Financial Management
and
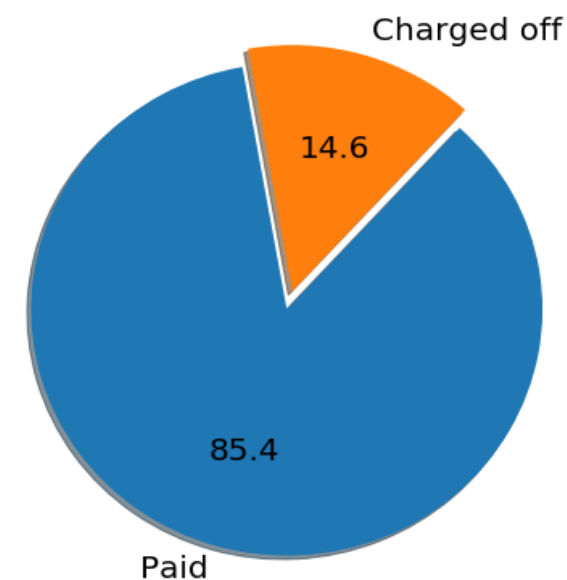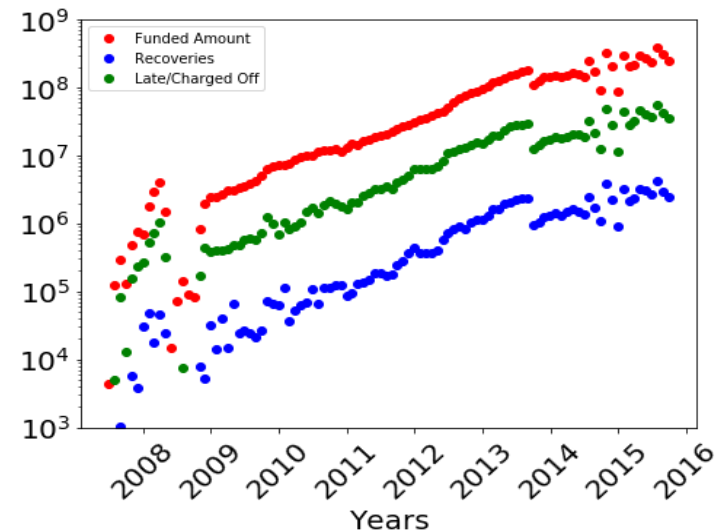# Risk Assessment
# of LendingClub Loans

Lekh Poudel

Lending Club

- Not a bank – but like a bank.
- Gives personal loans to $40,000
- Connects investors for good returns.

Financial History

- Started in 2007
- Logarithmic growth over time.
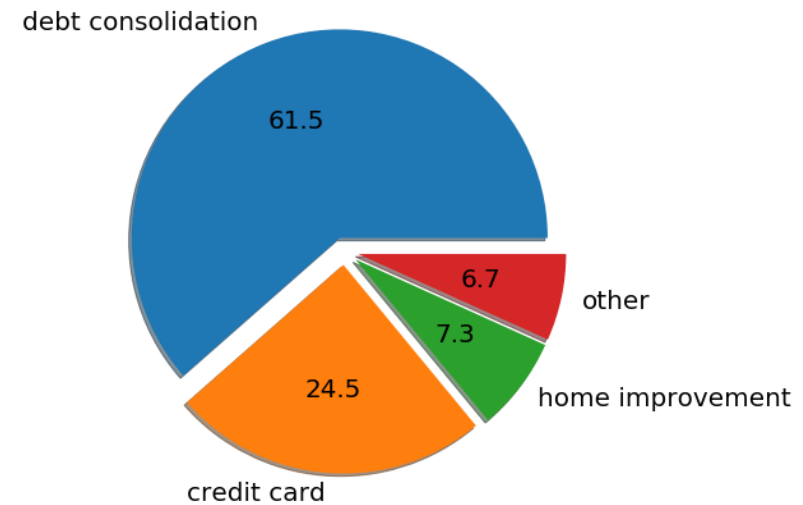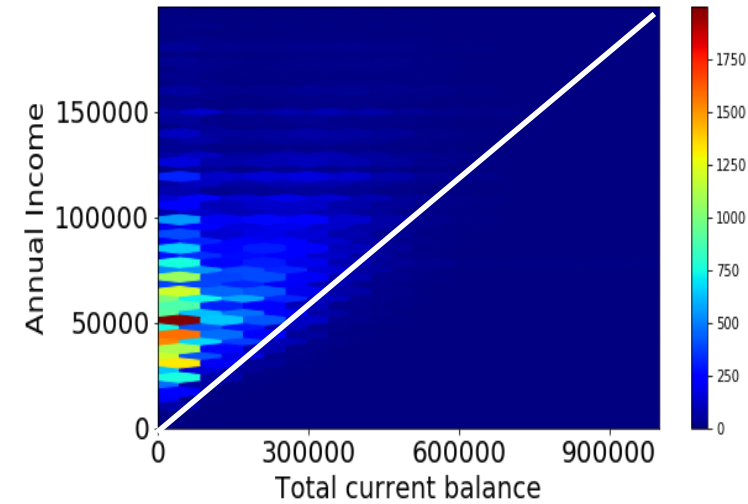- Large fraction of Late/charged-off payments.

