

# Lending Club: A Visual Analysis

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# Agenda

- Analyze the datasets provided by Lending Club from 2007 till 2016
- Identify the Statewise Loan Acceptance and Rejected Distribution
- Identify the number of loan accepted and rejected by Lending Club based for each year
- Analyze the Categorical and Numerical data for Loan acceptance dataset and identify how they vary on yearly basis.
- Trend analysis on Rejection dataset

# Introduction

As institutionalized loans become harder to avail following the 2008 Subprime mortgage crisis, certain individuals remain deprived of the opportunity to take a personal loan in spite of being amply able to repay it, simply because they do not fulfill the criteria set by the banking institutions for personal loans. This has given birth to the concept of Lending Club - ( [www.lendingclub.com](http://www.lendingclub.com) ), a peer to peer online marketplace that allows borrowers to apply online for personal loans of up to 40,000\$. Lending Club allows Investors to invest their capital on such applicants for a high return on investment.

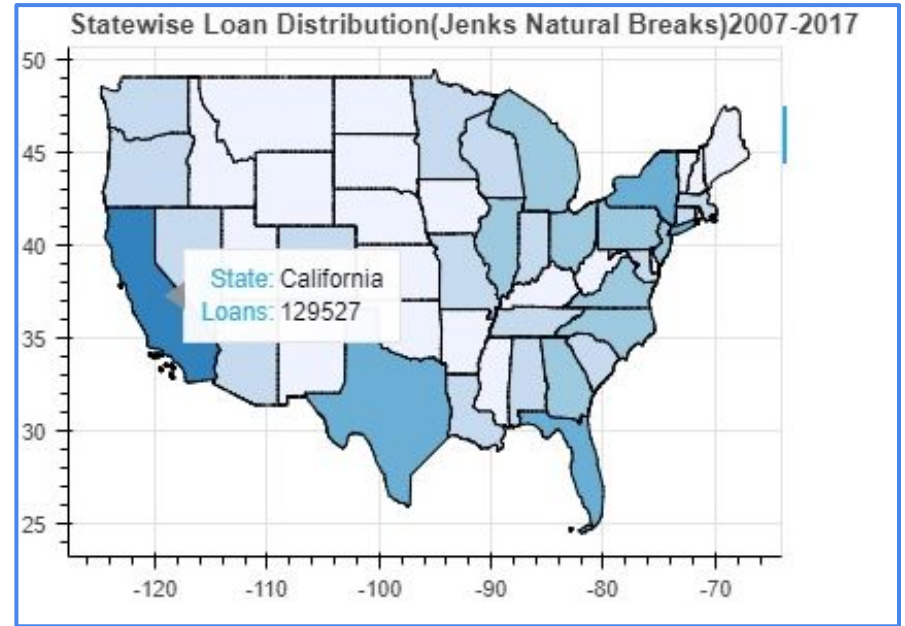
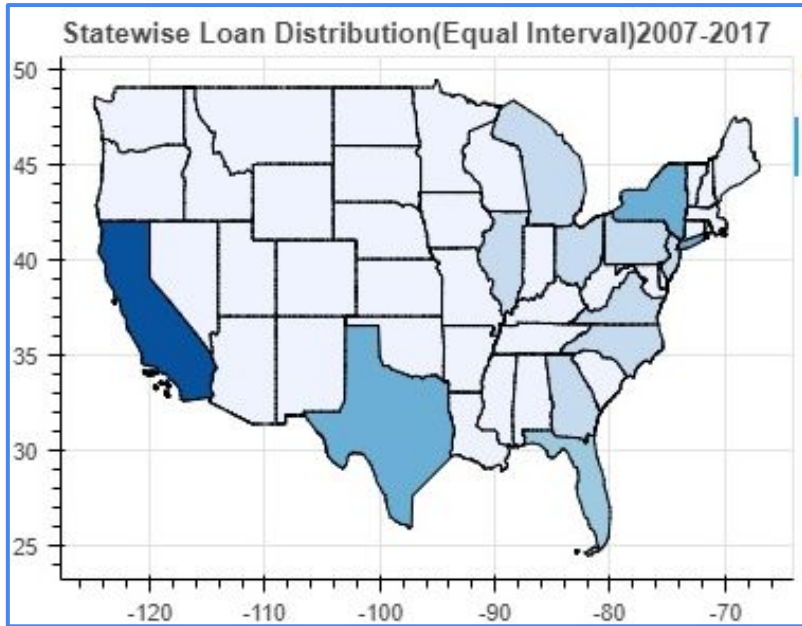
The data sources and the opportunity: Lending Club has made two datasets( for every year from 2007) publicly available on their website for investor to perform research. These are:

**LoanStats.csv** – Information about all loan applications.

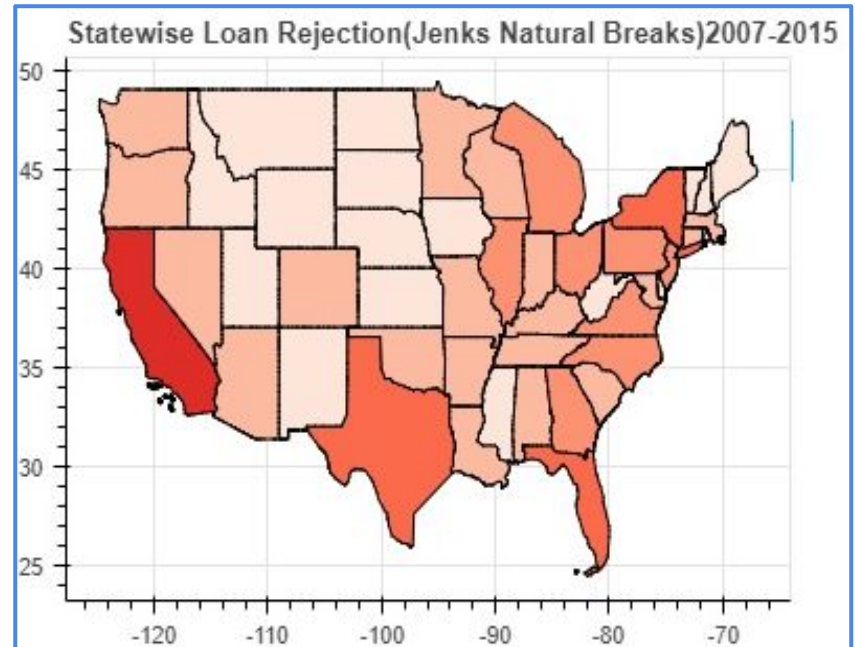
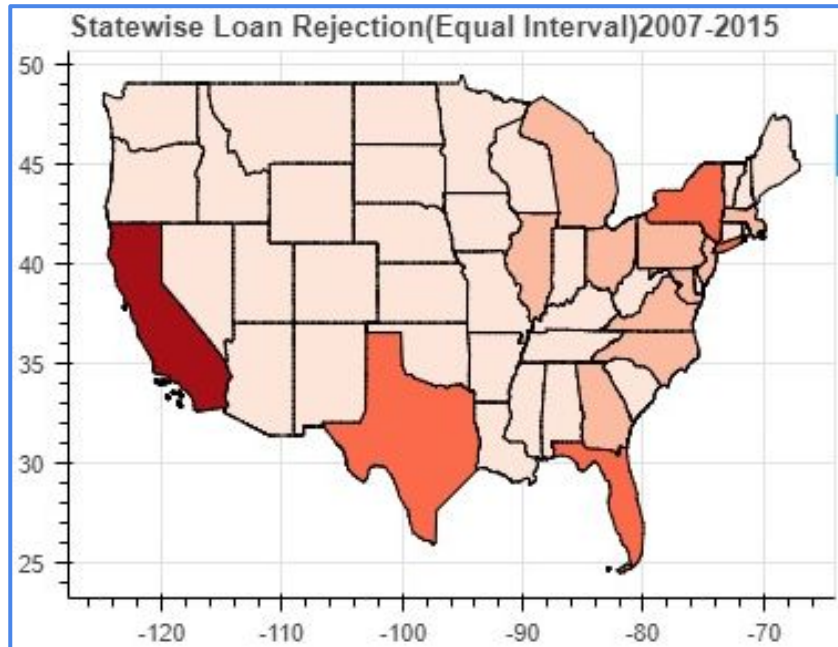
**RejectStats.csv** - Information about rejected loan applications.

These datasets, available here, ( [www.lendingclub.com/info/download-data.action](http://www.lendingclub.com/info/download-data.action) ) furnish data from 2007 onwards and although they are readily available, they have not been adequately exploited to maximize the return on investment(RoI) by investors due to the lack of means or the knowledge to perform a comprehensive analysis of these multivariate datasets. By joining these datasets based on the geo-socio-economic information along with an applicant's loan repayment history, we can provide important indicators to investors regarding Lending Club loan applications currently under their consideration.

