

# Lending Club Case Study



Ishan Anant Karve  
Raghavendra

# Overview

- Lending Club is a P2P lending company in operation since 2007
- They work as intermediary between a investor (loaner) and prospective loanee
- Lending Club as intermediary offers ease of access to a individual to seek funds while at the same time offering a loner tantalising investment opportunity
- Lending Club on its part undertakes verification of a prospective loanee and categorises the loanee into grades
- Since, the money is being loaned by an investor and not by Lending Club, the risk of default on part of loanee is borne by the investor

# Problem Statement

## Aim

Identify patterns in data which indicate if a potential loanee is likely to default, identification of which will enable the investor to apply suitable risk avoidance/ mitigation strategy

## Objective

Based on data made available, understand the driving variables available at the time on application and historic data to identify strong indicators of default.

## Approach

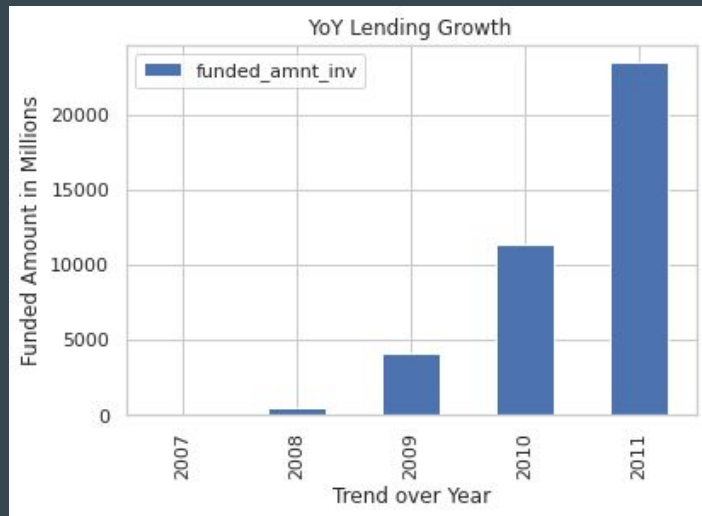
Utilise EDA concepts learnt to undertake risk analytics in banking and financial sector and understand use of data to minimise risk to clients.