Lenders?

Who?
- Income below $1,00,000.
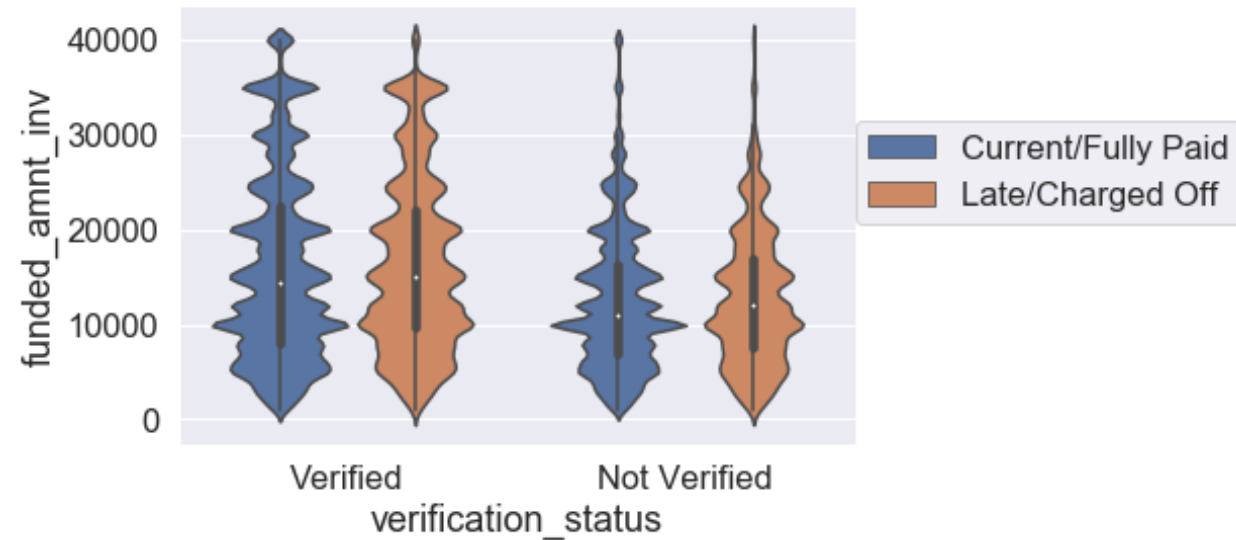- Current loans less than 5 times yearly income.

Why?
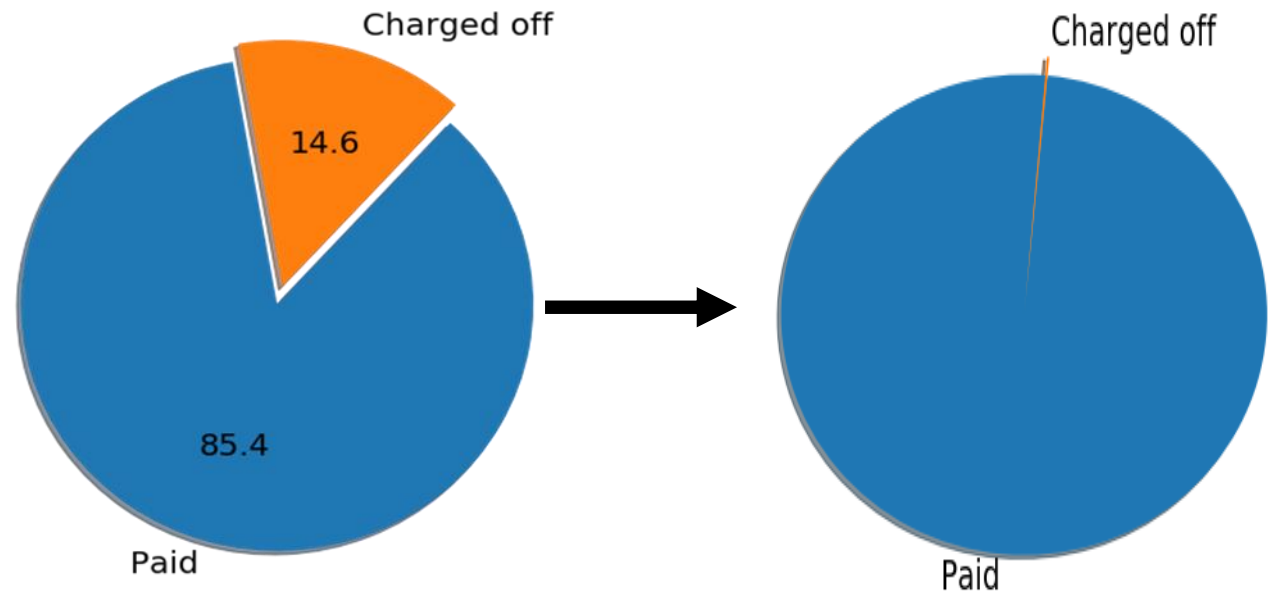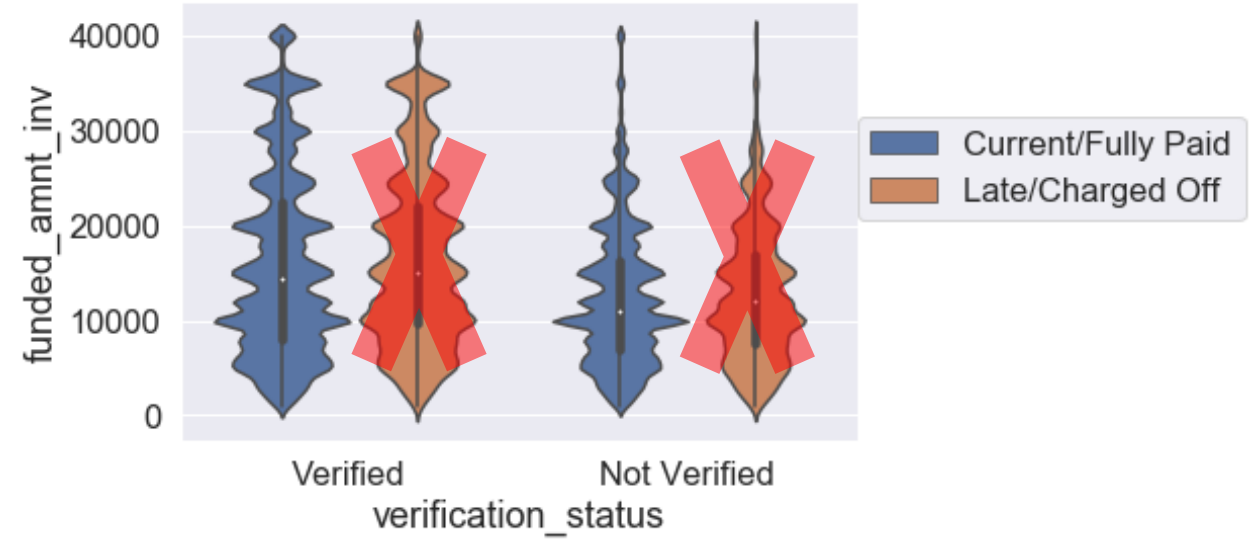- Debt consolidation
- Credit card payment