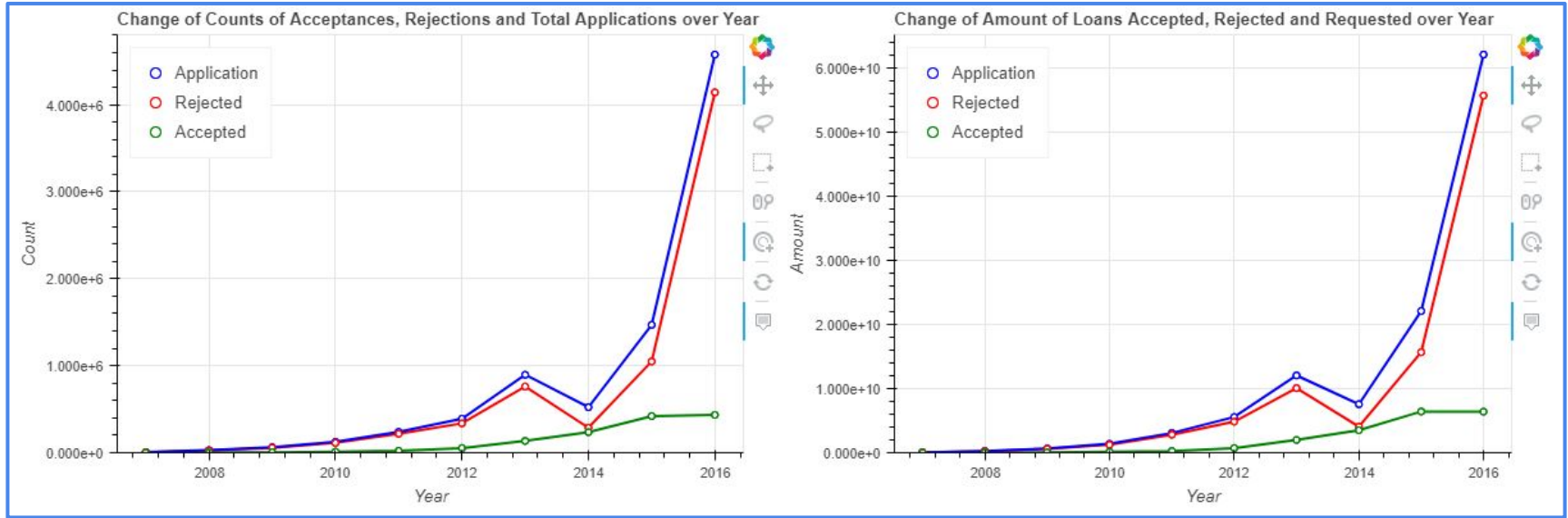
# Visual Analysis: Choropleth map for Loan Acceptance data



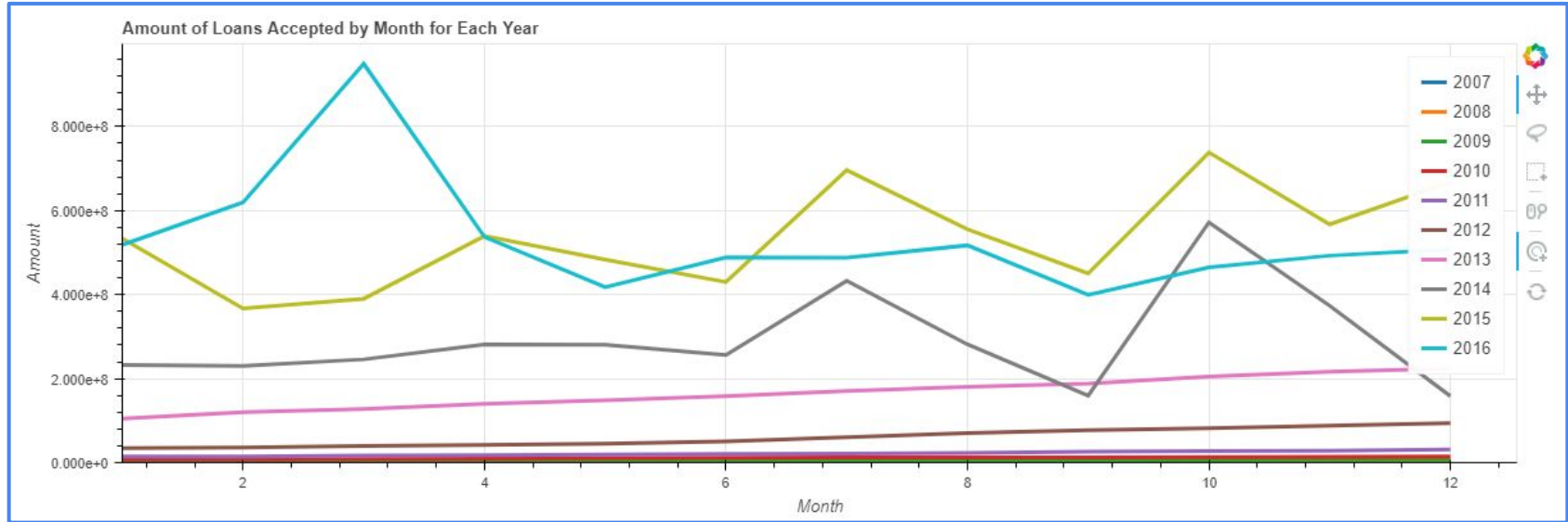
# Visual Analysis: Choropleth map for Loan Rejection data