# Understanding the Client

# Lending Trend

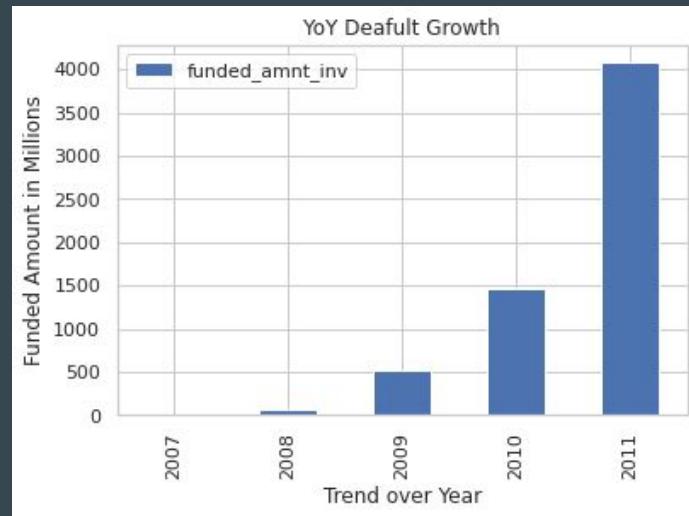
## Trend 1

There has been a steep increase in amount of money lent by LC since 2007



## Trend 2

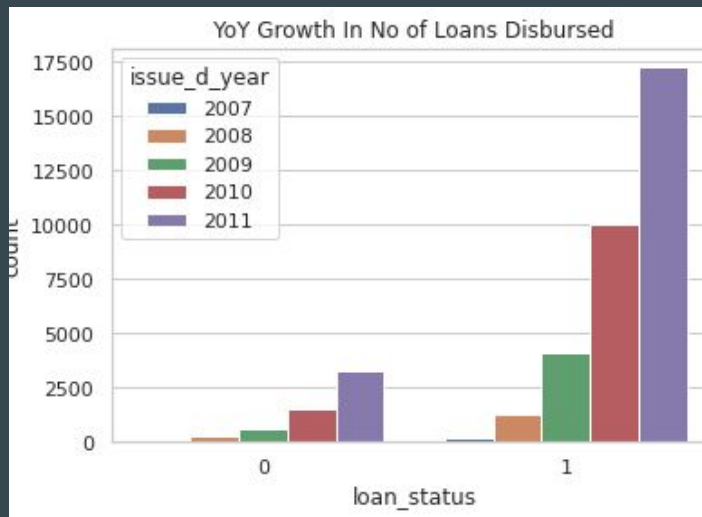
There has also been a corresponding increase in the amount of default



# Lending Trend

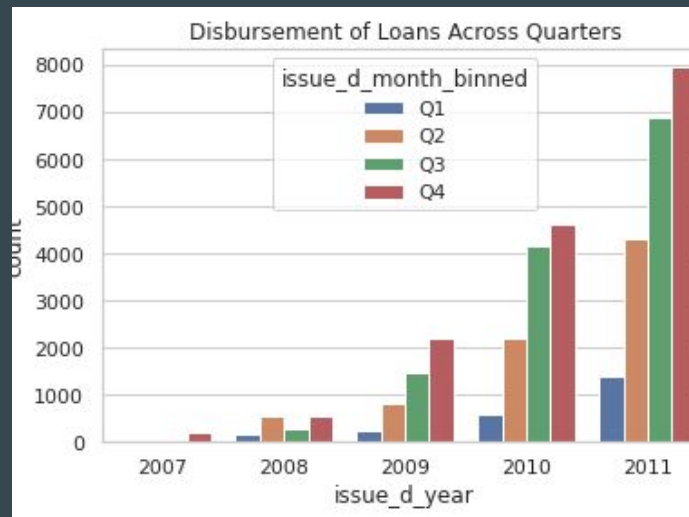
## Trend 3

There has been a steep increase in number of loan disbursals.



## Trend 4

Disbursement of loans increases towards end of financial year.



# Caveats to Analysis

- Only historical data and data available at the time of application considered.
- Running debt schemes not considered for purpose of analysis.
- Columns having null data dropped.
- Demographic markers utilised for data analysis.
- Bespoke binning of highly segmented variables undertaken for current case and will therefore affect analysis.
- Vertical (Column) and Horizontal (Row) data aggregated to get a better picture.
- Outlier treatment not undertaken as already a lot of data has been culled and binned

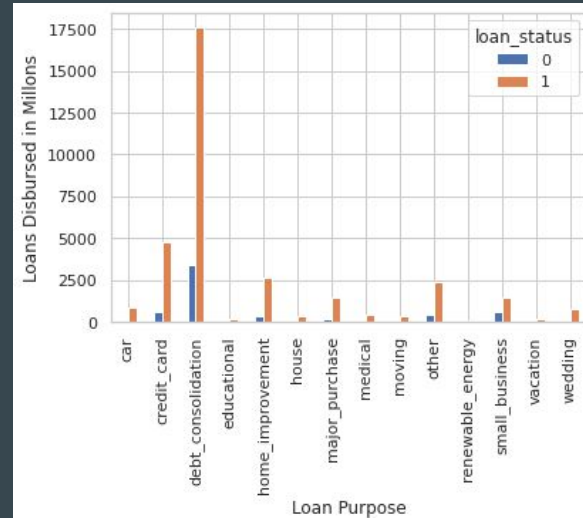
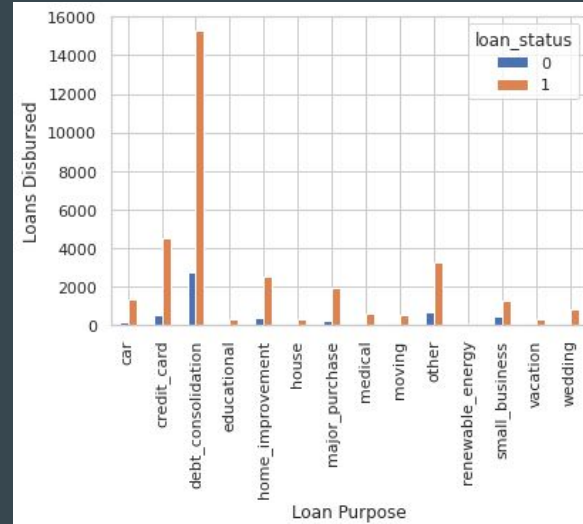
# Trend analysis - by Purpose (inter)

## Findings

Most of the loans being sought are for debt consolidation.