Loan Distribution

- Only income verified lenders get high amount.

- Distribution among good and bad lenders is similar.

Current Goal

- Minimize Late/charged-off payments.

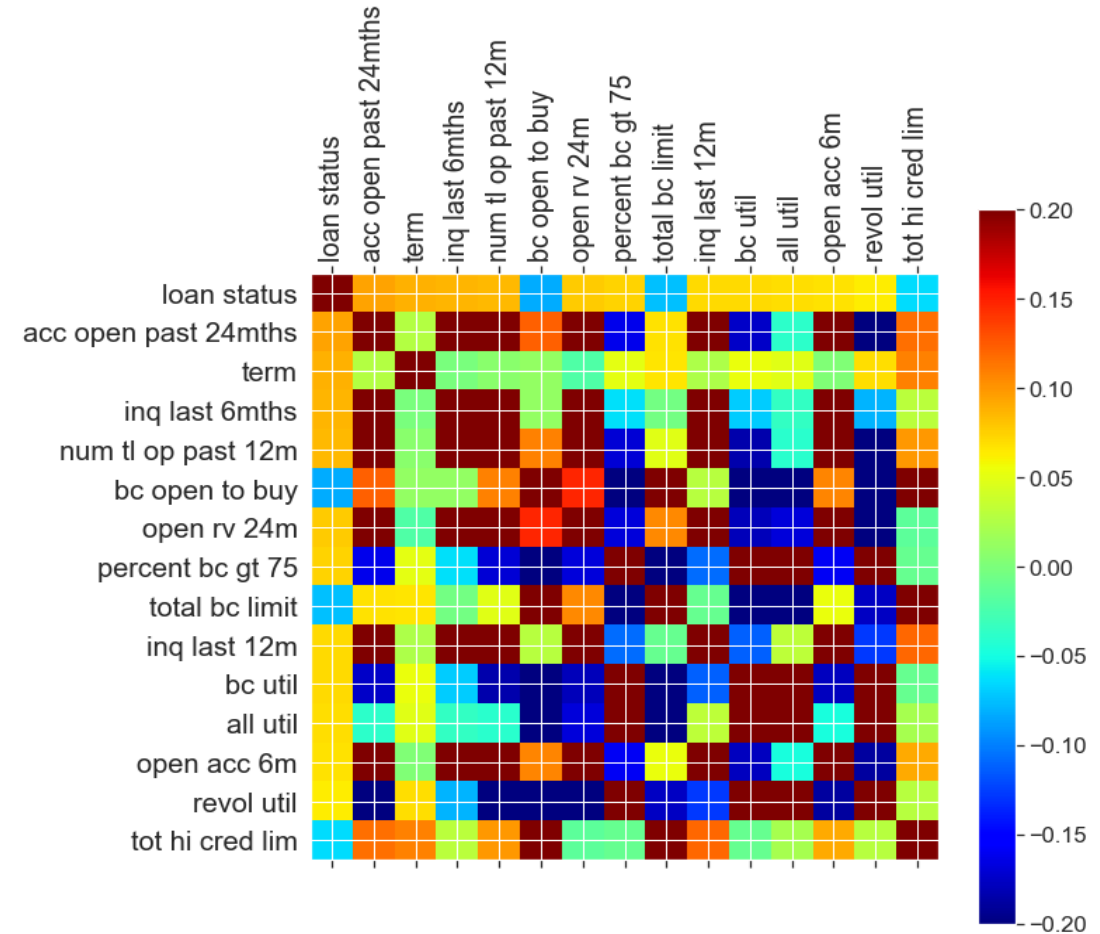- Risk quantification.

