

Lending Club Case Study

SUBMISSION

Group Members:

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Agenda:



About Company:

- ✓ Consumer Finance Company is the largest online loan marketplace, facilitating personal loans, business loans, and financing of medical procedures.
- ✓ It specializes in lending various types of loans to urban customers. When the company receives a loan application, the company has to make a decision for loan approval based on the applicant's profile.

Business Objective/Goals:

- ✓ Lending Club wants to understand the driving factors behind loan default, i.e. the driver variables which are strong indicators of default.
- ✓ The company wants to utilize this knowledge for its portfolio and risk assessment.
- ✓ The aim is to identify patterns which indicate if a person is likely to default

Data Files:

- ✓ loan.csv (given along with problem statement)

Import Data

- Import the loan.csv file and store in pandas df

Clean Data

- Null Value treatment
- Drop unnecessary columns
- General Statistics

Loan status Analysis

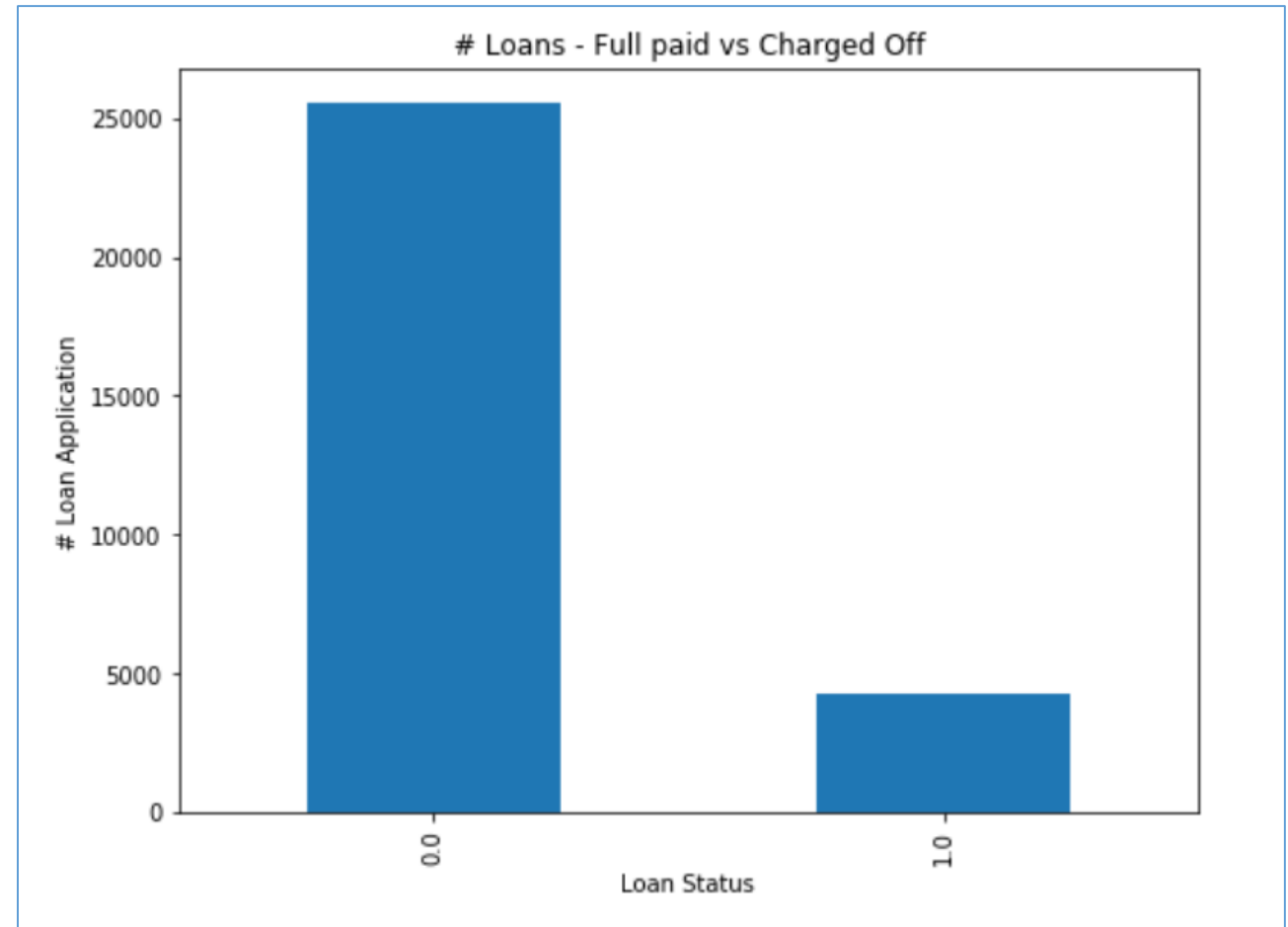
- Analyze data w.r.to Loan Status
- Drop data other than Loan status = Fully Paid or Charged-Off

Graphical Display

- Display the data into graphs for Univariate and Segmented Analysis

❑ Approximately **15%** loan is defaulted.