## Client Implications:

- No direct correlation observed between purpose of loan sought and possibility of default.





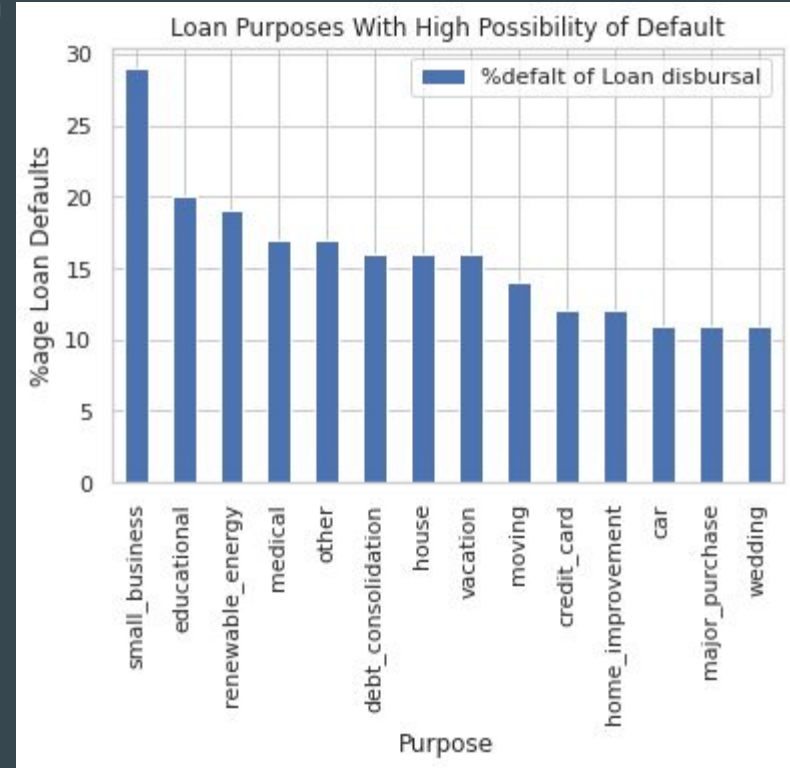
# Trend analysis - by Purpose (intra)

## Findings

Notwithstanding the value, loans disbursed for small businesses, education and renewable energy have high default percentage amongst its category

