LENDING CLUB CASE STUDY

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BACKGROUND

○ This company 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.

○ Like most other lending companies, lending loans to 'risky' applicants is the largest source of financial loss (called credit loss).

PROBLEM STATEMENT

- Identifying risky loan applicants so that such loans can be reduced thereby cutting down the amount of credit loss.

- Identification of such applicants using EDA is the aim of this case study.

OBJECTIVES

- Understanding the driving factors (or driver variables) behind loan default

- Conduct a comprehensive analysis of a dataset containing consumer attributes and loan attributes.

- Gaining insights into the factors influencing loan default rates

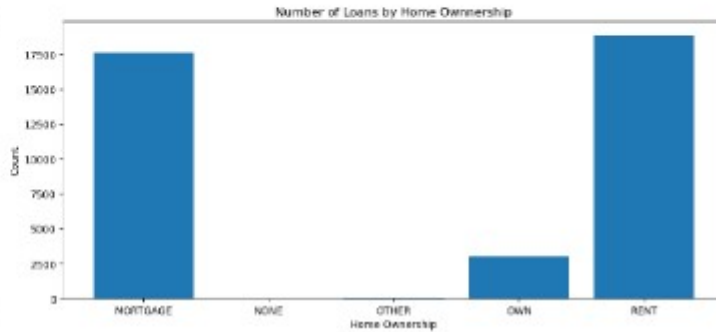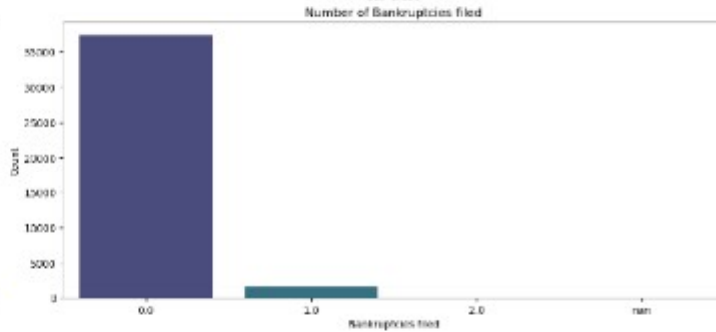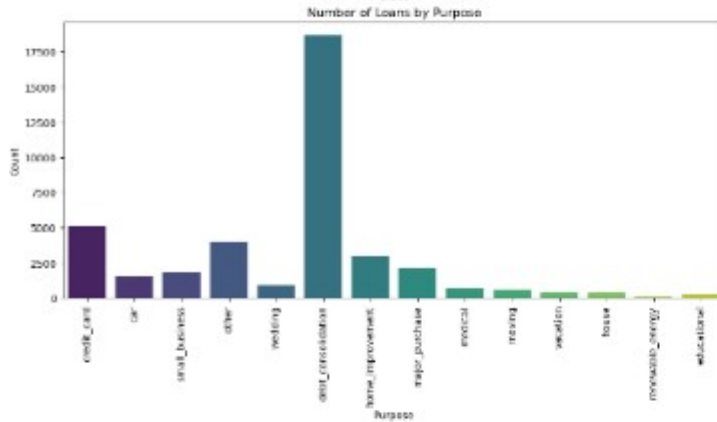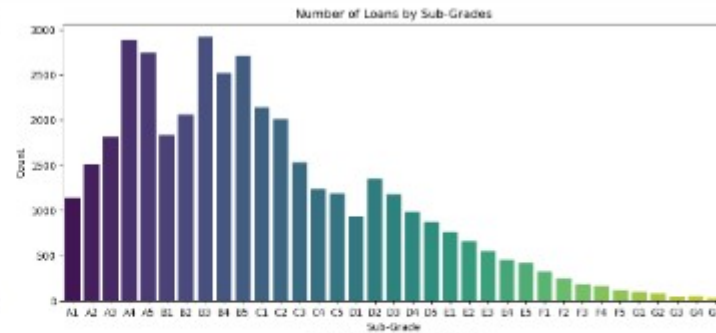- Developing strategies to mitigate risks associated with lending.
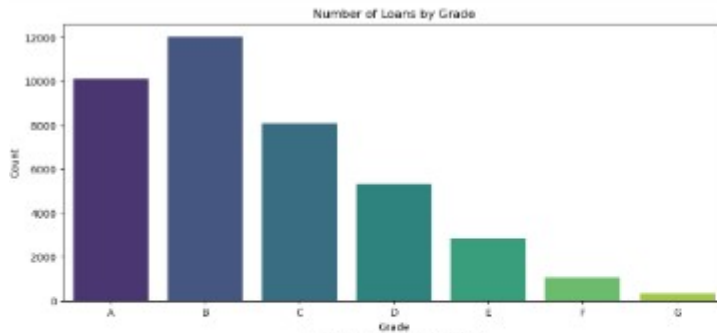
PIE PLOT FOR LOAN STATUS AND VERIFICATION

