




# **Risk-Scoring for Lending Club Investments**

**André Kaschkow, Leonard Boes**



# THE NEXT 10 MINUTES

## AGENDA

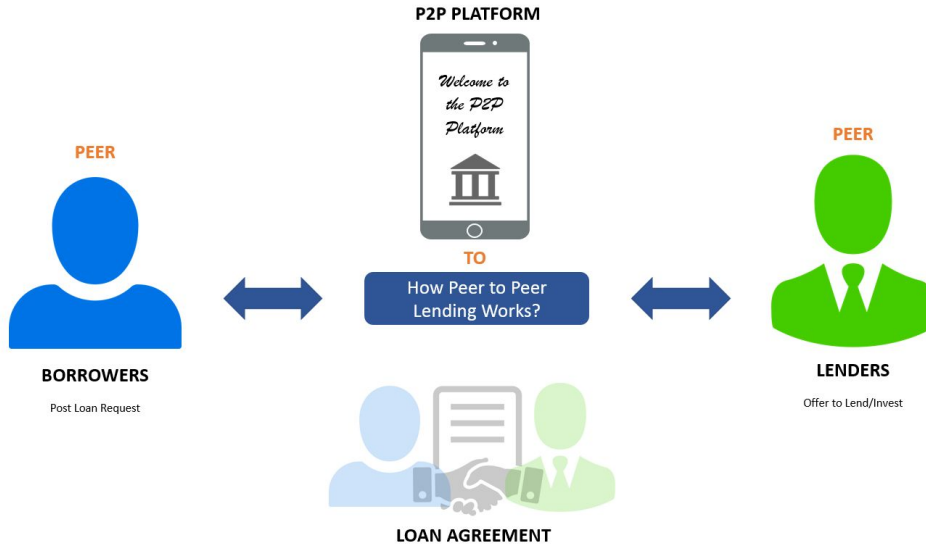
1. Lending club
  2. The data
  3. The Model
  4. Future work
- 



For you potential Small  
Investors:  
What if we can improve your  
profitability  
by reducing your risk?



# THE LENDING CLUB - P2P Lending



# Predicting Default - Why should I care ?

If loan is defaulted:


Median:

- 10K \$ loan amount
- about 3K \$ loss on investment (wo interest loss)
- you could lose 30% of your investment





# THE DATASET

- » Information on more than 42.000 loans
  - » General information on loan
  - » General information on creditor
  - » Deep information on creditor
- 



# THE DATASET

## Joe Average

- » \$ 12.700 loan for debt consolidation
  - » 36 months term
  - » \$ 4.900 monthly income
  - » Works for US Army
  - » Rents his living space
- 