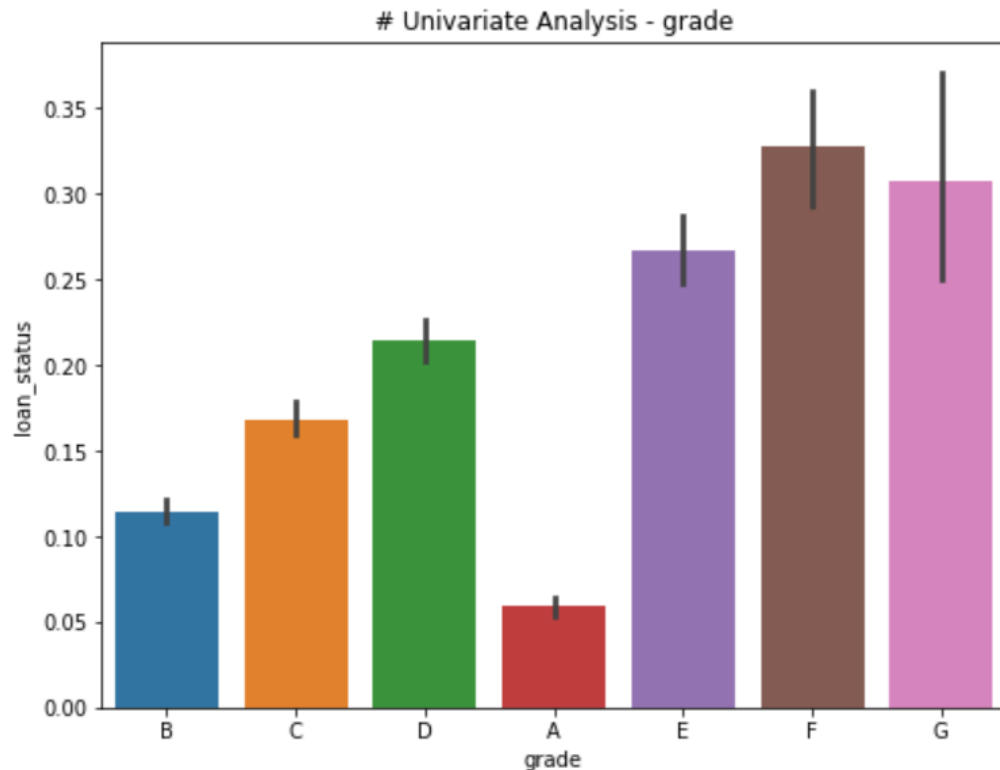
❑ Fully Paid 32950 | Charged Off 5627



❑ The below loan attributes seems to have a relationship with loan status.

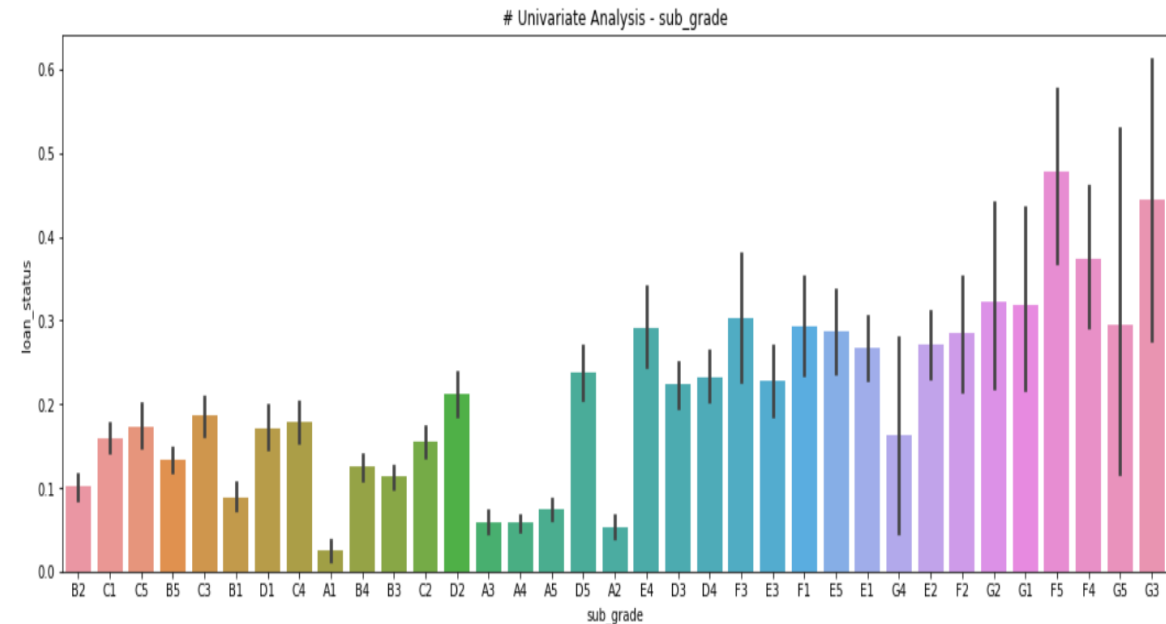
1. Loan Attributes: **Grade**

Inference: As the grade increases from A to G, the loan default rate increases



2. Loan Attributes: **Sub - Grade**

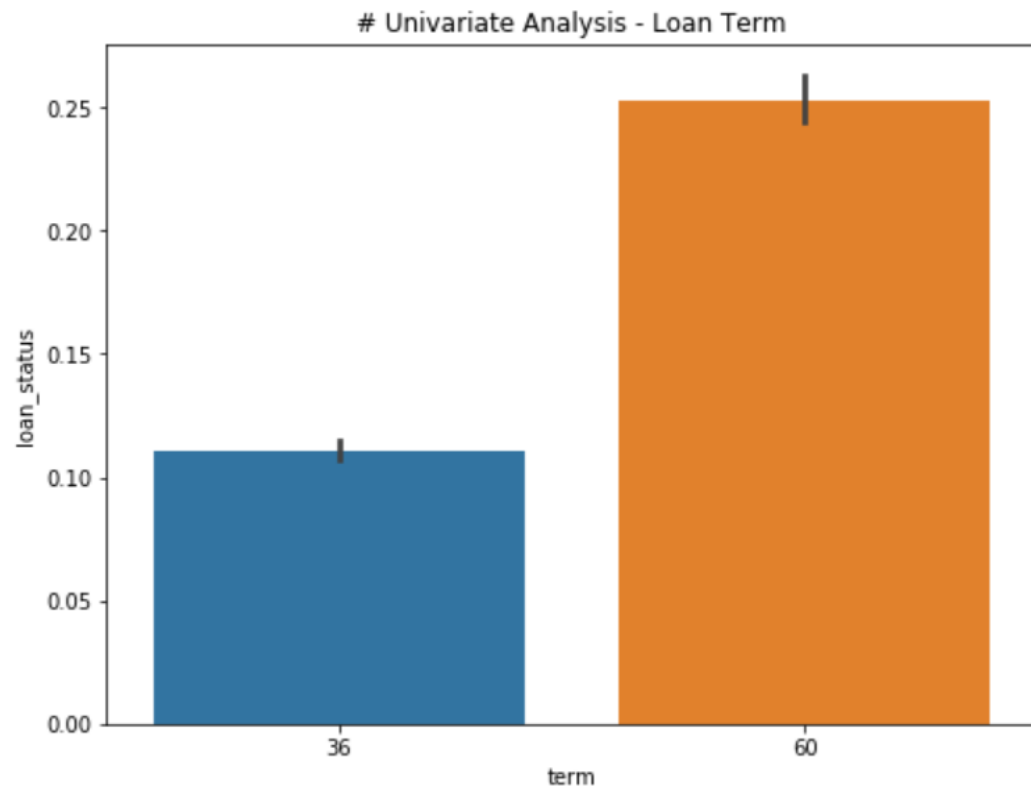
Inference: As the sub_grade increases from A1 to A4 (and likewise ex: G1 to G5), the loan default rate increases.