### Client Implications:

- Stricter vetting of loanees to be considered for indicated purposes



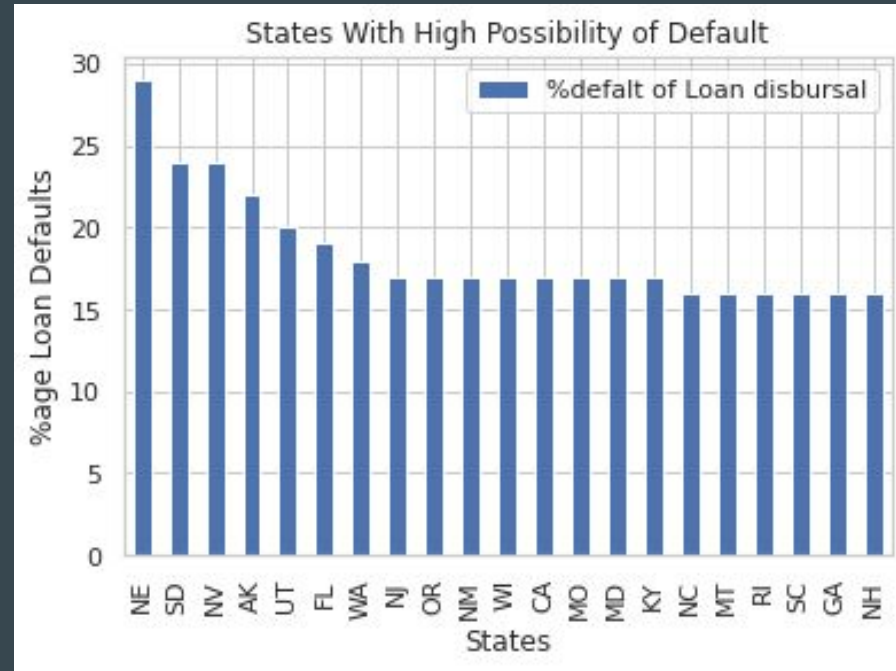
# Trend analysis - by State

## Findings

There are individuals belonging to a few states that exhibit a higher tendency to default

### Client Implications:

- Stricter vetting of loanees to be considered for Nebraska, South Dakota, Nevada, Alaska etc.



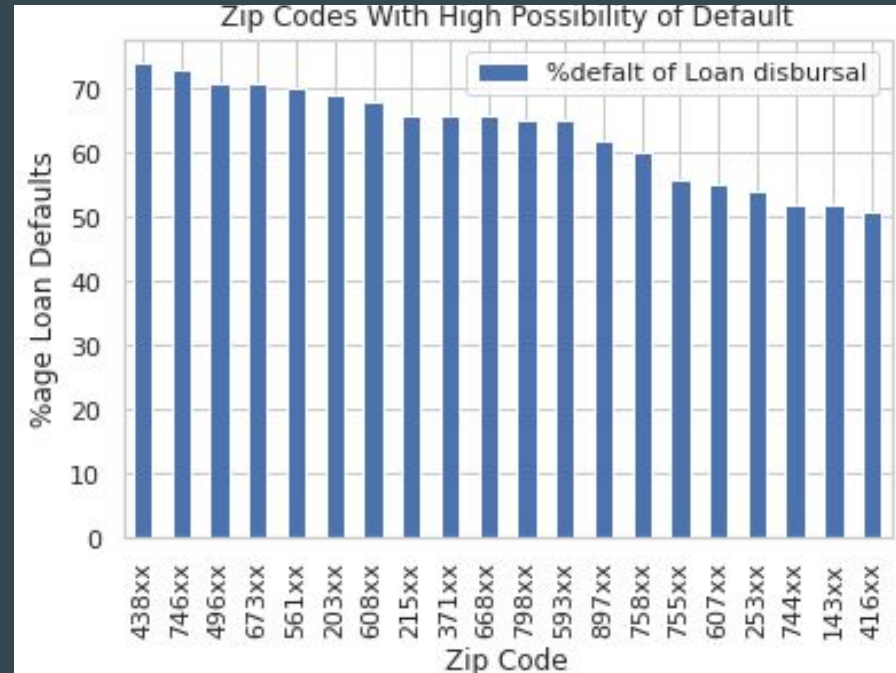
# Trend analysis - by Zip Code

## Findings

There are individuals belonging to a zip codes that exhibit a higher tendency to default