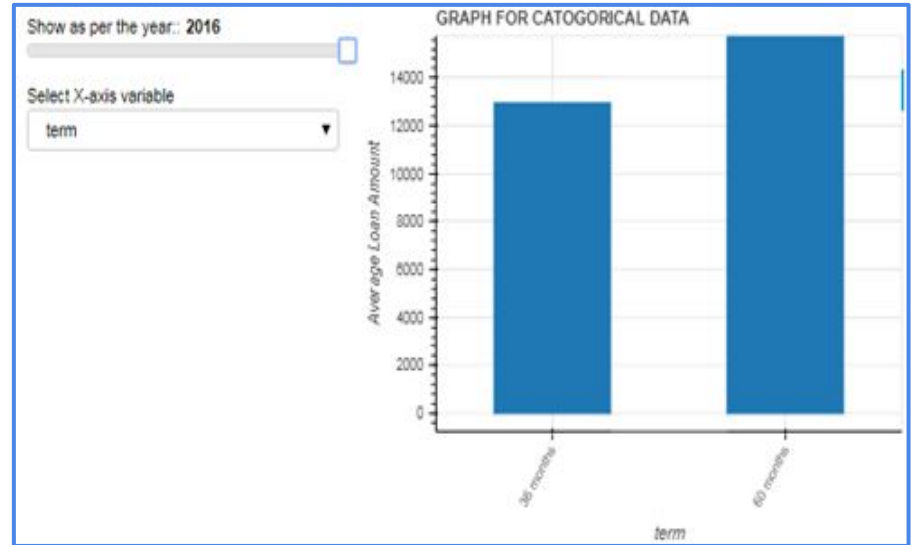
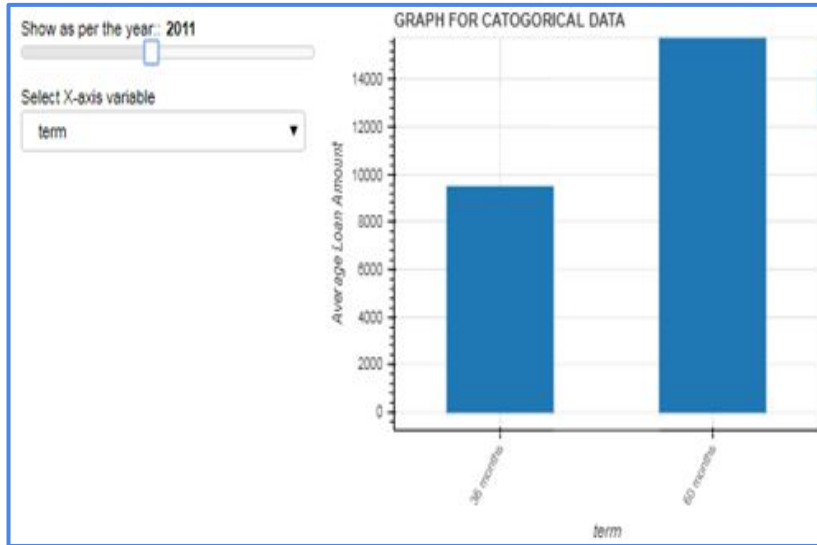
# Visual Analysis: Comparison of loans accepted and rejected



# Visual Analysis: Accepted Loan by month from 2007 till 2016

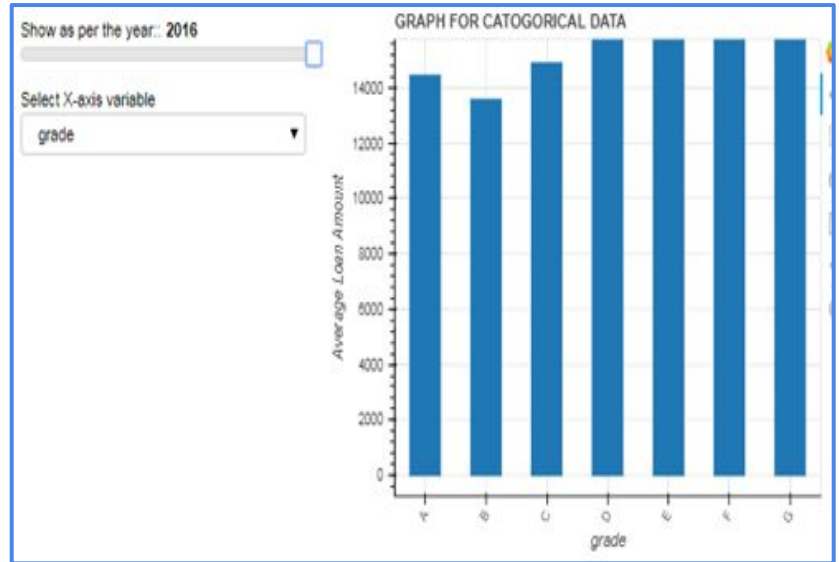
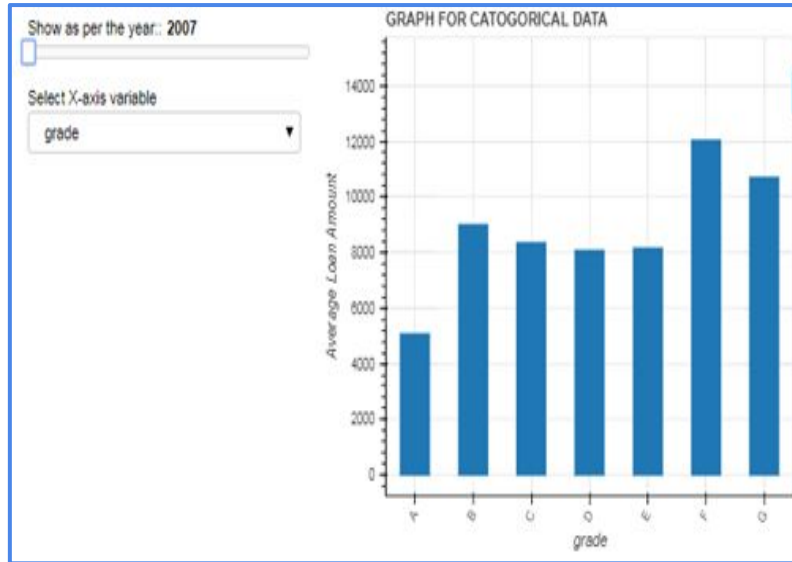