Loan Status

Verification Status
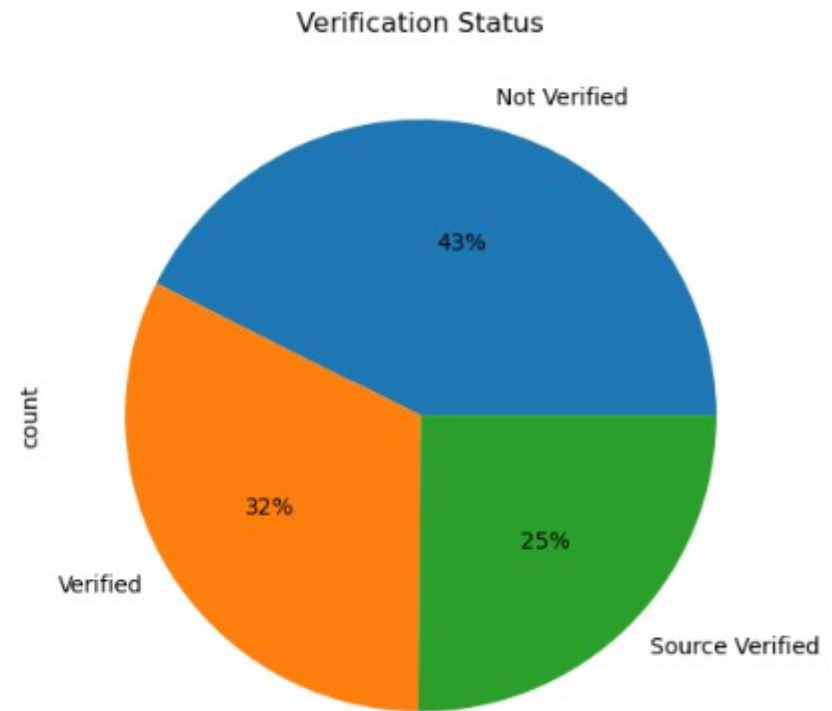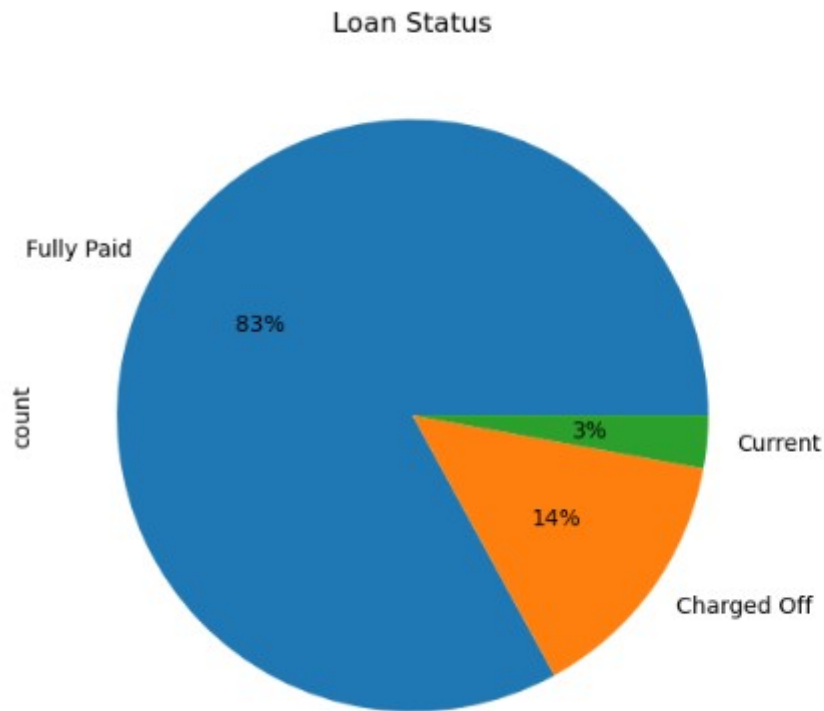
- 14% Loans are defaulted
- Majority of loans are not verified
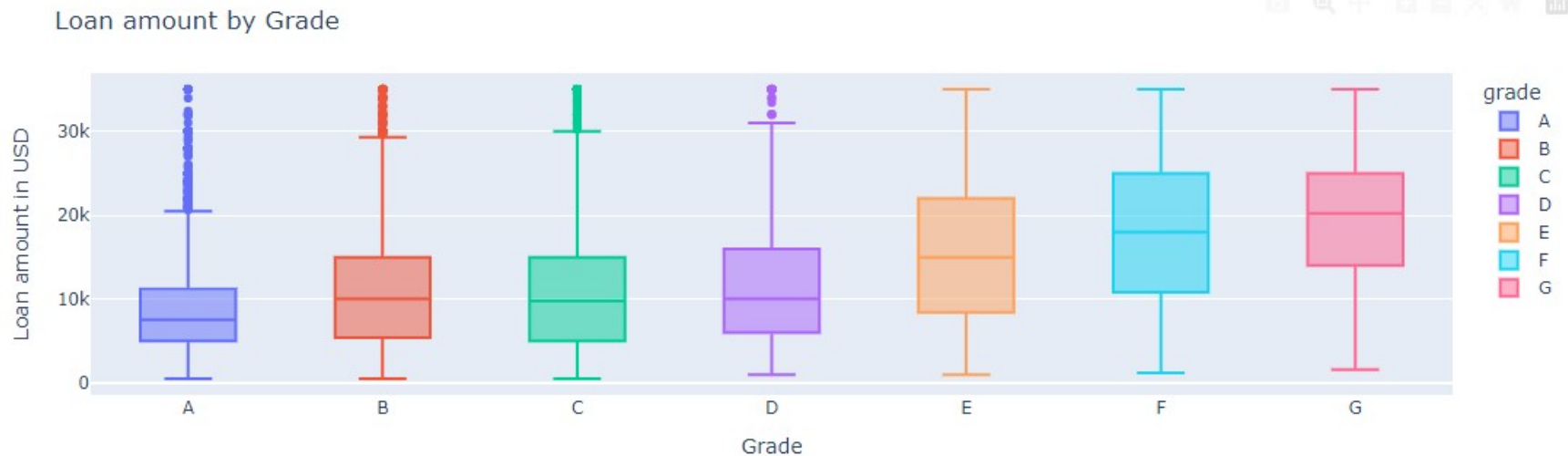
CATEGORICAL ANALYSIS