# THE DATASET

## How to classify the loan status?

### Regard as success

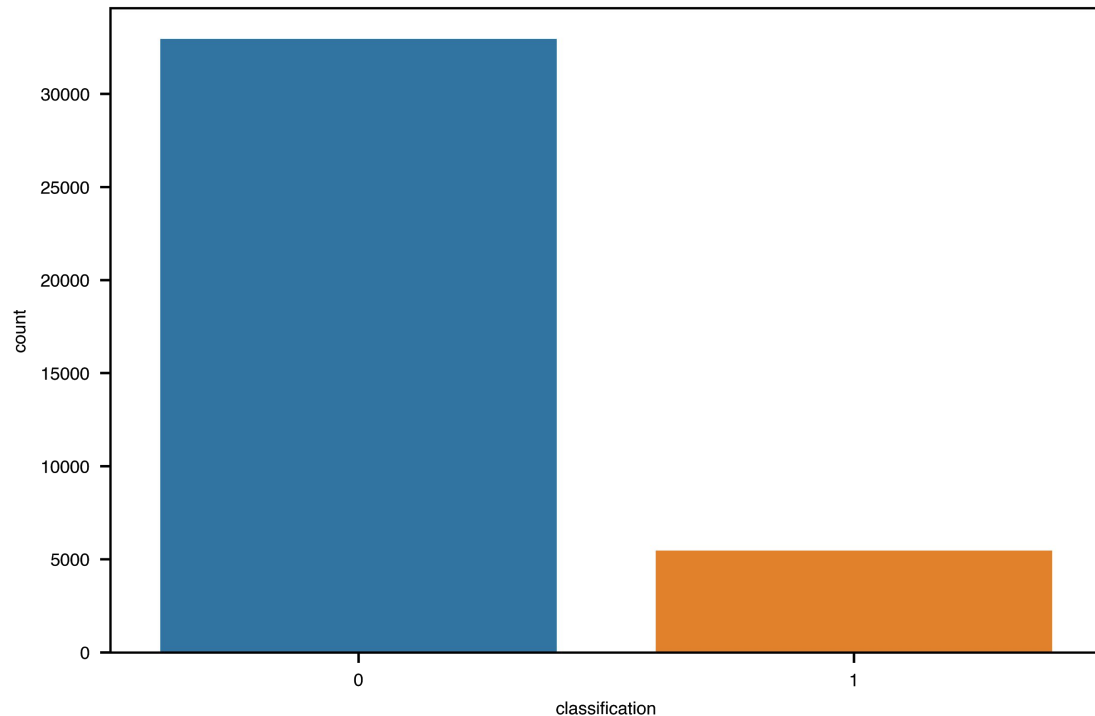
- » Fully Paid
- » Current
- » In Grace Period
- » Late (16-30 days)
- » Does not meet credit policy but paid

### Regard as default

- » Charged off
  - » Late (31-120 days)
  - » Default
  - » Does not meet credit policy but charged off
- 