### Client Implications:

- Stricter vetting of loanees to be considered for indicated zip codes



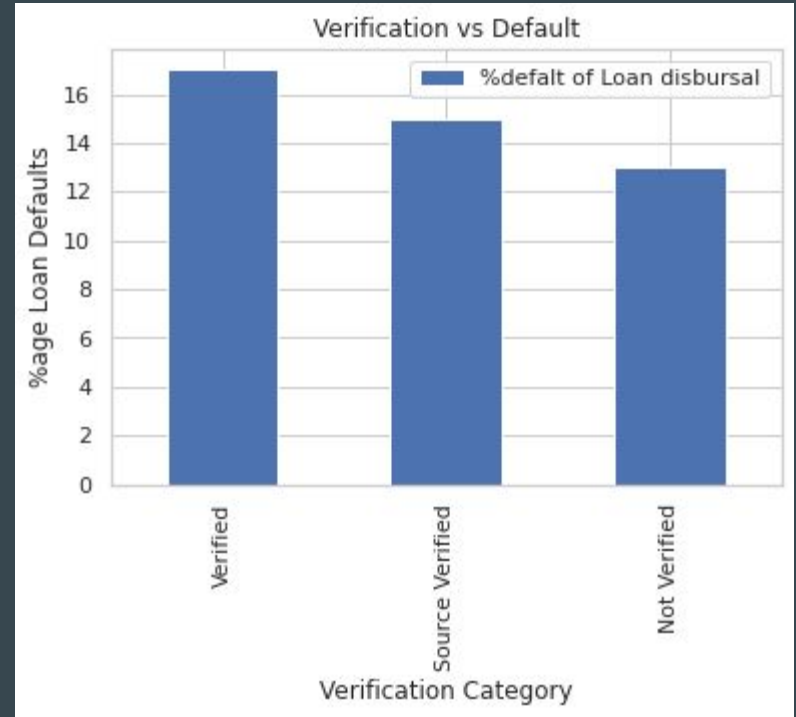
# Trend analysis - by Verification

## Findings

No significant variation observed in default against different verification categories

### Client Implications:

- Existing vetting mechanisms appear to be acceptable.



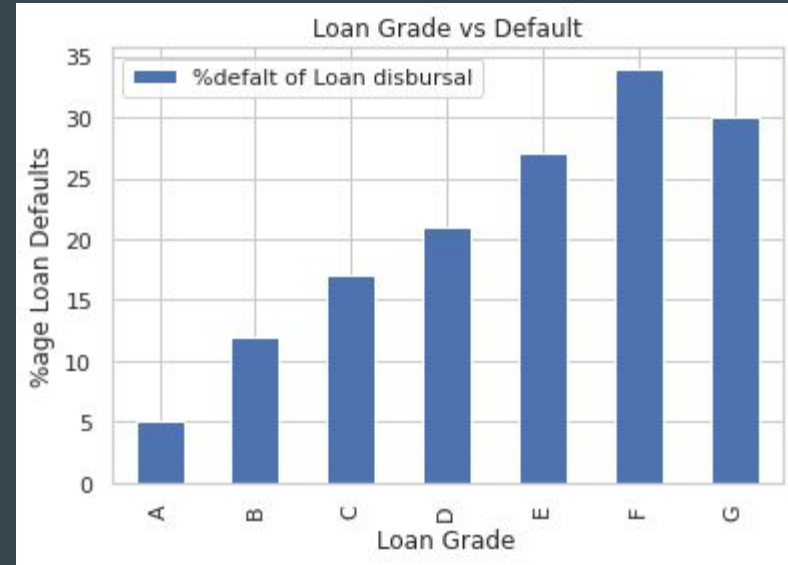
# Trend analysis - by Grade

## Findings

There is a direct correlation between decreasing grade of loan and increasing incidences of default

### Client Implications:

- Existing loan grading mechanism appear to be working satisfactorily



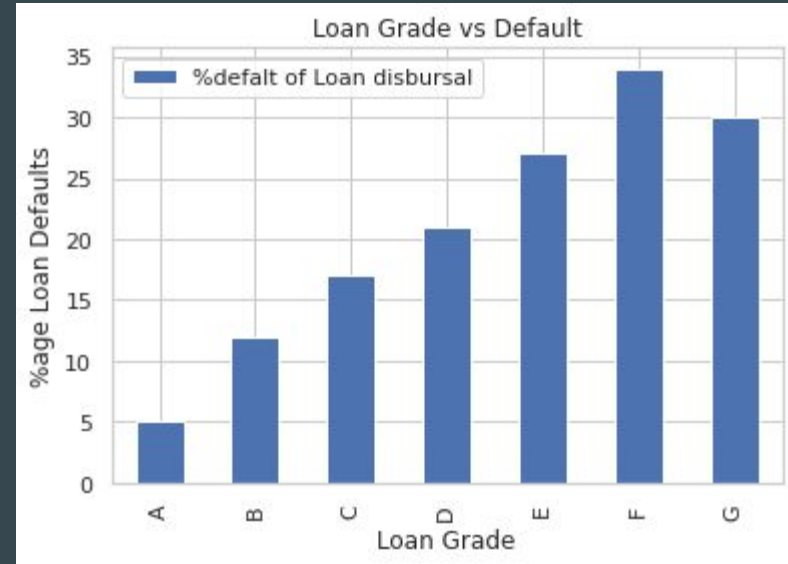
# Trend analysis - by Grade

## Findings

There is a direct correlation between decreasing grade of loan and increasing incidences of default