OBSERVATIONS FROM CATEGORICAL ANALYSIS

- Majority of loans are concentrated in states like California, New York, Florida and Texas

- Majority of loan recipients are either living in the rented house or mortgaged their house

- Significant numbers of loans are issued towards debt consolidation which is calls for individual analysis of the loan purposes

DISTRIBUTION OF LOANS AMOUNT WITH RESPECT TO PURPOSE GRADE

Loan amount by Grade

- Looking at median and quartile values, it is observed that high risk categories like E, F and G are offered higher amounts of loans compared to low risk categories
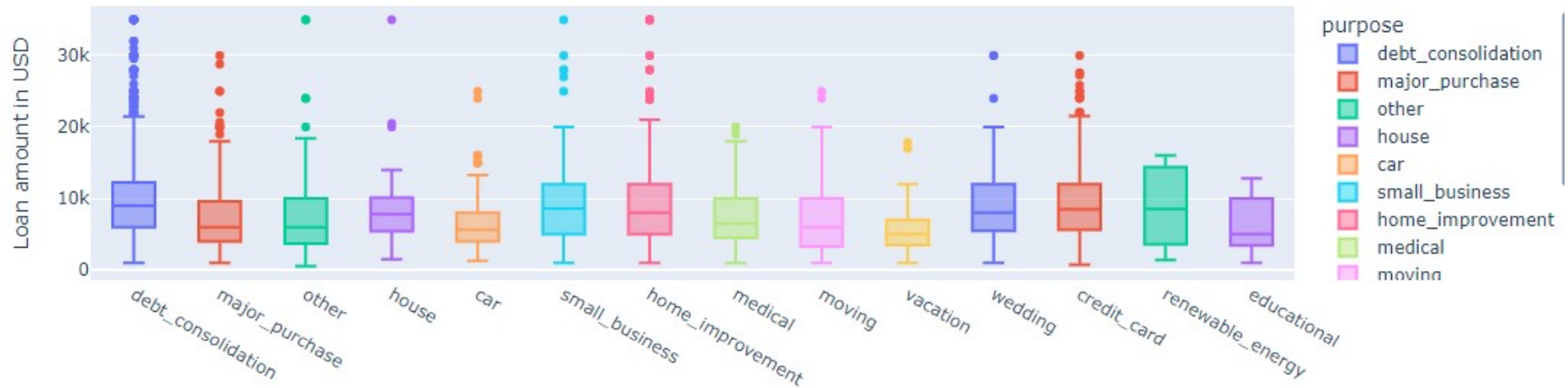
FURTHER STRATEGY OF ANALYSIS

- Data will be filtered for top four states

- Grade wise analysis will be done to identify top three purposes where amount of loans are provided higher than expected

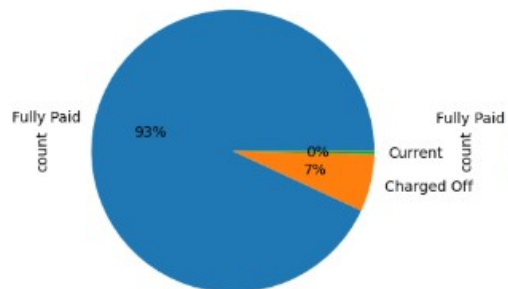- Default rate will be analysed for top three purposes for each category
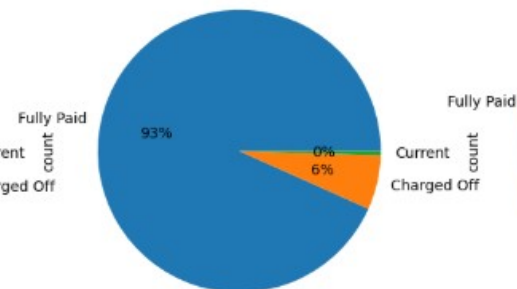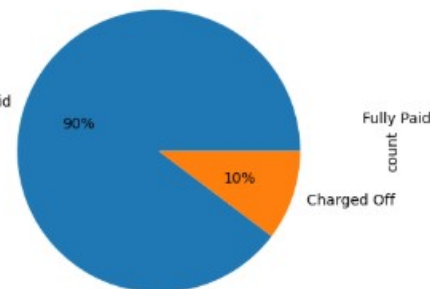
GRADE A