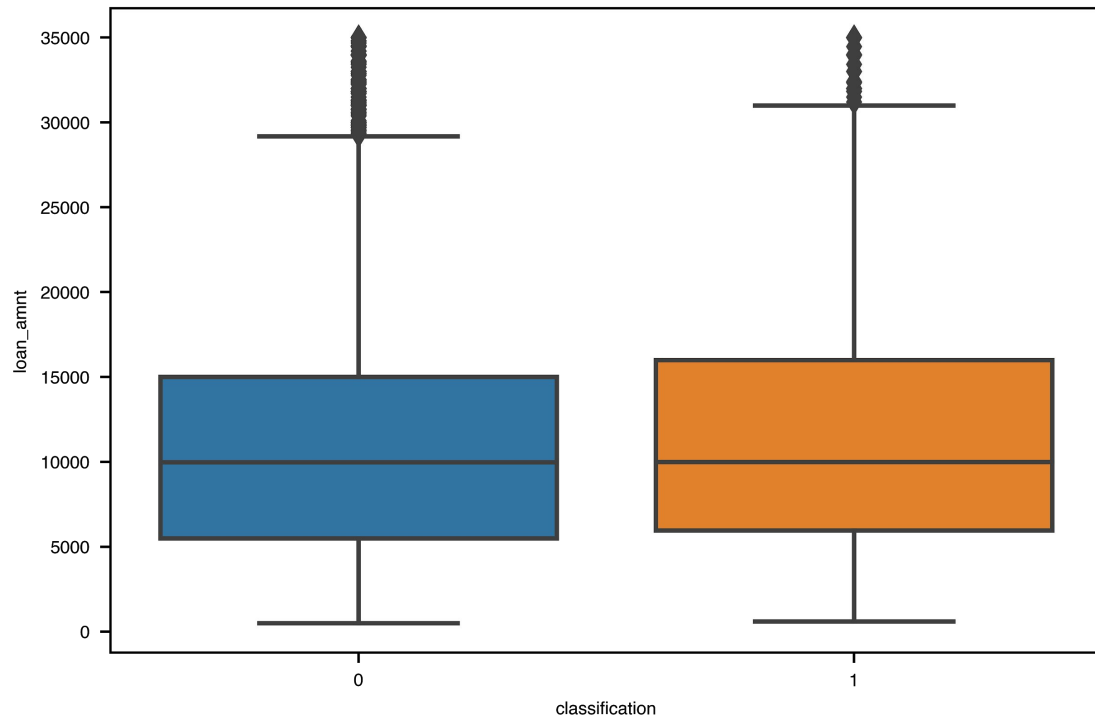


# INTERESTING FINDINGS



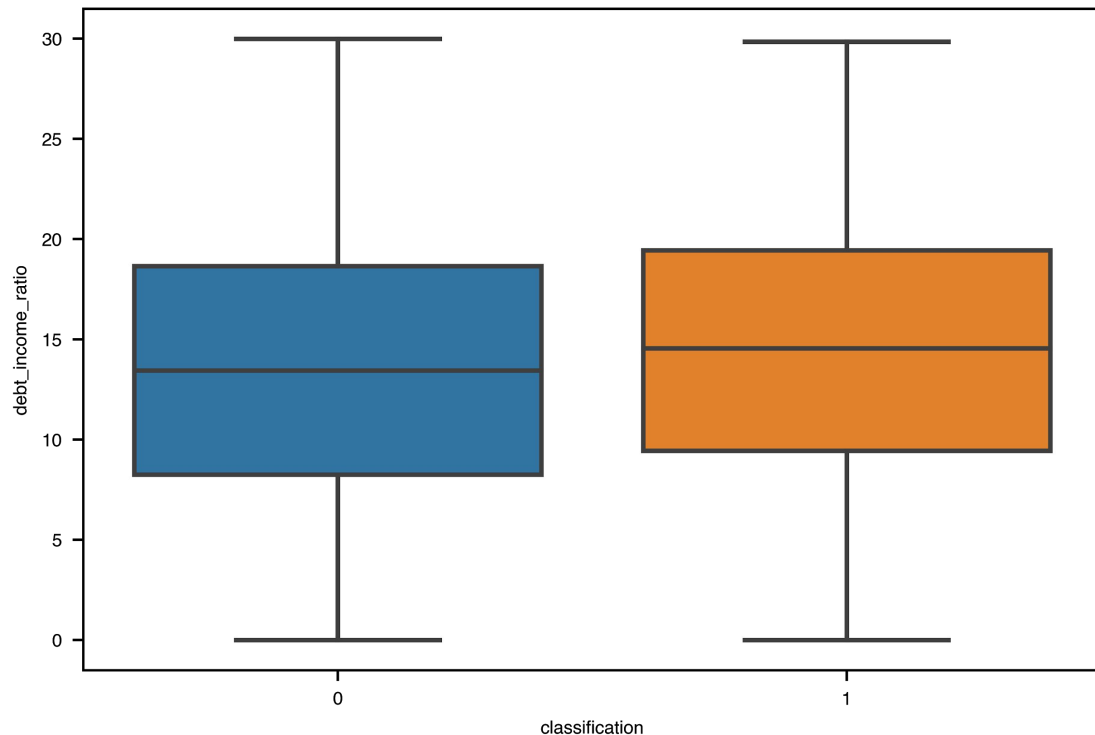
**14,22% of loans  
can be classified  
as default**