❑ The below loan attributes seems to have a relationship with loan status.

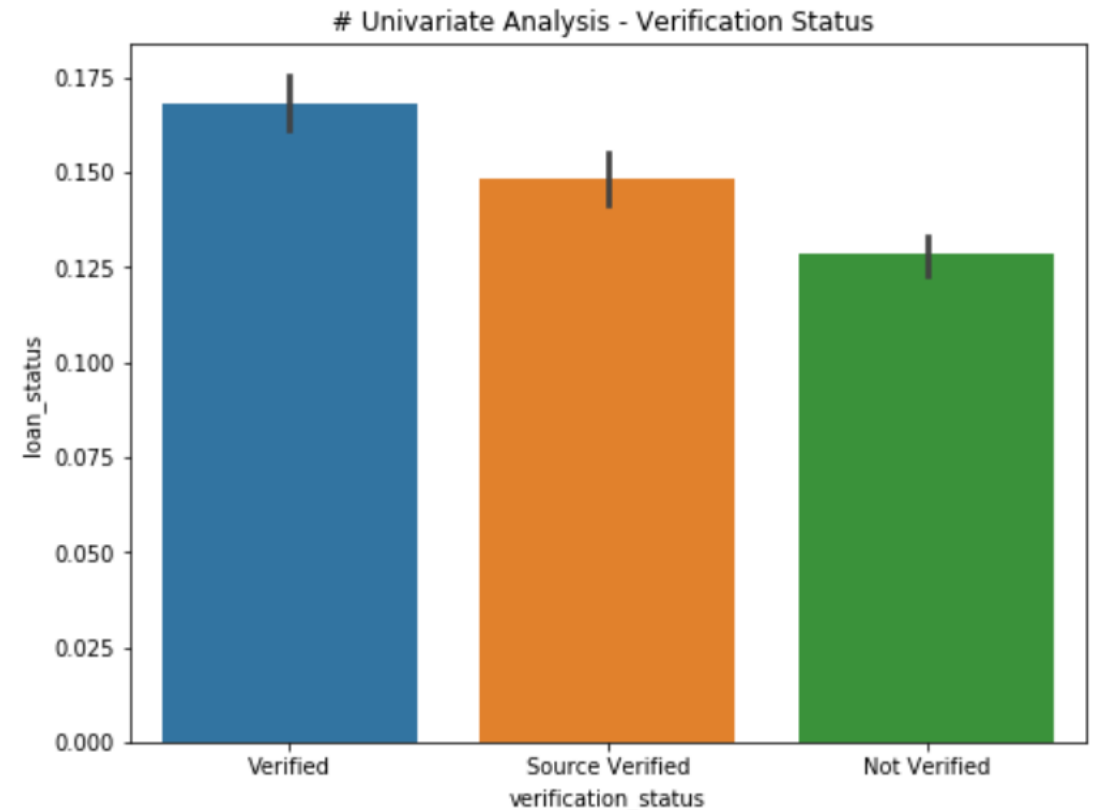
3. Loan Attributes: **Term**

Inference: 60 month loan term is more likely to default



4. Loan Attributes: **Verification Status**

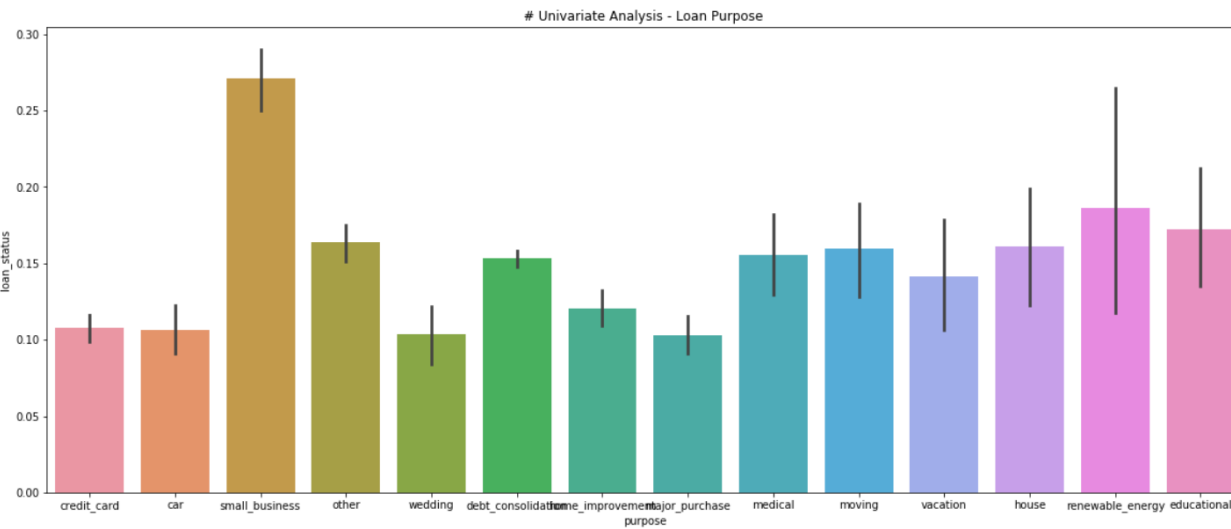
Inference: Verified loans are slightly more likely to default.