Loan amount by purpose

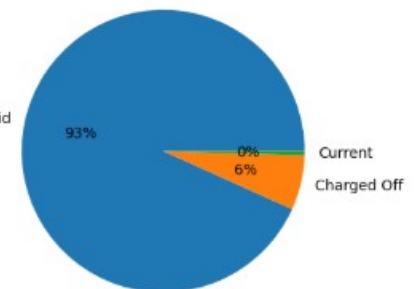Grade A in Top 4 cities for debt consolidation

Grade A in Top 4 cities for credit card

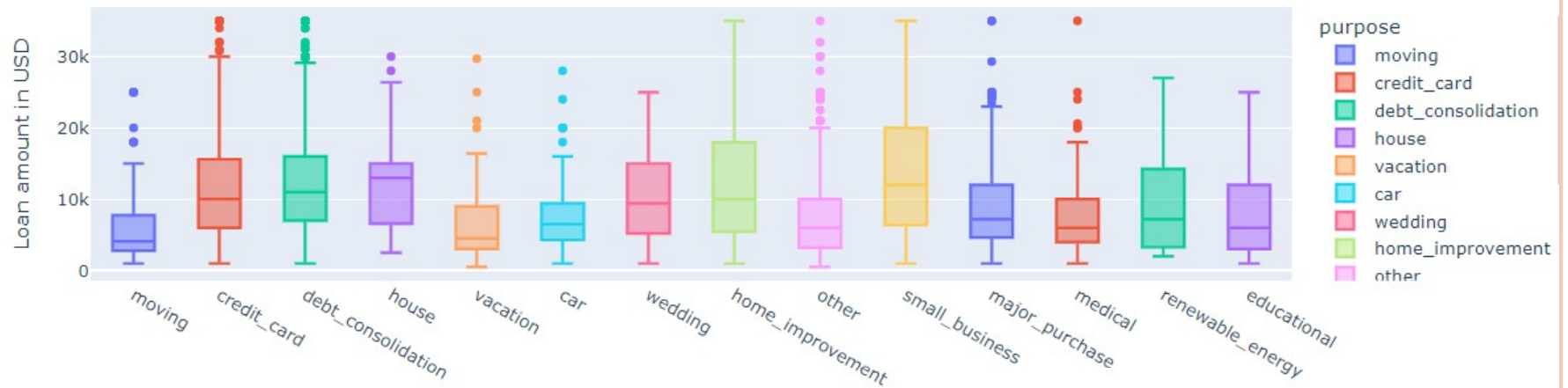Grade A in Top 4 cities for small business
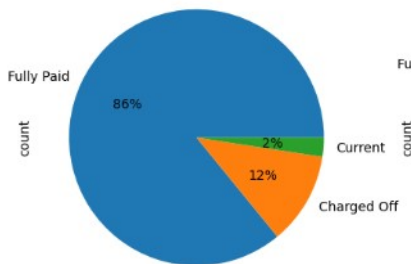
Grade A in Top 4 cities for all purposes
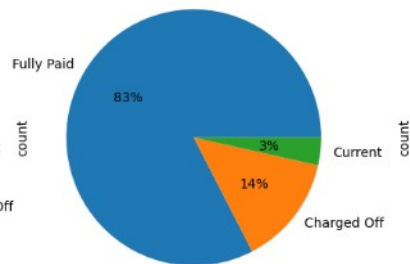
GRADE B

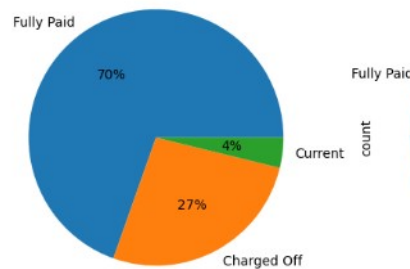## Loan amount by purpose

Loan by purpose

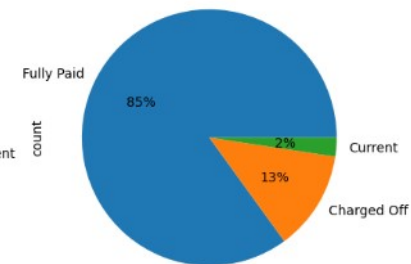Grade B in Top 4 cities for debt consolidation