### Client Implications:

- Existing loan grading mechanism appear to be working satisfactorily



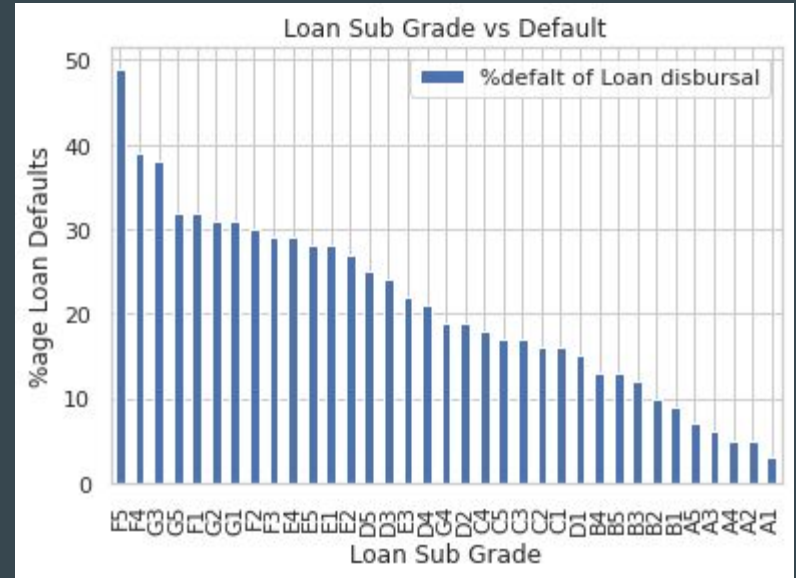
# Trend analysis - by Sub Grade

## Findings

There is a direct correlation between degreasing sub grade of loan and increasing incidences of default

### Client Implications:

- Existing loan grading mechanism appear to be working satisfactorily.
- However, loans classified with sub grade F4, F5 and G3 require careful scrutiny



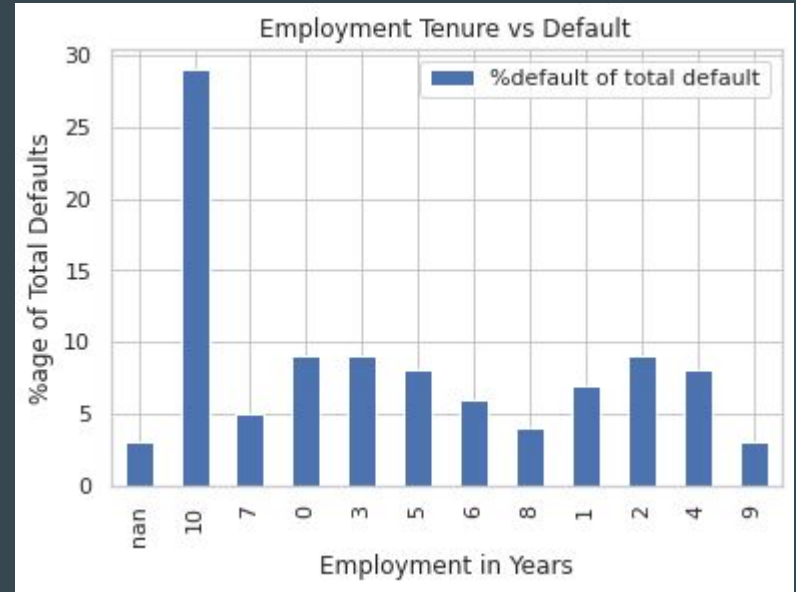
# Trend analysis - by Employment Tenure

## Findings

It is observed that people having employment tenures longer than 10 years are likely to default more

### Client Implications:

- Greater scrutiny recommended for loanees having employment more than 10 years.