- Estimate returns.

Approach

- Lender's Classification – Classification methods.

- Estimate return – from Regression methods

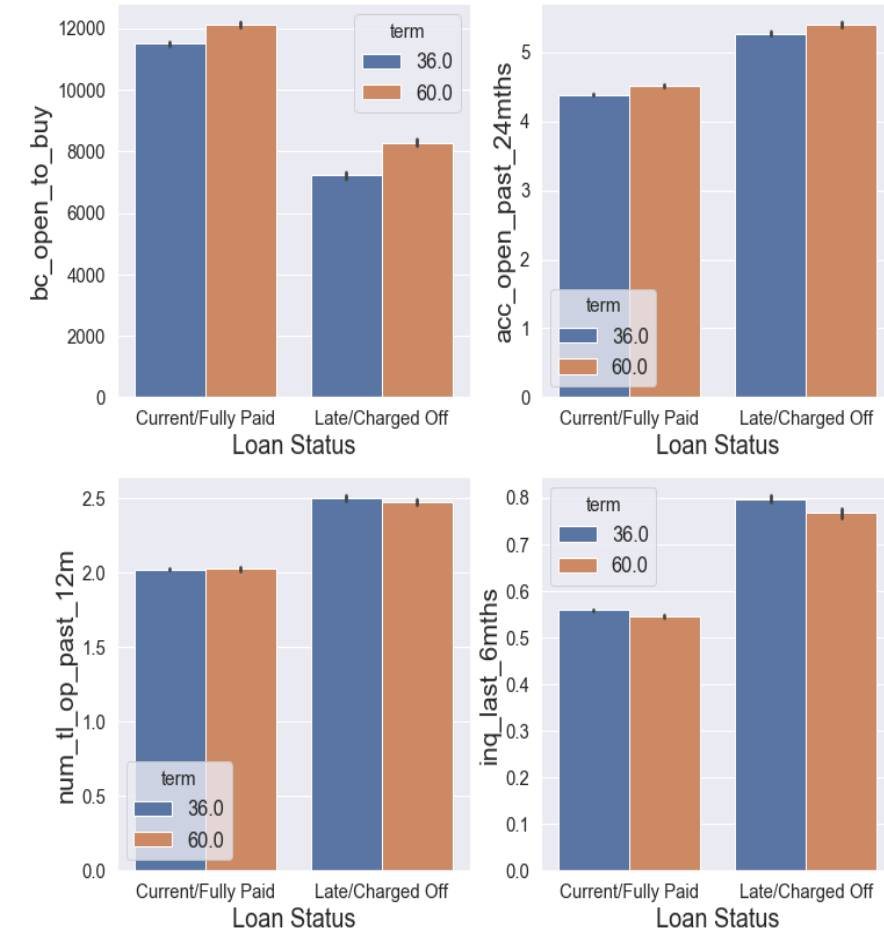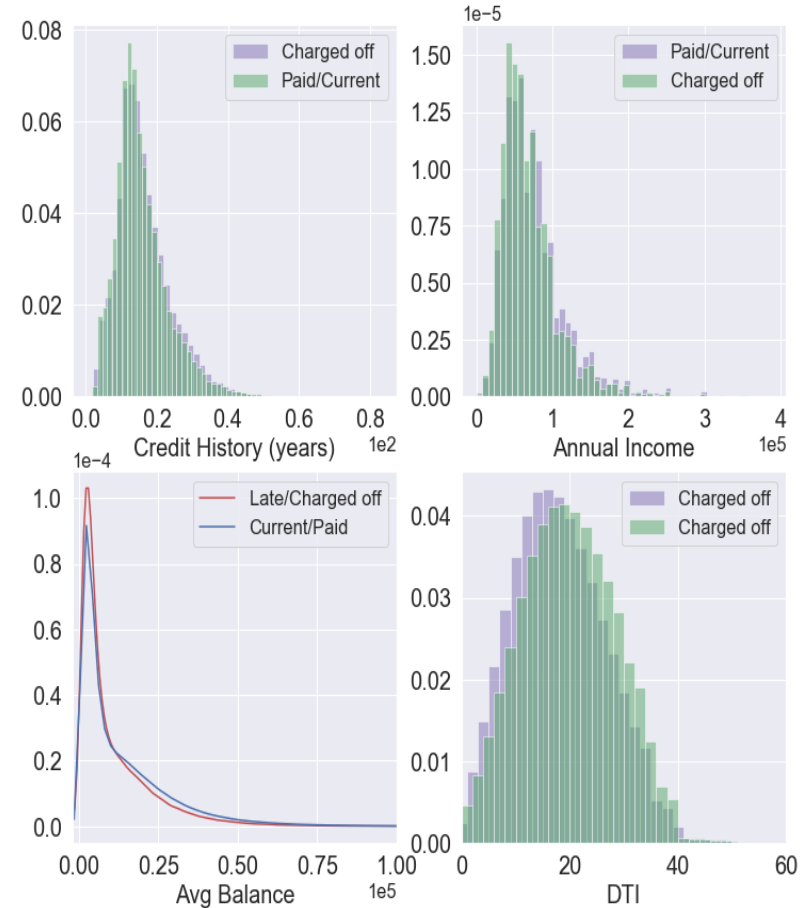- Identifying management strategies – Data exploration