# Visual Analysis: Loan Term versus Average Loan Amount using Bokeh Server

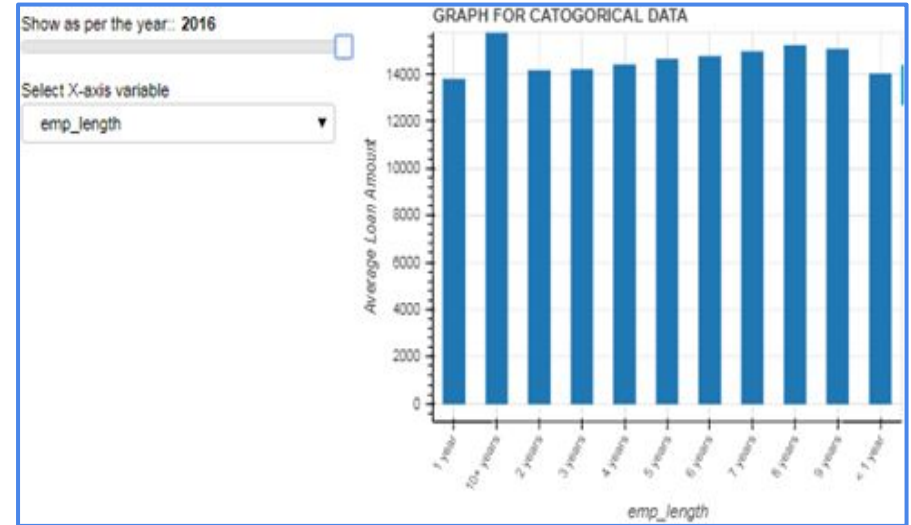
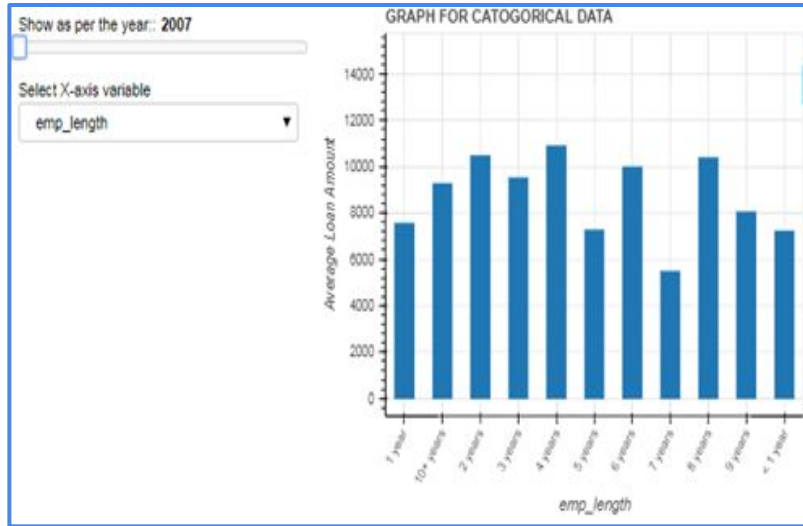




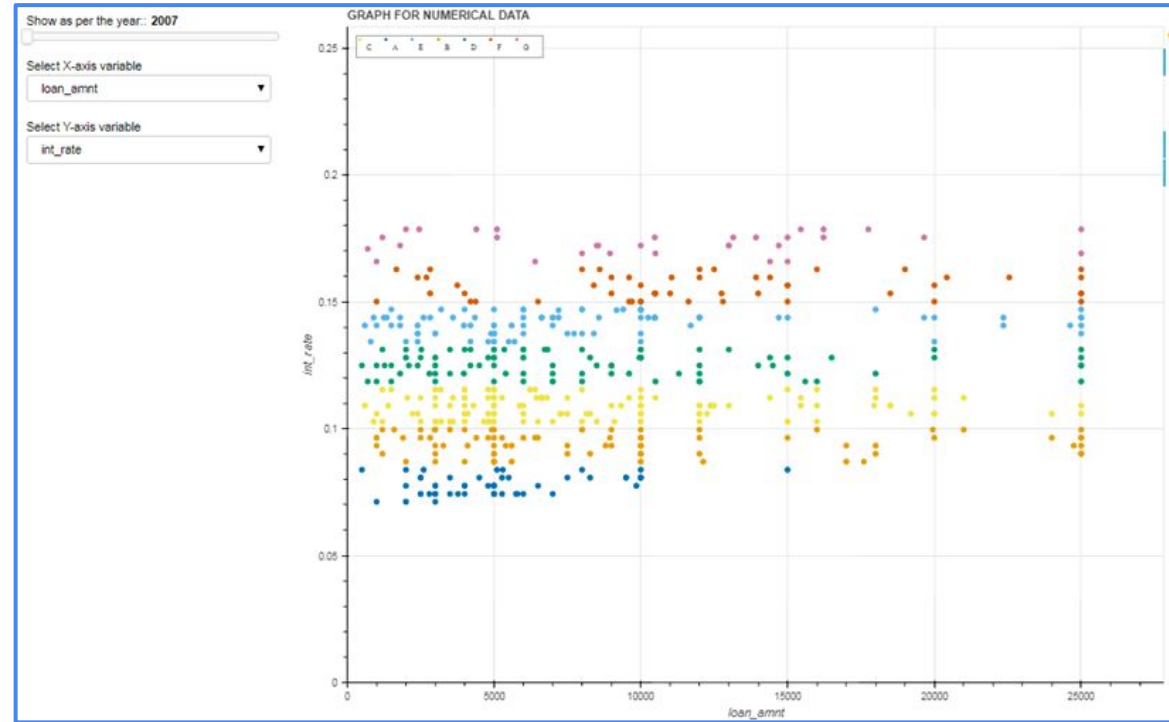
# Visual Analysis: Grade versus Average Loan Amount