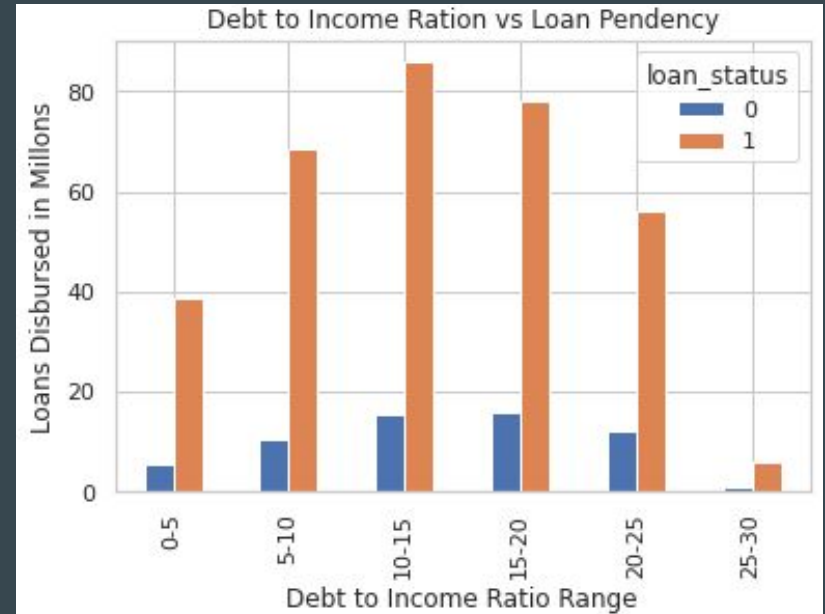
# Trend analysis - by Debt to Income Ratio (DTI)

## Findings

It is observed that people having employment tenures longer than 10 years are likely to default more

### Client Implications:

- Greater scrutiny recommended for loanees having employment more than 10 years.



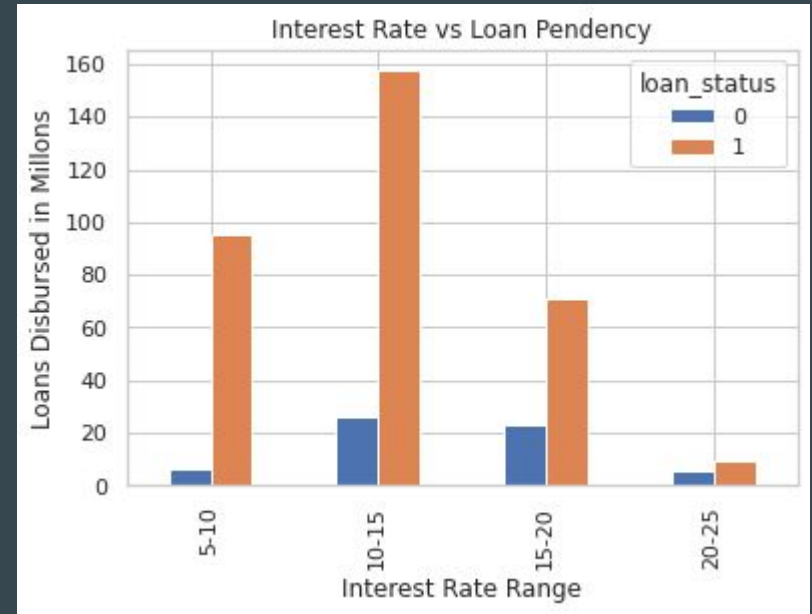
# Trend analysis - by Interest Rate

## Findings

It is observed that chances of default in middle interest rate region is highest

### Client Implications:

- Lending Club may consider flexible interest rate in case loan appears to default