❑ The below loan attributes seems to have a relationship with loan status.

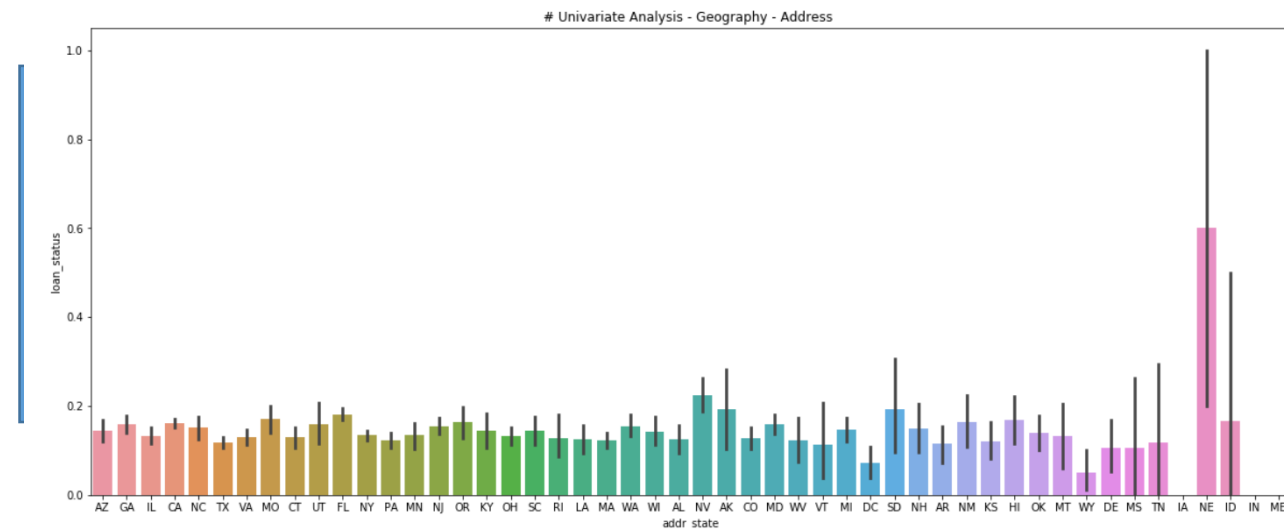
5. Loan Attributes: **Loan Purpose**

Inference: Loan taken for Small business is more likely to default



6. Loan Attributes: **Address**

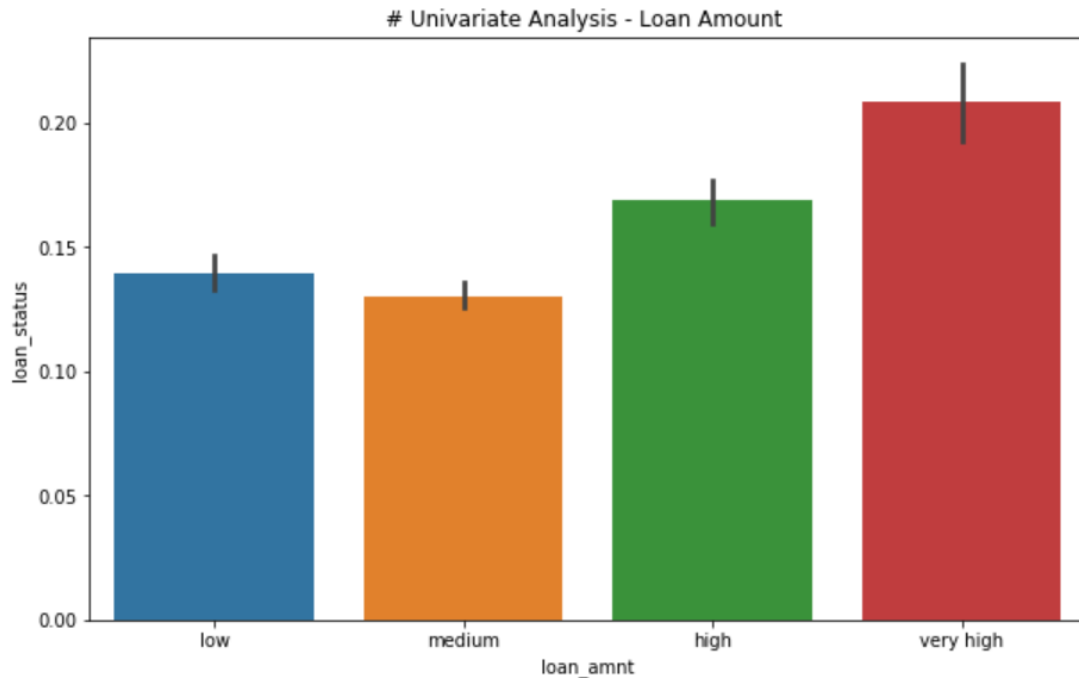
Inference: People from NE defaults the most compared to other states people



❑ The below loan attributes seems to have a relationship with loan status.