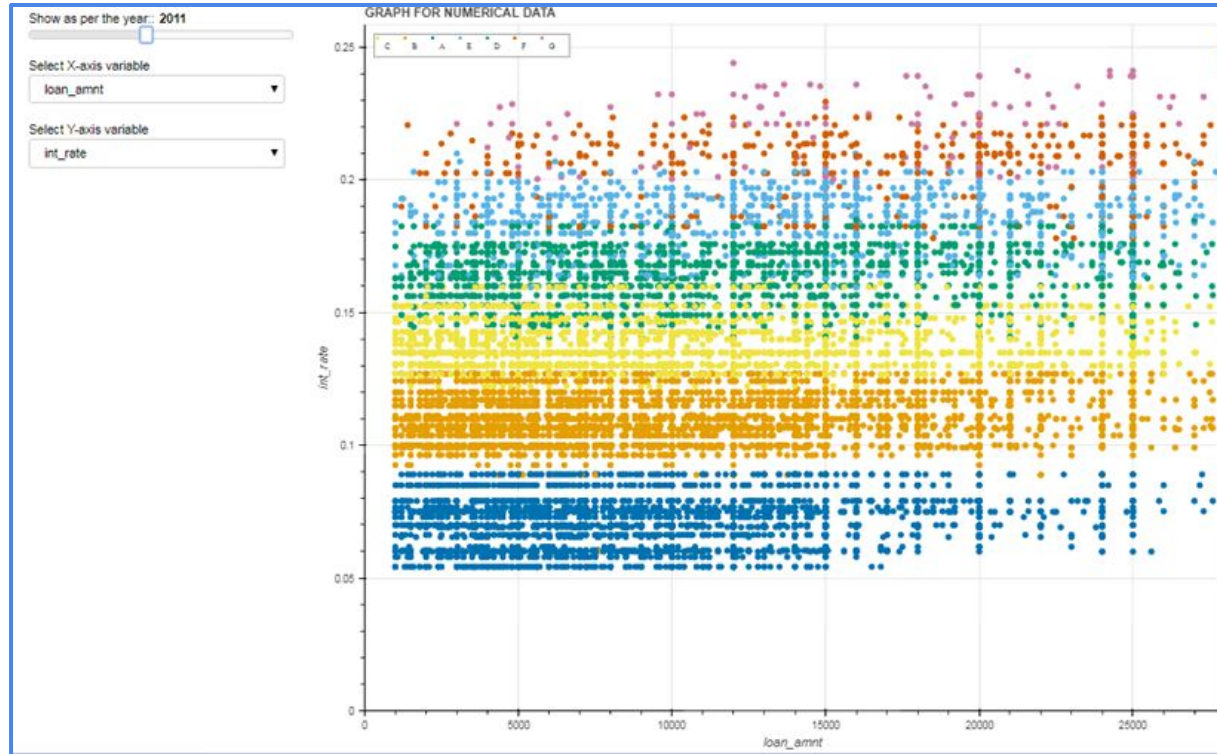
# Visual Analysis: Employee Tenure versus Average Loan Amount