Important Features

- A rough approach

- Gives relative importance of variables.
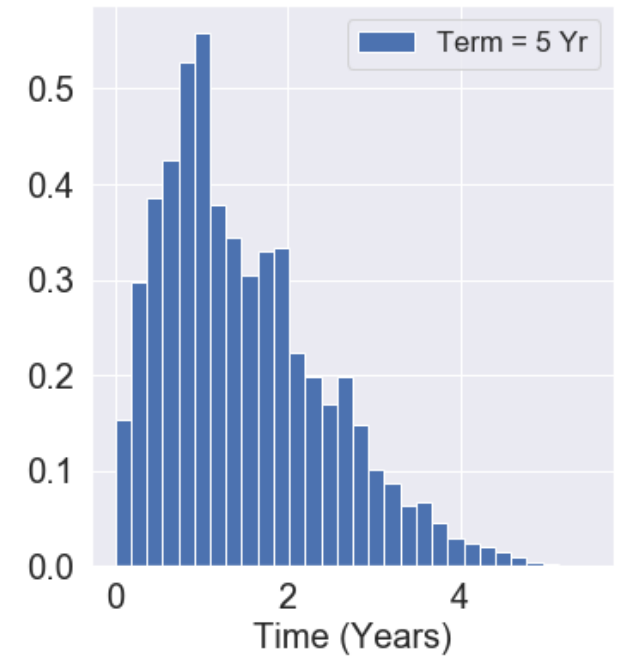
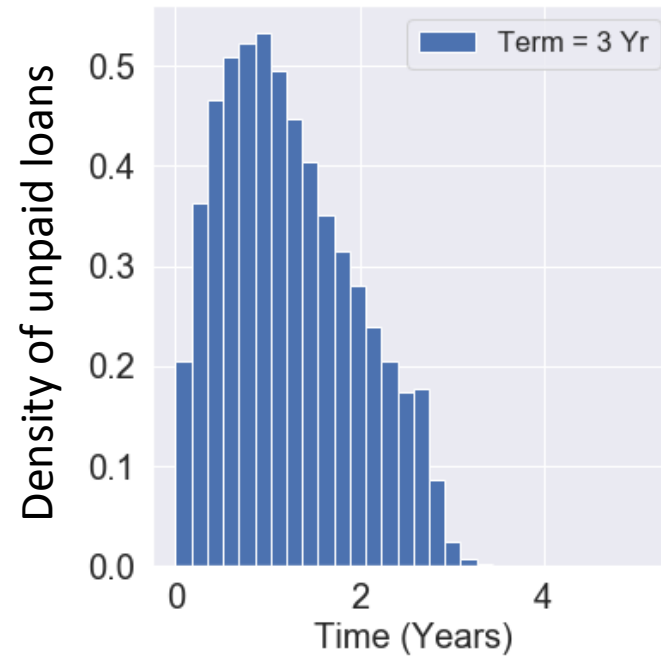- Recent history is more important.

Recent Credit history

- History is more important than income.