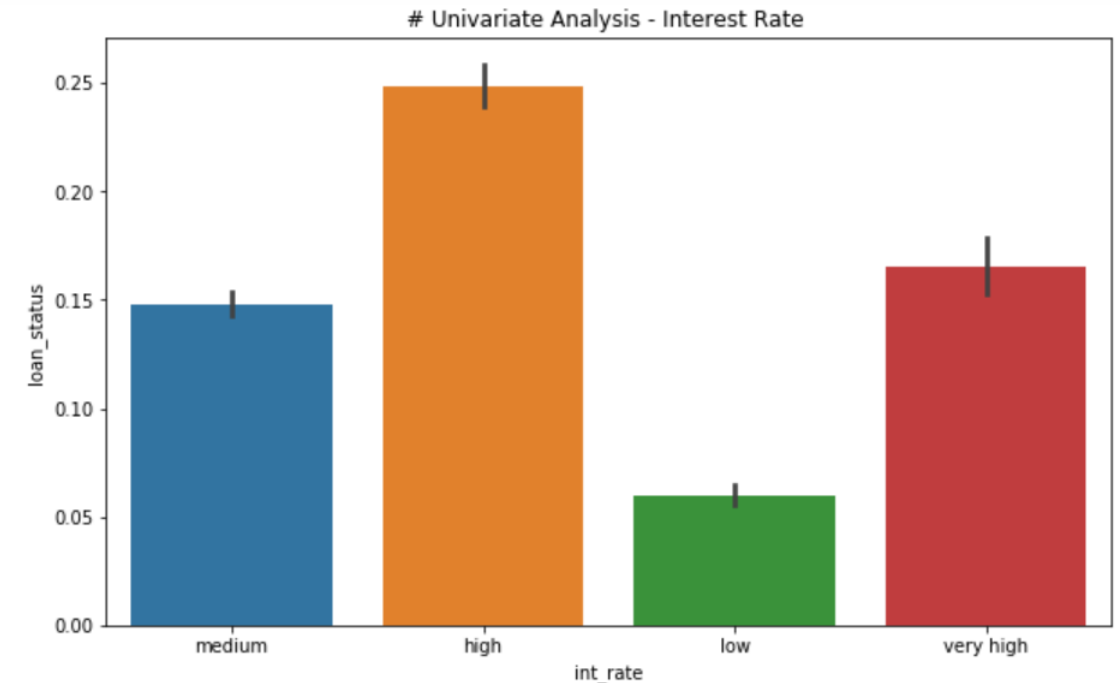
7. Loan Attributes: **Loan Amount**

Inference: Loan default rate increases as loan amount increases [Loan Amount > 25K → very high]



8. . Loan Attributes: **Int. Rate**

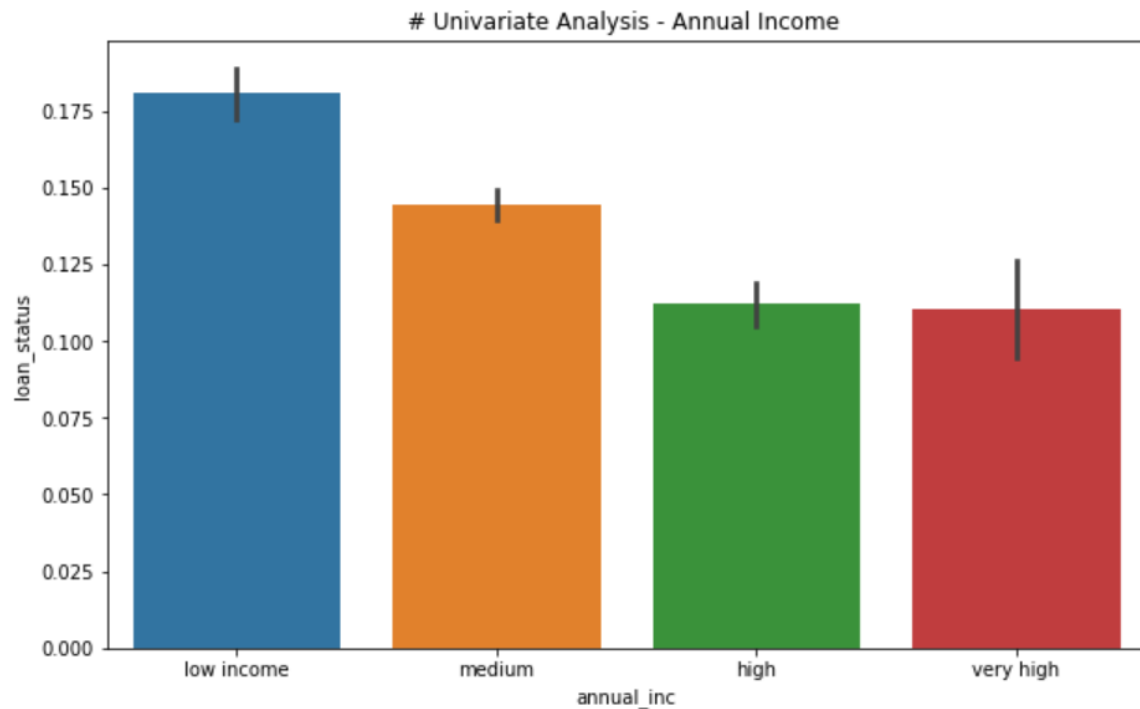
Inference: Loan default rate is most for Int. rate between 15% and 20%



❑ The below loan attributes seems to have a relationship with loan status.