Grade B in Top 4 cities for home improvement
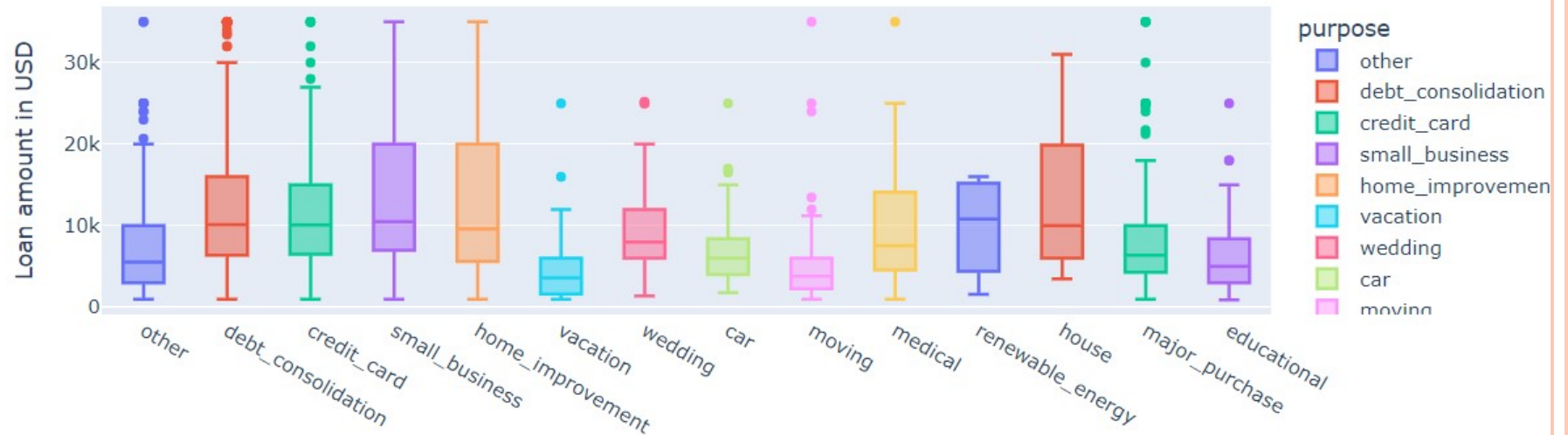
Grade B in Top 4 cities for small business

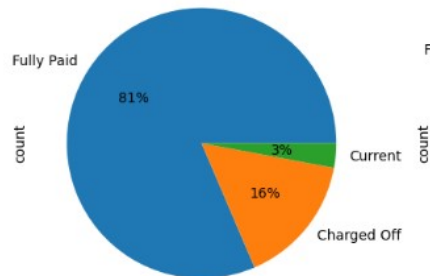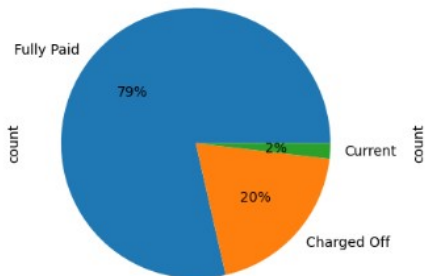Grade B in Top 4 cities for all purposes
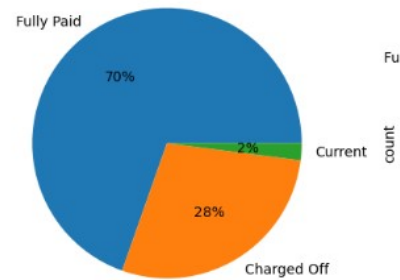
GRADE C

Loan amount by purpose

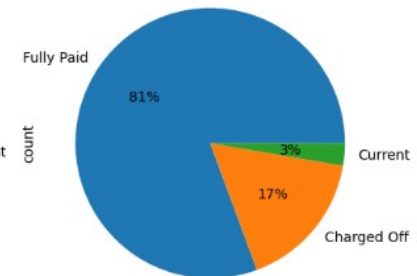Grade C in Top 4 cities for debt consolidation