- Recent credit history is more important than long-term history.
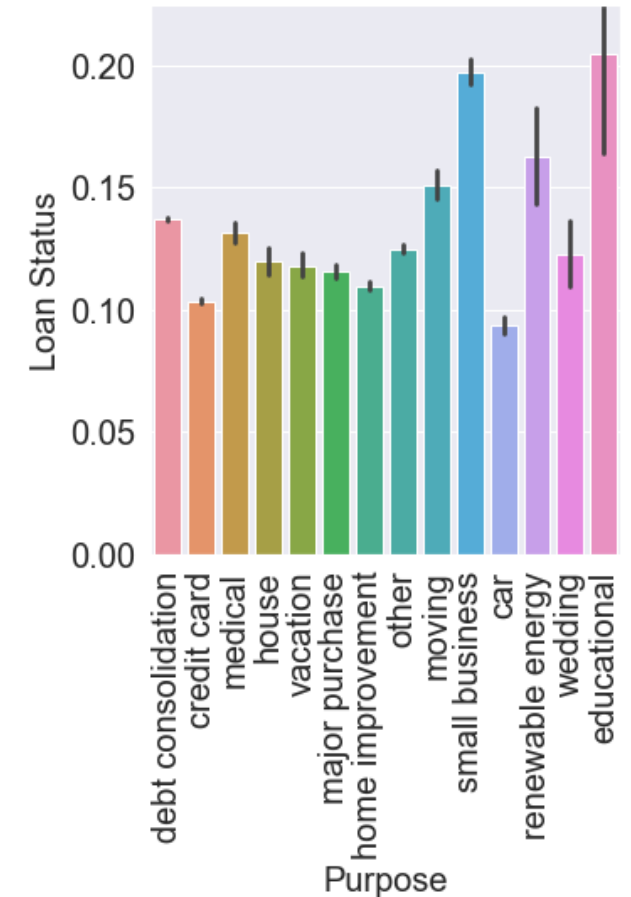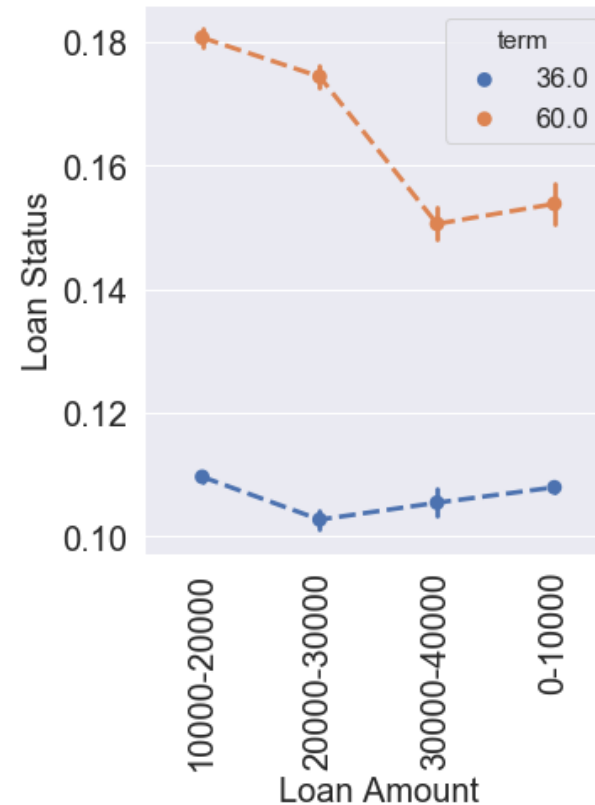
Loan Terms

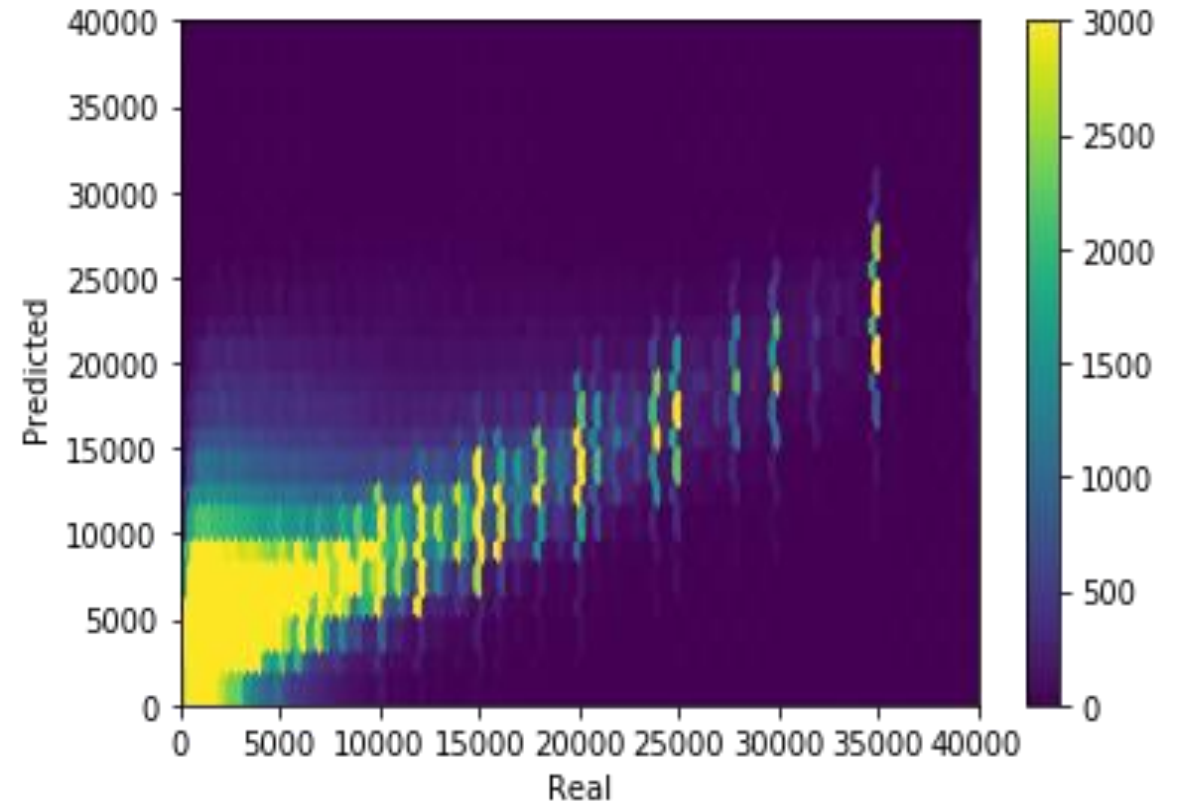- Risk increases after a year of loan.

