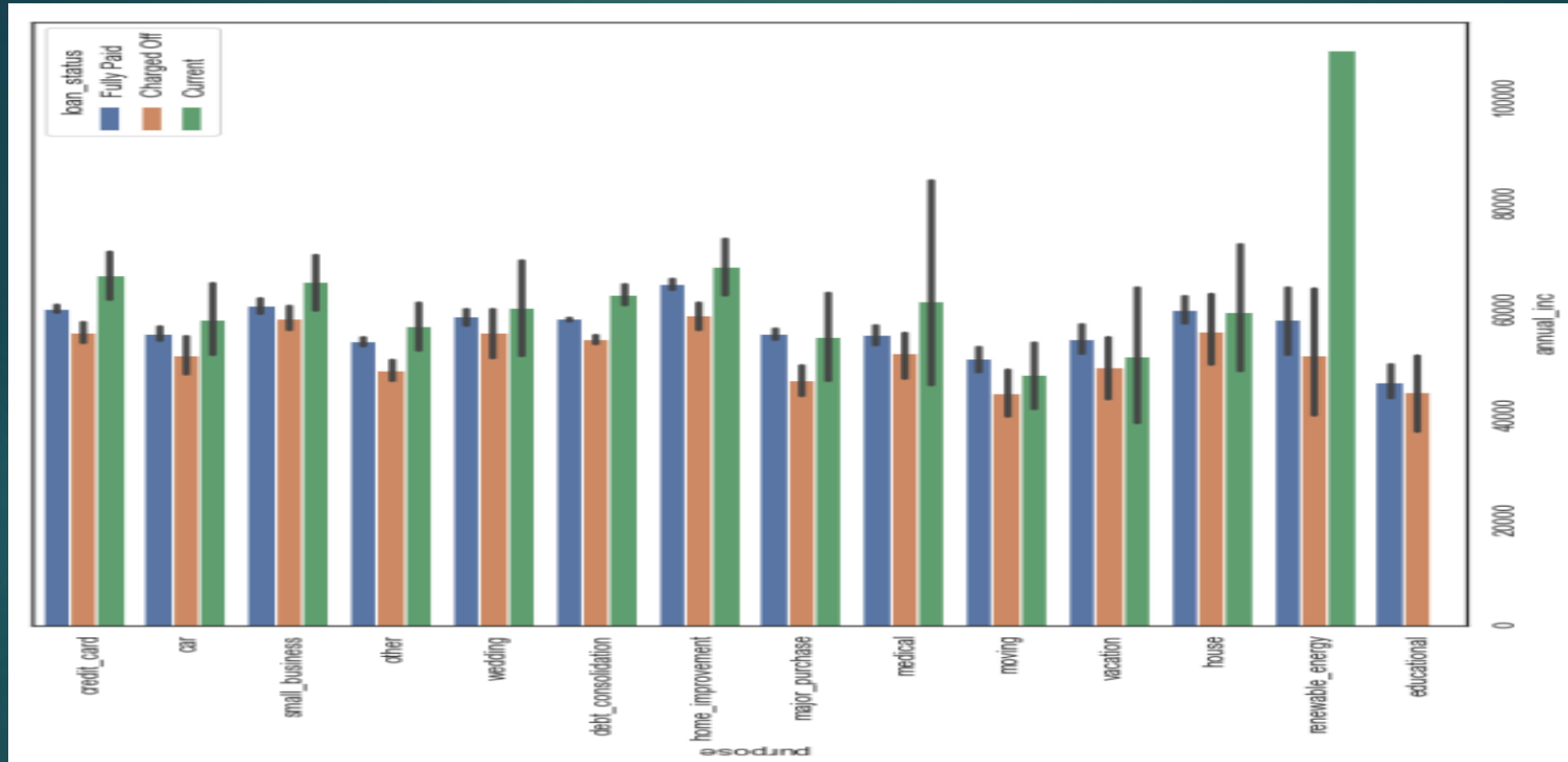
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Multivariate Analysis Result
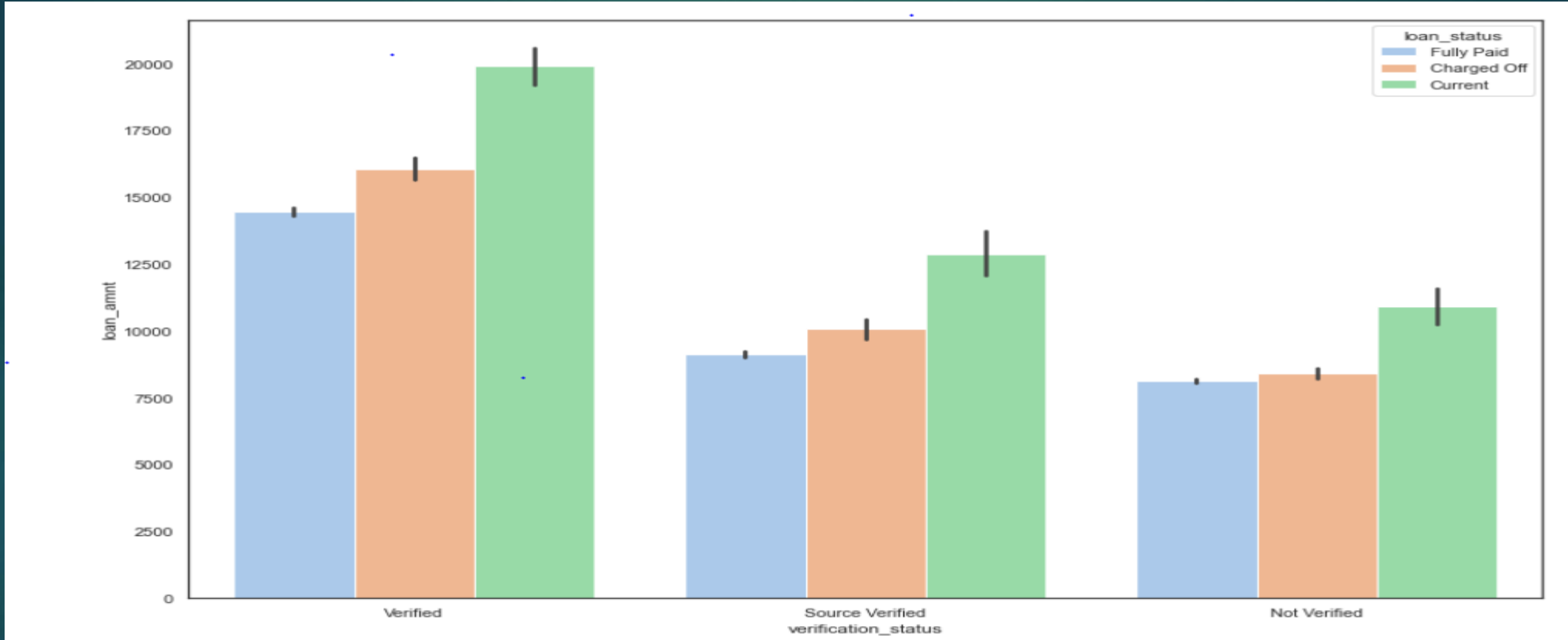
- ▶ 1) Employees with longer working experience has got the loan approved for a higher amount.
- ▶ 2) Borrower whose source of income is verified by LC gets loan of higher amount

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Multivariate Analysis Result

- Borrower with higher salary mostly applied loans for "home_improvment", "house", "renewable_energy" and "small_businesses"