Grade C in Top 4 cities for other
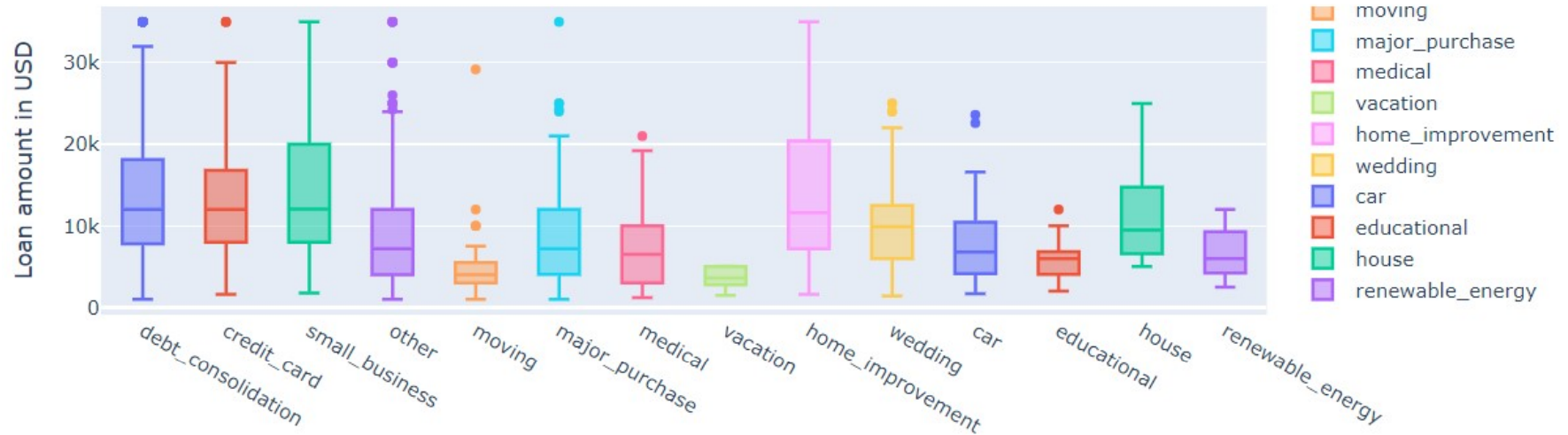
Grade C in Top 4 cities for small business

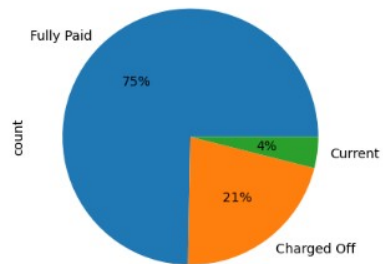Grade C in Top 4 cities for all purposes

GRADE D

Loan amount by purpose

Legend:
- moving
- major_purchase
- medical
- vacation
- home_improvement
- wedding
- car
- educational
- house
- renewable_energy

X-axis: Loan by purpose (debt_consolidation, credit_card, small_business, other, moving, major_purchase, medical, vacation, home_improvement, wedding, car, educational, house, renewable_energy)

Y-axis: Loan amount in USD

Grade D in Top 4 cities for debt consolidation
- Fully Paid 75%
- Charged Off 21%
- Current 4%

Grade D in Top 4 cities for other
- Fully Paid 71%
- Charged Off 24%
- Current 5%

Grade D in Top 4 cities for small business
- Fully Paid 66%
- Charged Off 29%
- Current 5%

Grade D in Top 4 cities for all purposes
- Fully Paid 75%
- Charged Off 21%
- Current 4%

GRADE E

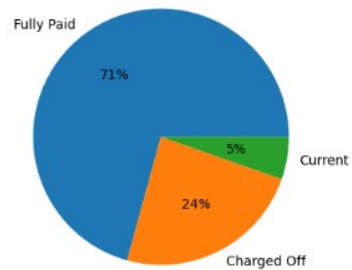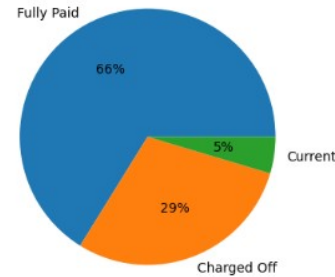## Loan amount by purpose

Loan by purpose

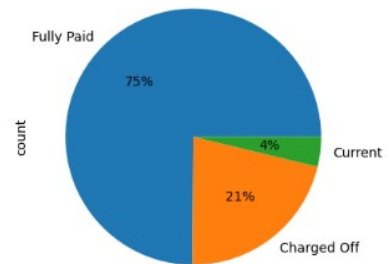Grade E in Top 4 cities for debt consolidation