# INTERESTING FINDINGS



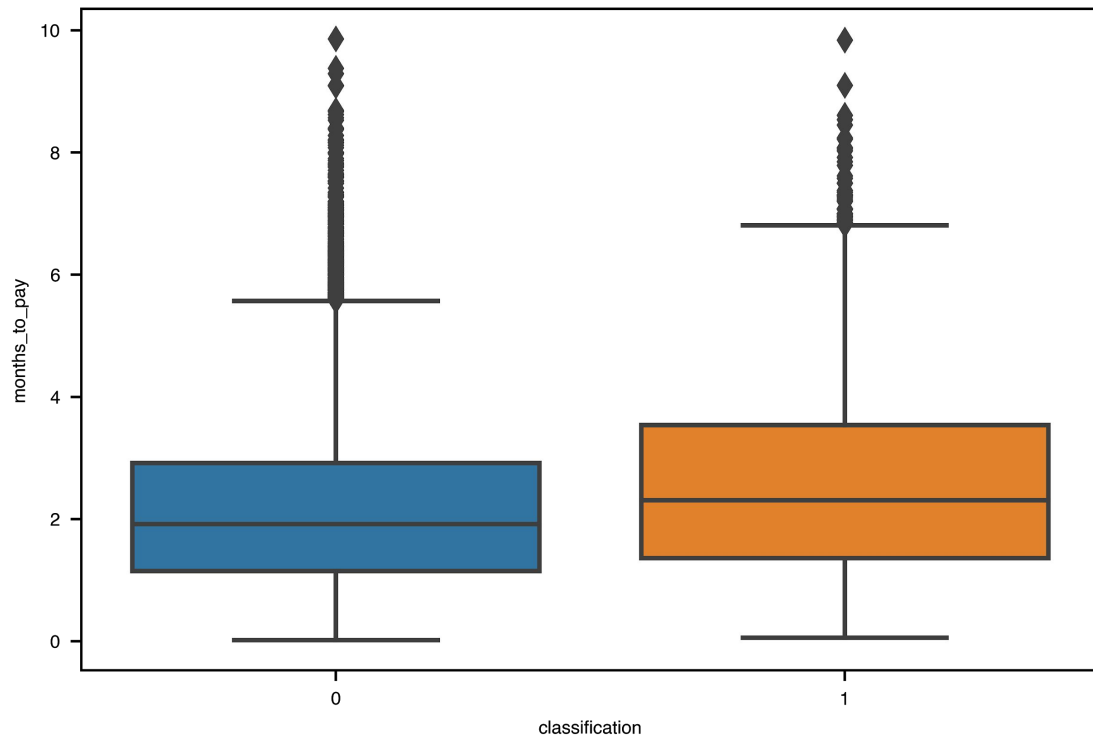
**Loan amounts do not differ much**

# INTERESTING FINDINGS



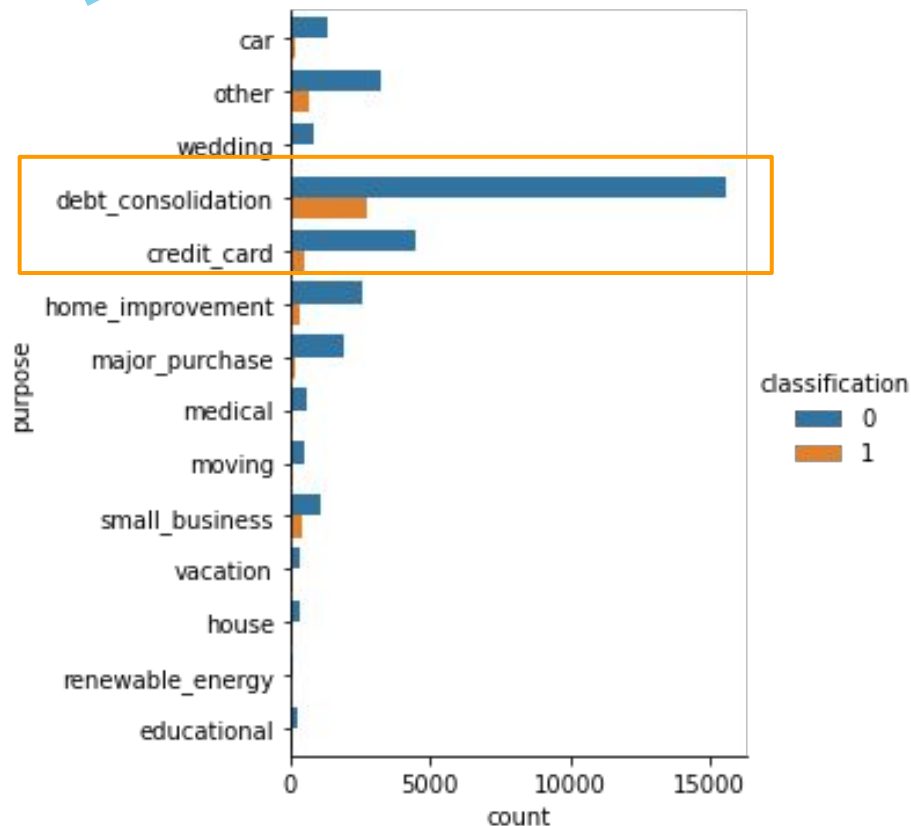
**Defaults have  
slightly more debt**

# INTERESTING FINDINGS



**Defaults have to  
work slightly  
more to pay their  
debt**

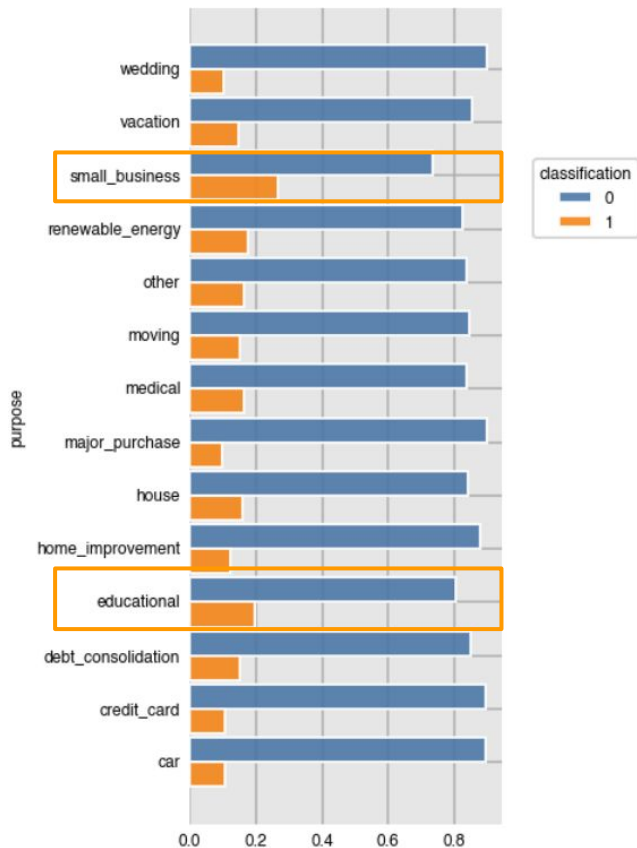
## INTERESTING FINDINGS



# Debt consolidation is most common reason for credit



# INTERESTING FINDINGS




**Default rate is slightly higher for small business and educational loans**

**MAYBE THERE ARE  
CERTAIN COMBINATIONS  
OF FEATURES THAT CAN  
PREDICT FAILURE**





# THE NEW FEATURES

- » Drop of self-fulfilling features, interests, grades
  - » Debt to income ratio after loan is granted
  - » How many months to pay from monthly income
  - » Loan to income ratio
- 



# THE PREDICTIVE MODEL

- » Excluded date-related information
- » Excluded features that give too much information (late fee etc.)
- » Goal: exclude as many defaults as reasonably possible






# THE PREDICTIVE MODEL

## Always predict success

- » 0% of defaults predicted
- » 14,2% defaults in portfolio
- » 0% portfolio shrinkage

## Our Model

- » 64% of defaults predicted
  - » 8,4% defaults in portfolio
  - » 39,1% portfolio shrinkage
- 

## CONCLUSION

- » If you want to reduce the probability of losing money because of rejected loans by 50%  
=> Use our service!



## FUTURE WORK

- » Do users actually make more money when using our service?
- » Which returns are associated with the accepted and rejected loans?

# Sources

- Page4:  
<https://blend.ph/wp-content/uploads/2019/10/p2p.png>
- Page5:  
<https://media.tenor.com/images/5462f22fa2e1d45bf9cbbabead9ac833/raw>

THANK  
YOU



## CREDITS

Special thanks to all the people who made and released these awesome resources for free:

- » Presentation template by [SlidesCarnival](#)
- » Photographs by [Unsplash](#)