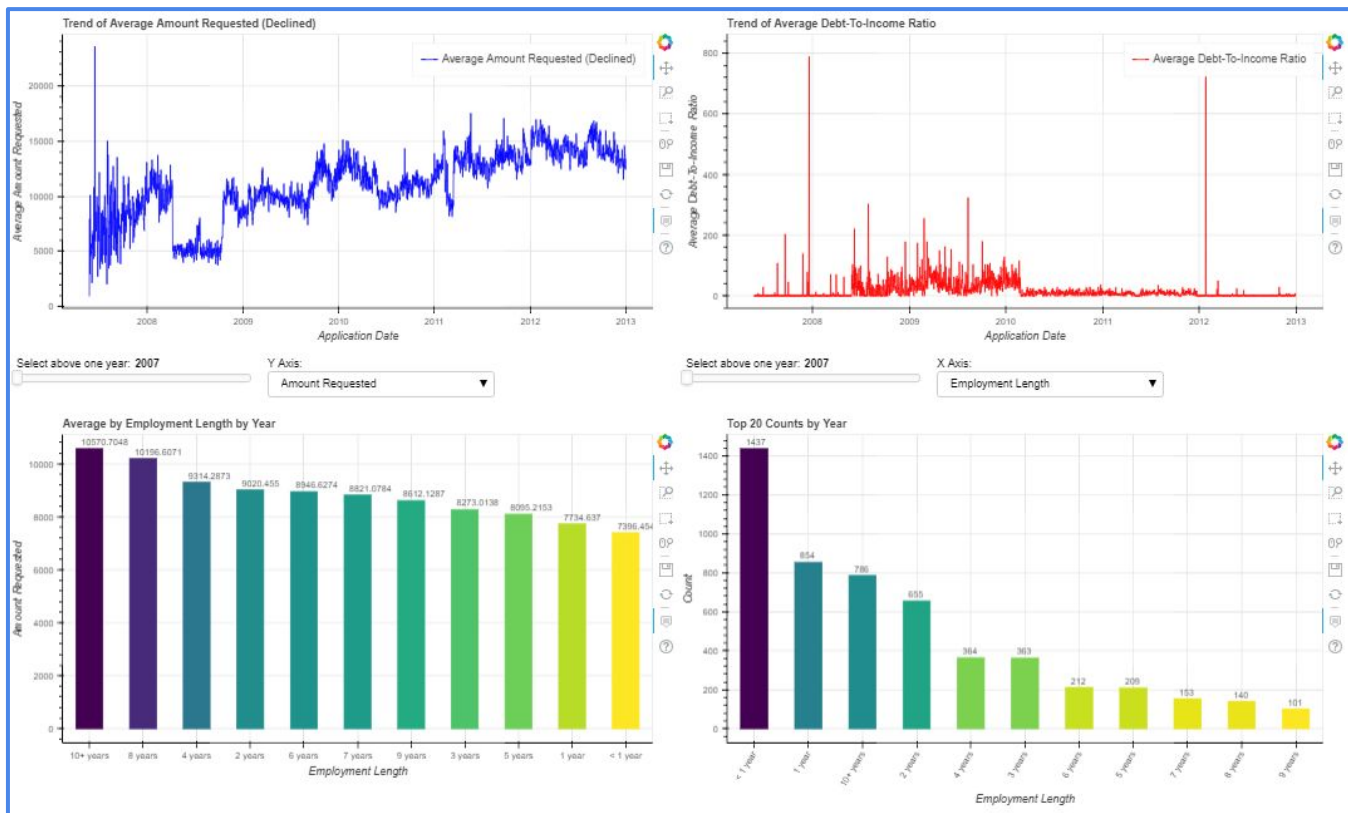
# Visual Analysis: Loan Amount versus Interest Rate(2007)



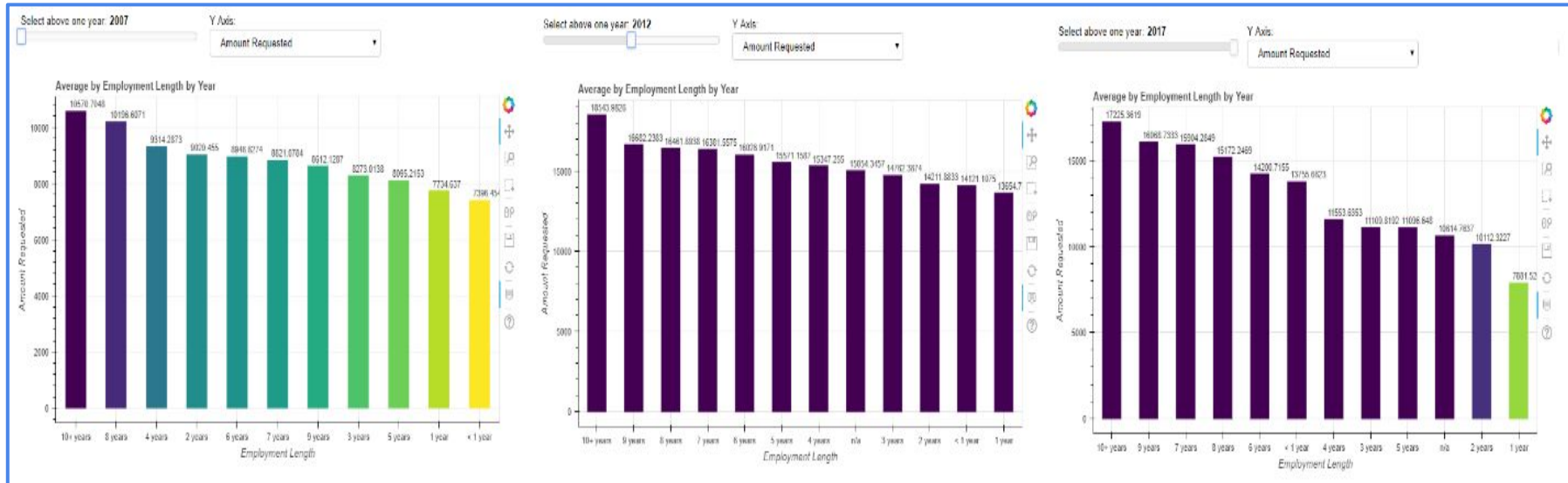
# Visual Analysis: Loan Amount versus Interest Rate(2012)