Risk

- Five year loans have higher risk compared to three year loans.

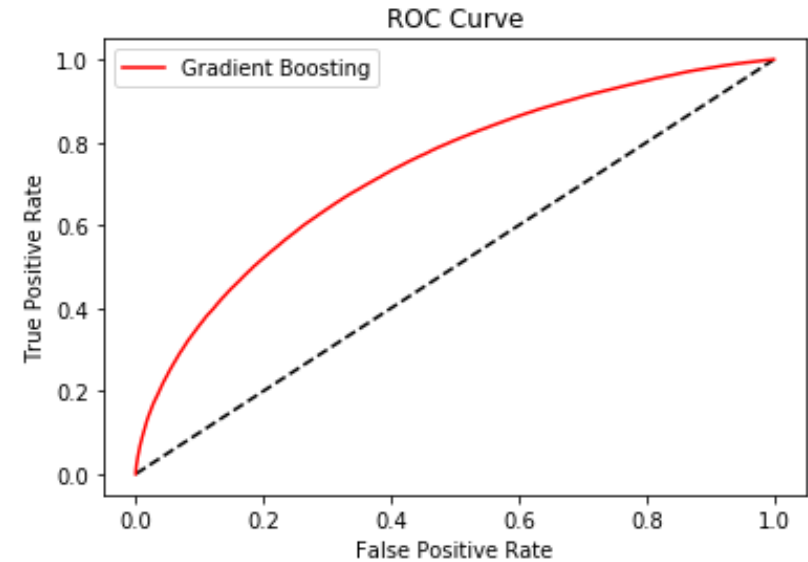- Small business and educational loans have much higher risk compared to other categories.

Predicting Returns

- Linear Regression using scikit-learn.

- Predicts how much principle amount is returned after the loan term.

Lender's Classification

- Gradient Boosting classifier for lender's classification.

- Calculates with 67% accuracy.

|	precision	recall	f1-score	support
paid	0.66	0.68	0.67	134824
not-paid	0.67	0.65	0.66	134843
Avg	0.67	0.67	0.67	269667
AUC: 0.73				

Model Comparison

- Estimated the initial risk of Lending club from the interest of loans.

- Our model makes better risk estimation compared to previous Lendingclub approach.
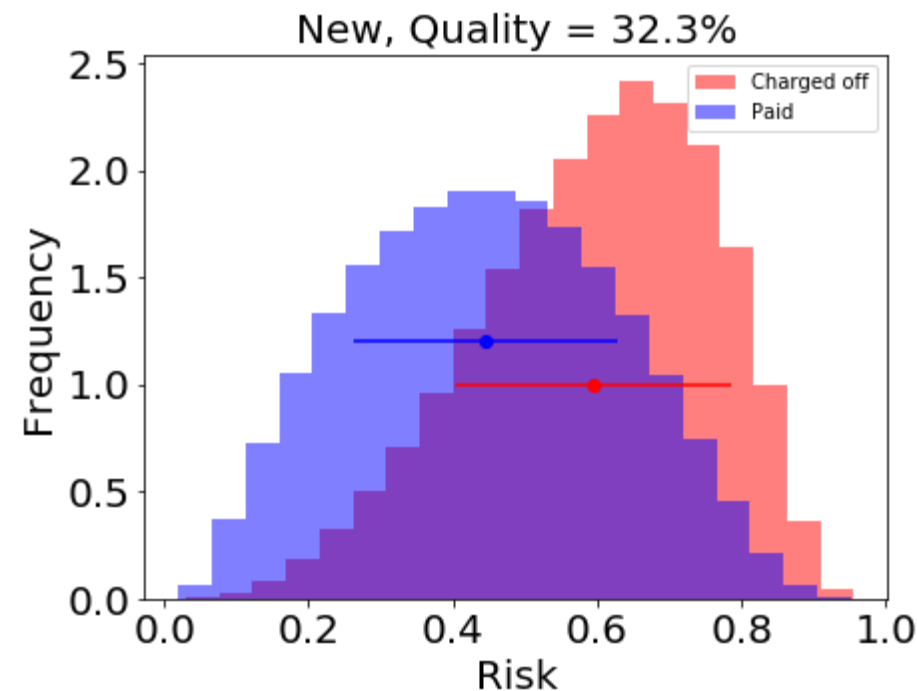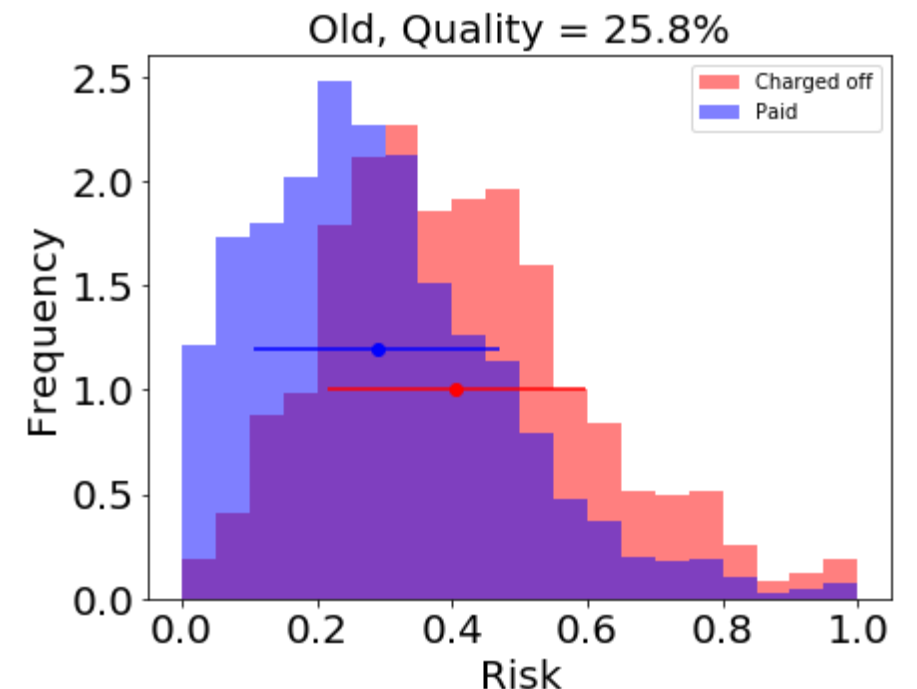
Next Year's business