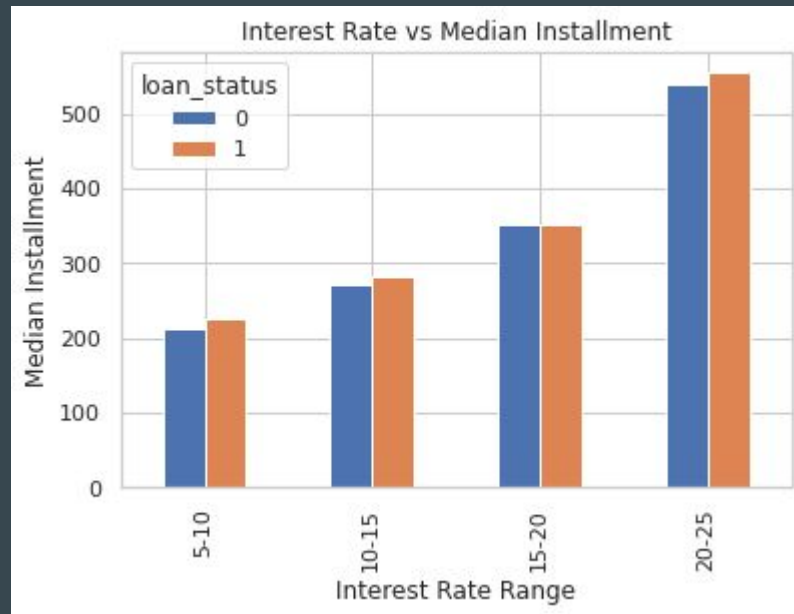
# Trend analysis - by Interest Rate

## Findings

There is a direct correlation between interest rate and median installment for loan

### Client Implications:

- Investors may consider creating another interest bracket below 20% as there is a significant jump in default beyond the same.



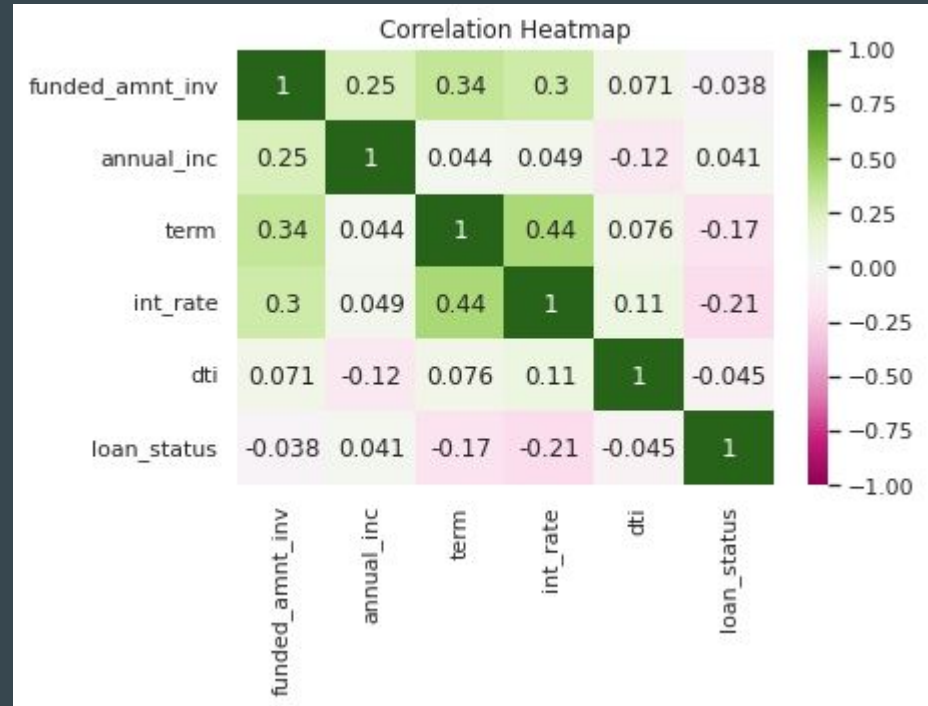
# Multivariate Analysis

## Findings

There is a positive correlation between some entities and a negative correlation between some. Chances of default are strongly correlated with term and interest rate

## Client Implications:

- Investors may modulate the variables plotted in the heat map to tailor loans to individual needs to reduce chances of default and ensure guaranteed returns.



# Recommendations

## Customer Demographics

- Customer demographics are a good indicator of ability of customer to pay loans

## Credit Verification

- Existing schemes to grade loans and customer verification seem to be satisfactory

## Loan Metrics

- Lower interest rates coupled with short term and easy EMI decrease the chances of default

## Loan Disbursal

- Investors may closely scrutinise high value-high interest rate loans