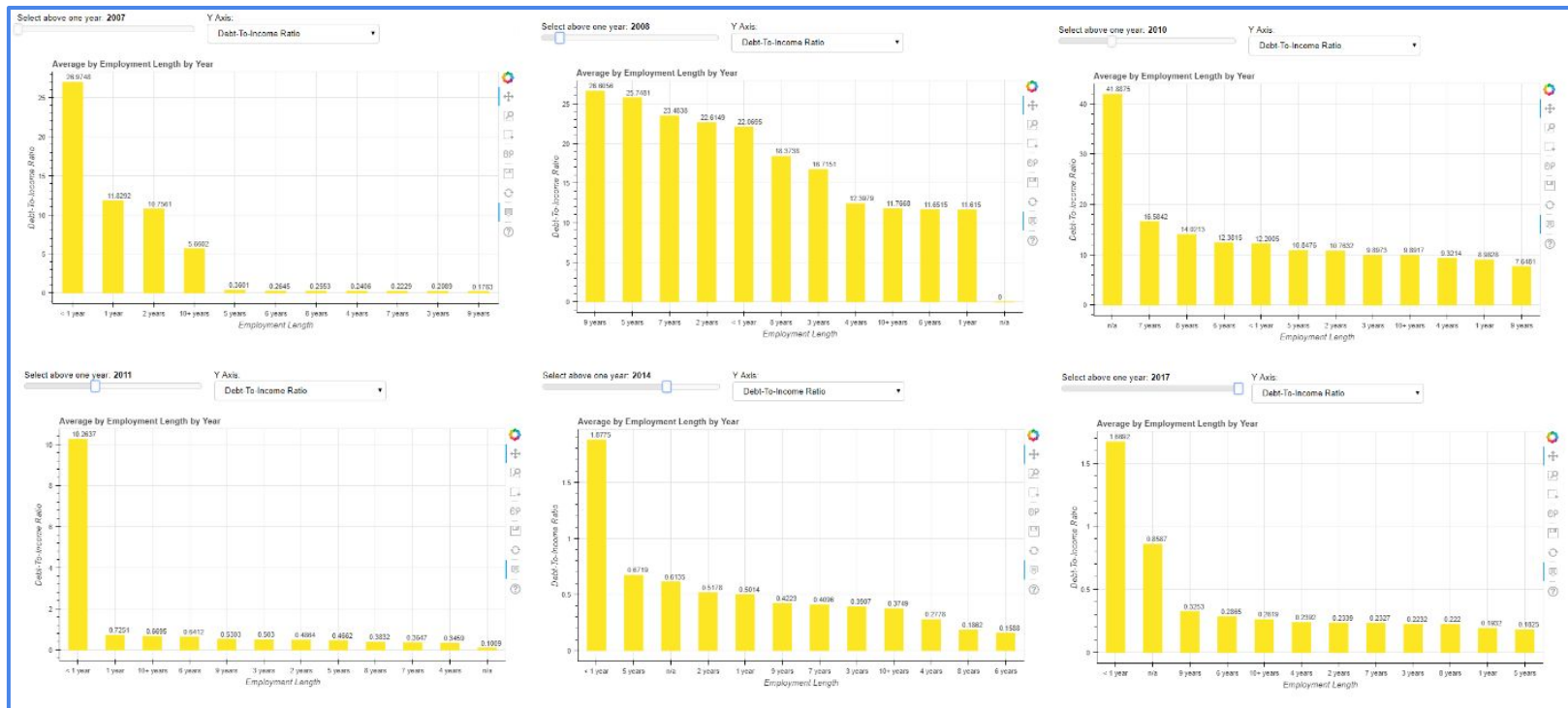
# Visual Analysis: Trend Analysis for Rejected data



# Visual Analysis: Average Amount Requested(Declined by Employment Length by year)



# Visual Analysis: Average Debt-to-Income ratio by Employment Length



# Conclusion

- Based on our agenda we can conclude the following:
  - From the Choropleth map we analyzed that California state has the highest number of loan accepted and rejected
  - Company is growing at a faster rate and more people are trusting Lending club for borrowing and investing.
  - Compared with the rapid growth of the counts and amount of loans requested, the counts and amount of loans accepted increased much more slowly.
  - Company started providing two different loan term options from 2011 onwards and Average Loan Amount in 60 months term increased significantly compared to 36 months terms.
  - Employee with 10+ years of experience requested for more Loan amount in 2016 when compared with 2007.
  - From 2007 till 2016 we can see there is a drastic increase in the Loan applications from 4000 to around 500,000+ applications.
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