Grade E in Top 4 cities for other

Grade E in Top 4 cities for small business

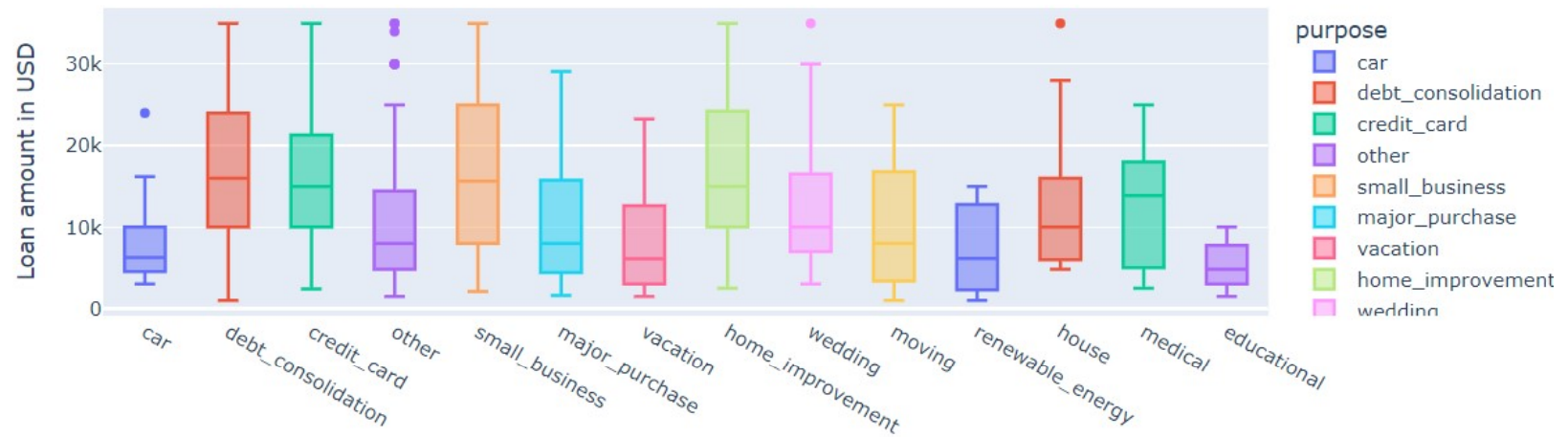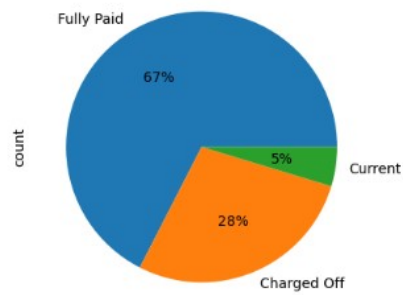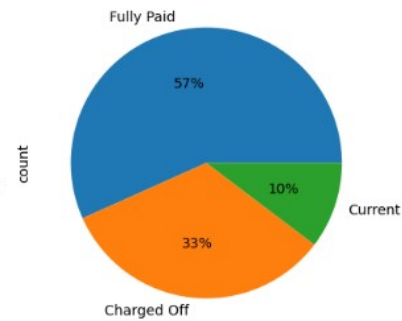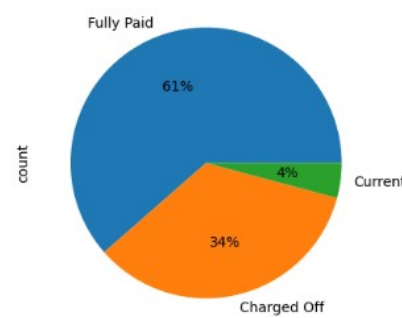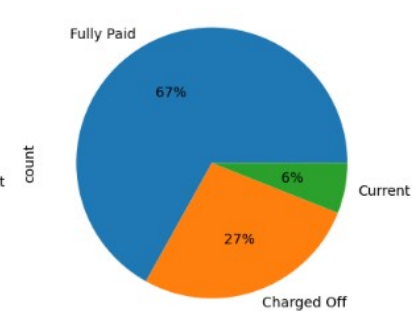Grade E in Top 4 cities for all purposes