- Company makes rapid growth until 2015.

- We modelled investments *log(year)³*.

- Predicts that company requires three hundred million investment next year.
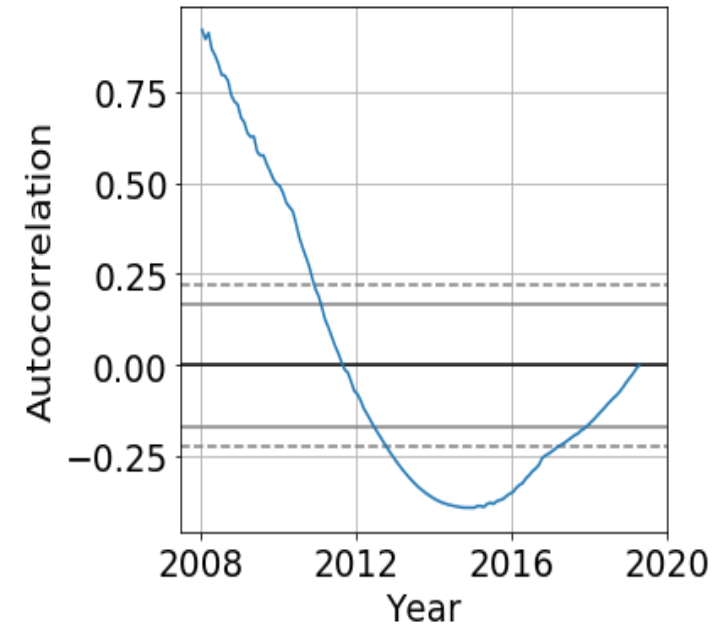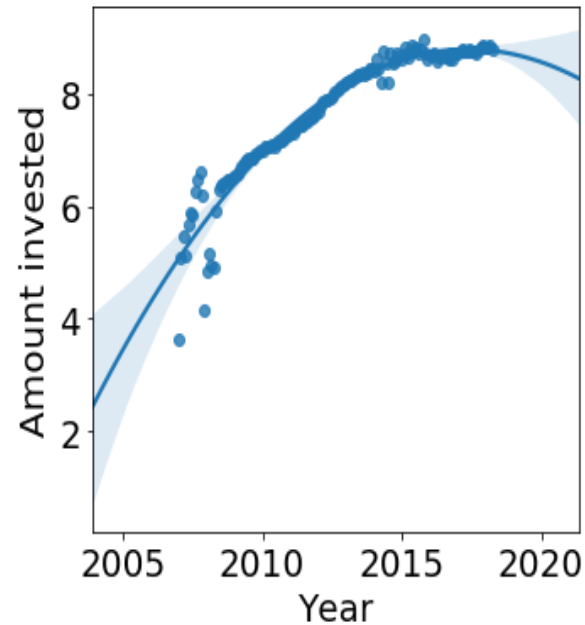
Recommendations

- Our model provides a significantly better (25%) risk assessment of loans.
- Shorter term should be promoted to increase loan default rate.
- Loans on 'Education' and 'small business' can be discouraged.
- Short term history should be given more value compared to the long term credit history.