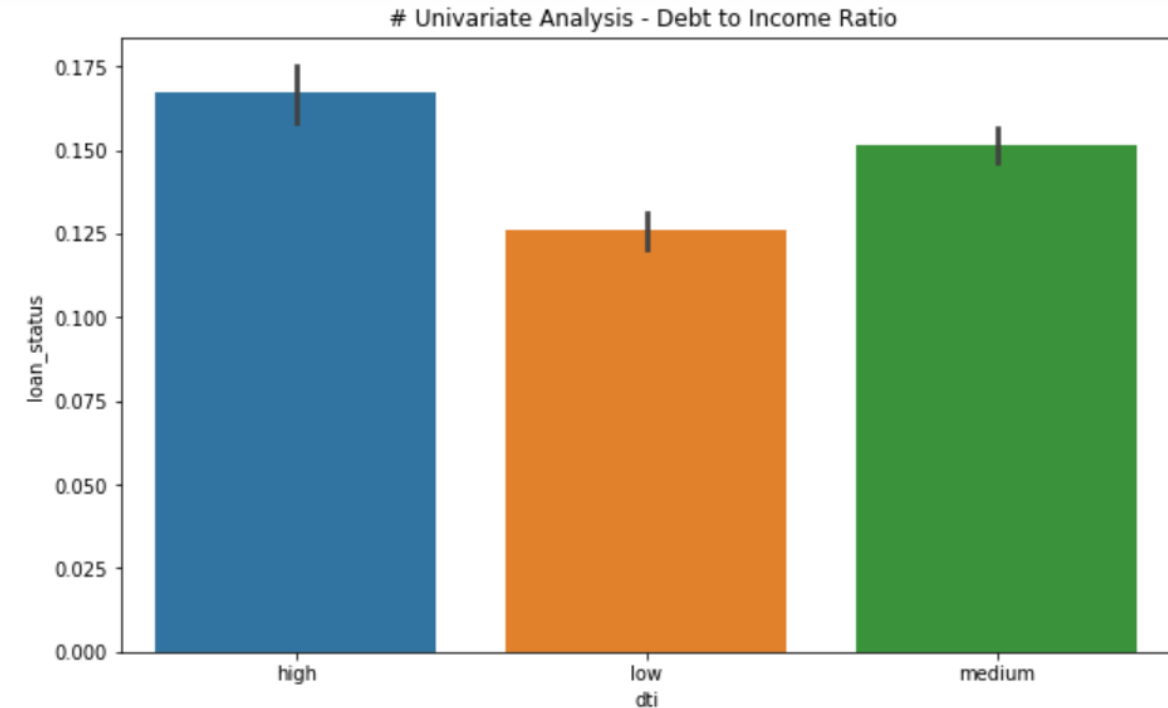
9. Loan Attributes: **Annual Income**

Inference: low income group people defaults most compared to high income group [40K < Income < 85K → low income]



10. Loan Attributes: **dti**

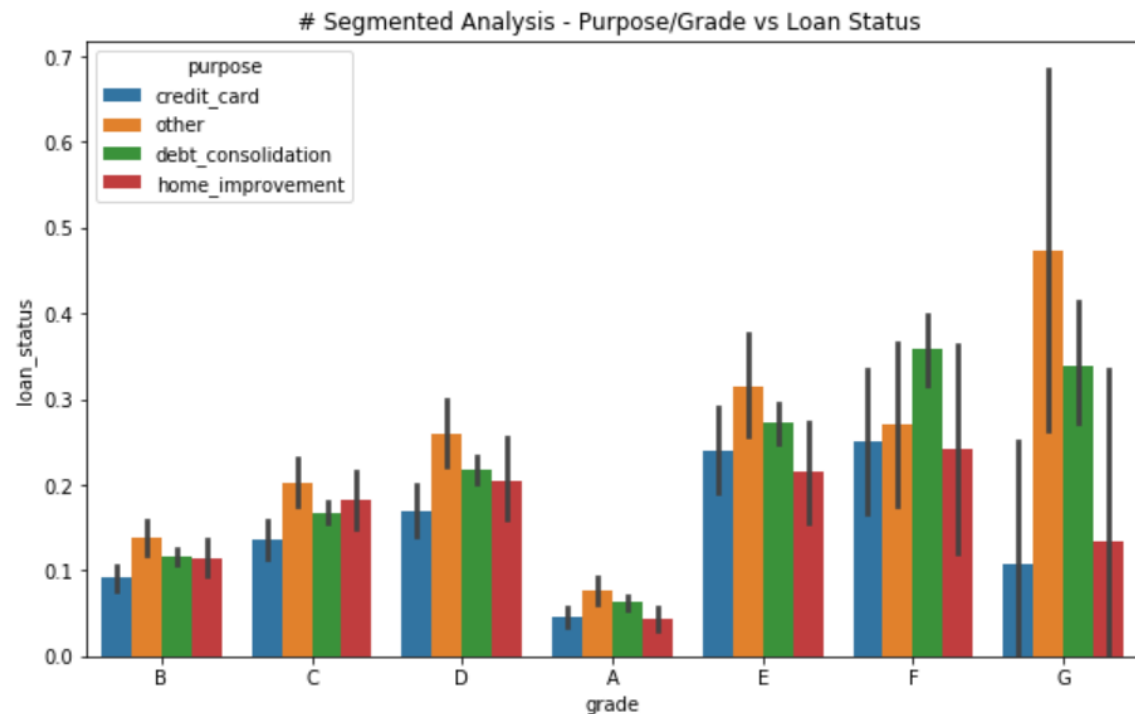
Inference: people with high debt to income ratio defaults the most



❑ The below combination of attributes seems to have an impact on loan status:

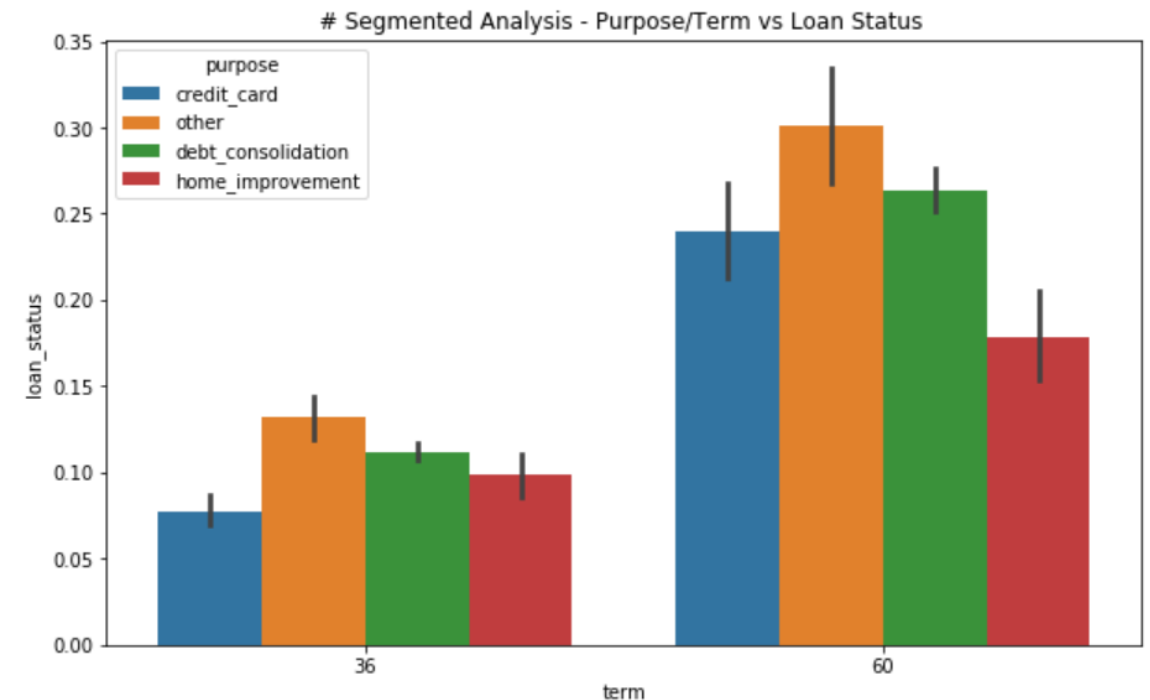
1. Loan Attributes: **Purpose/Grade**

Inference: The default rate of the Loan increases significantly for category 'Other' as grade decreases from A to G



2. Loan Attributes: **Purpose/Term**

Inference: The default rate of the Loan increases significantly for ALL 4 purpose for loan term 60 months



❑ The below combination of attributes seems to have an impact on loan status:

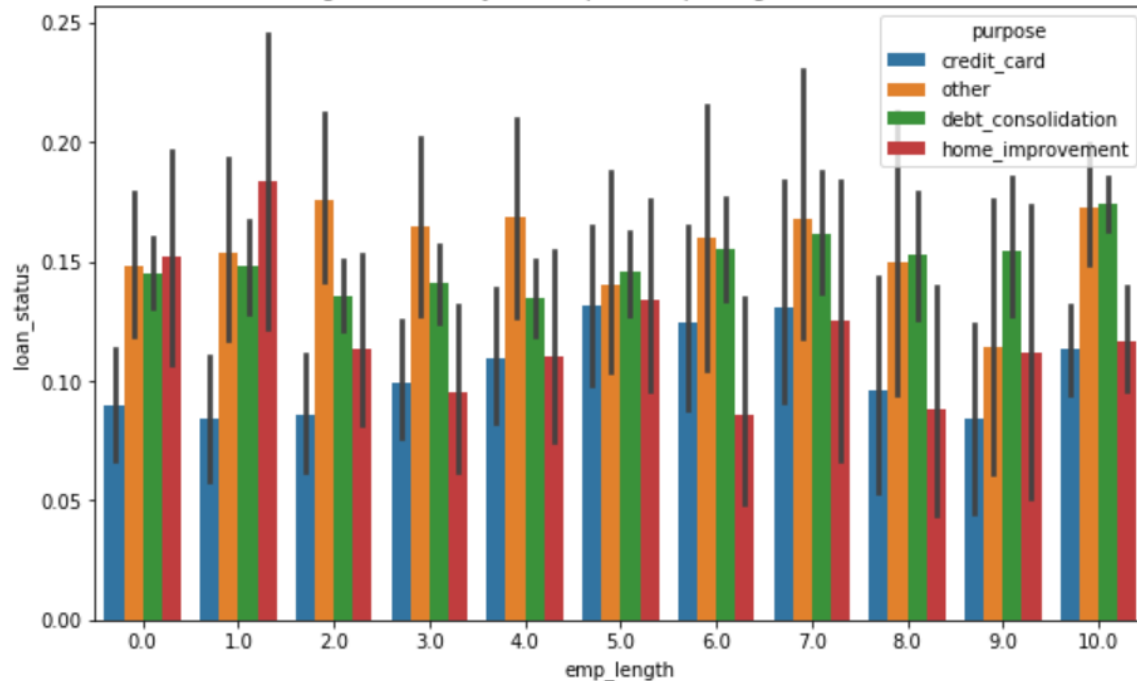
3. Loan Attributes: **Purpose/Emp. Length**

Inference: We have seen that employee with 10+ years of exp. default the most. However, loan taken for "home improvement" is defaulted most by employee with 0-1 year of exp.

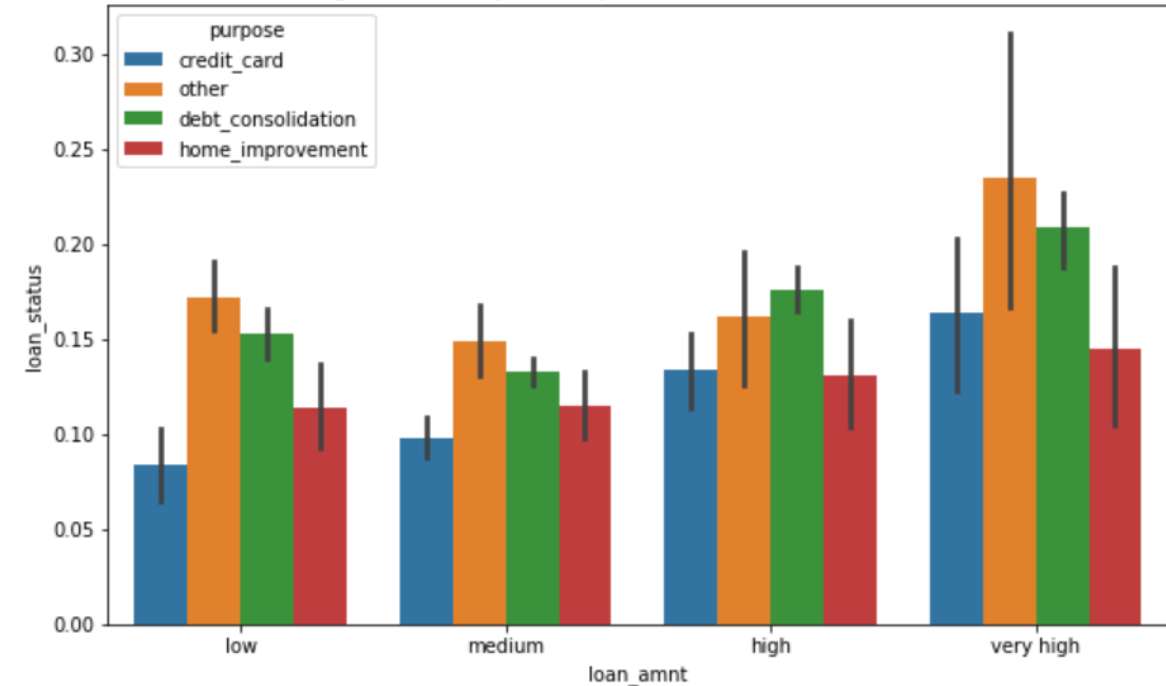
4. Loan Attributes: **Purpose/Loan Amount**