GRADE F

Loan amount by purpose

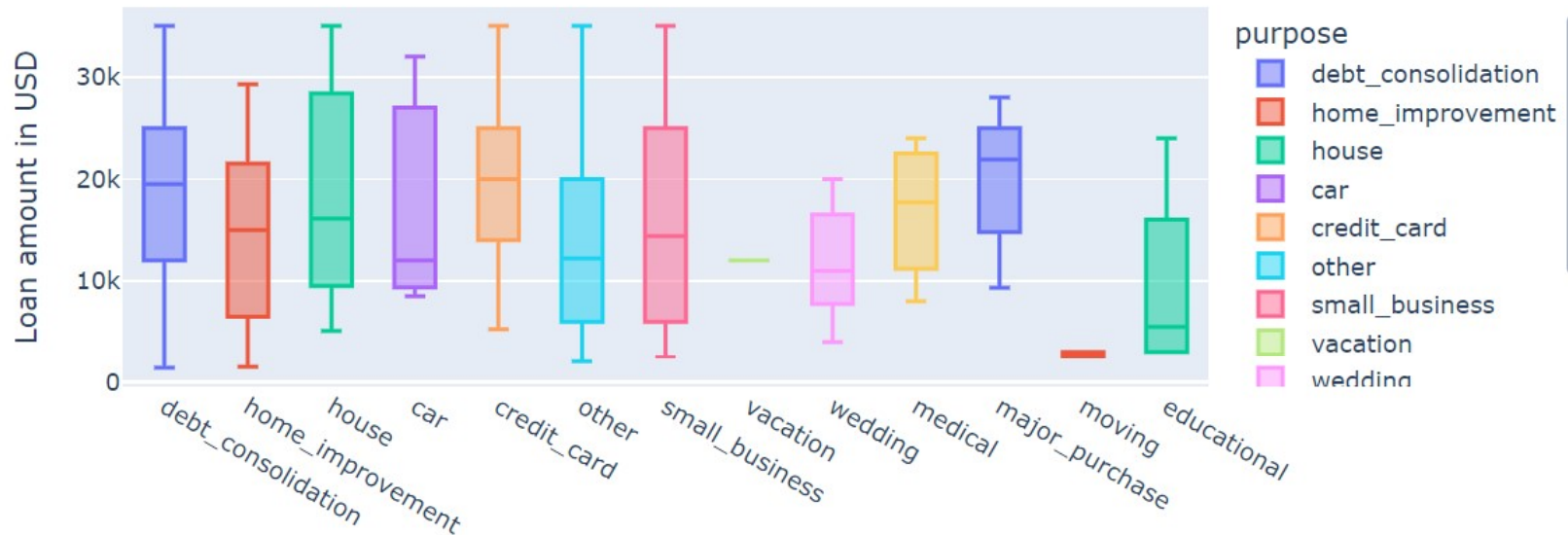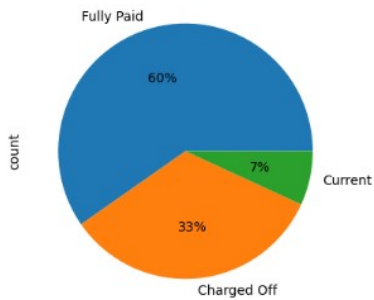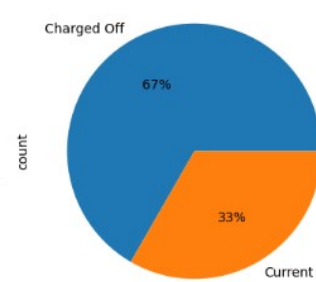Grade F in Top 4 cities for debt consolidation | Grade F in Top 4 cities for Car | Grade F in Top 4 cities for small business | Grade F in Top 4 cities for all purposes
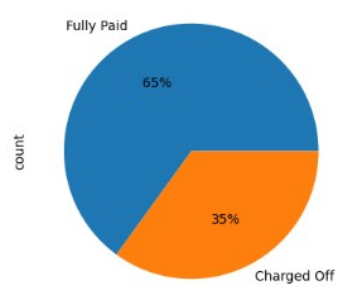
GRADE G

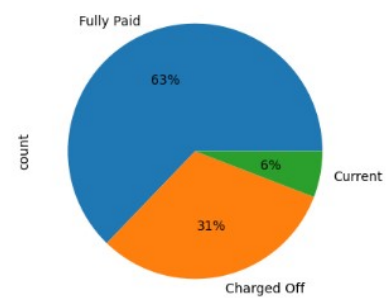Loan amount by purpose

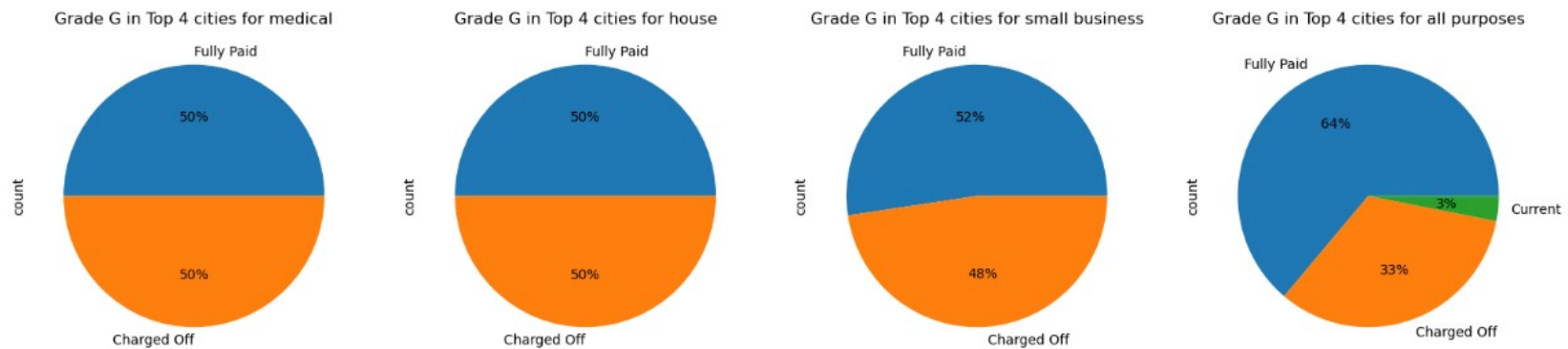Grade G in Top 4 cities for medical

Grade G in Top 4 cities for house

Grade G in Top 4 cities for small business

Grade G in Top 4 cities for all purposes

ANALYSIS

- Loan amounts are offered to high risk categories such as E, F and G higher than expected.

- Loans given for small business purposes have observed to be the highest probable cause to get defaulted across all the grades. The probability increases with the risky categories.

- Loans given for debt consolidation seems to be next probable factor to default the loan

- For Grade E, loans given for car is the next probable factor to default the loan

- For Grade F, loans given for medical purposes is the next probable factor to default the loan