Inference: As the loan amount increases, default rate increases. Moreover, default rate for loan taken for credit card purpose increases significantly with loan amount.

Segmented Analysis - Purpose/Emp. Length vs Loan Status



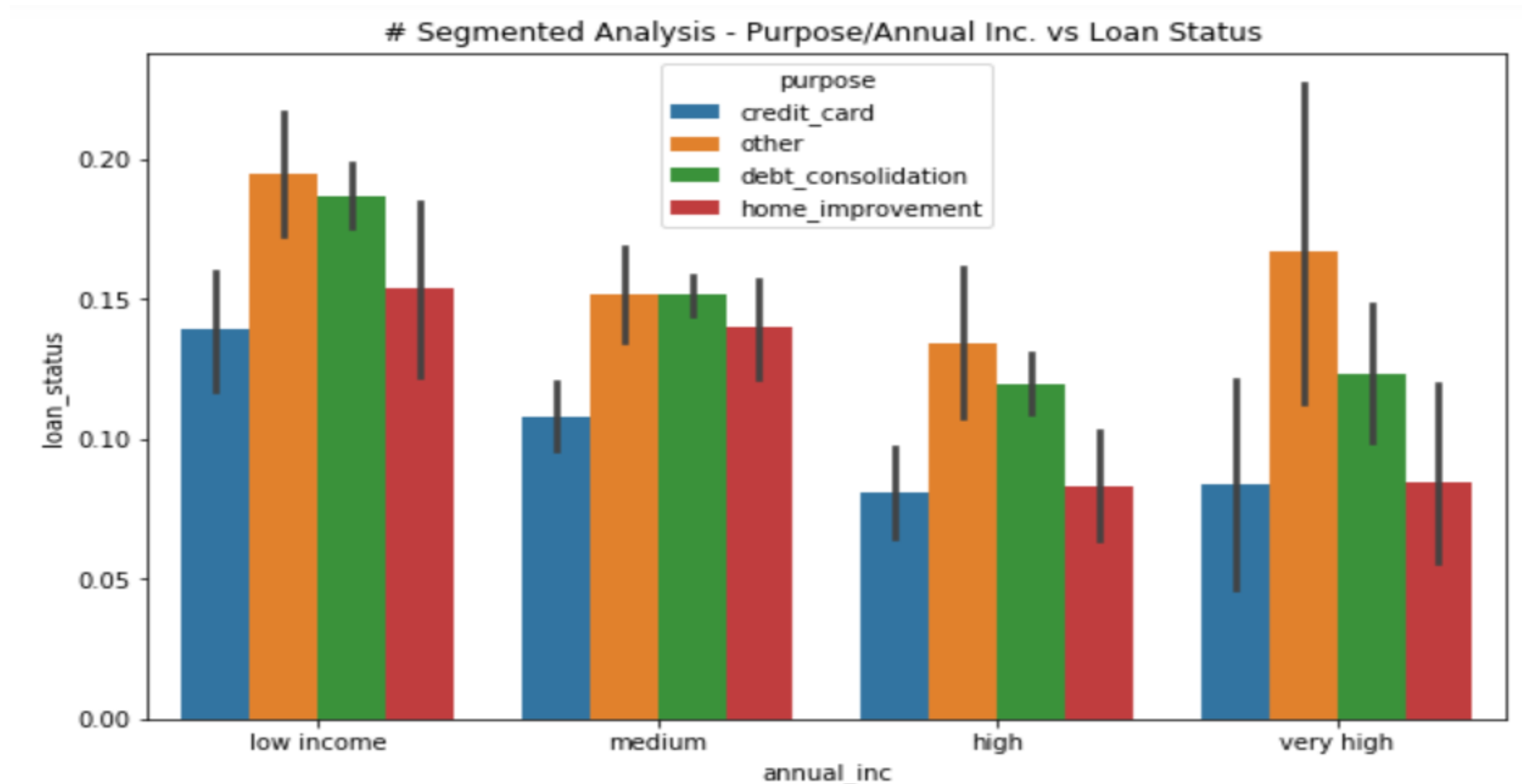
Segmented Analysis - Purpose/Loan Amount vs Loan Status

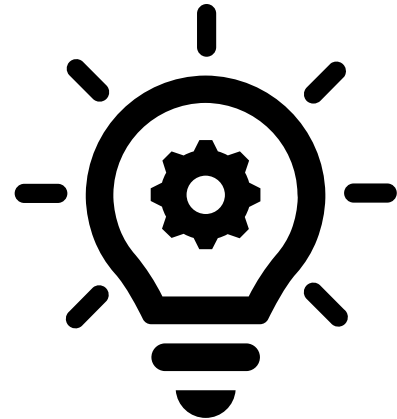


❑ The below combination of attributes seems to have an impact on loan status:

5. Loan Attributes: **Purpose/Annual Inc.**

Inference: High default rate can be observed for loan purpose 'other' and 'debt_consolidation' even in low income group people.





Thanks!