

# Lending Club Case Study

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# Motivation

- Help to decide whether to approve or reject the loan application by analyzing the past data
- Reduce the charged off loans accounts
- Increase the fully paid loans accounts

# Data cleanup

- Replace all NA with 0
- Remove % sign from “int\_rate” column
- Change the data type of “int\_rate” column to float
- Remove all the records with employment status as “n/a”

# Outliers detection and removal

- Boxplot “loan\_amnt” and “annual\_inc” columns to find the outliers
- Remove all the record having loan amount greater than 30,000
- Remove all the record having annual income greater than 100,000

# Univariate Data Analysis

- Loan Amount
  - Total loan applications: 33155
  - Average loan amount: 9990.15
  - Minimum loan amount: 500
  - Maximum loan amount: 30000
- Interest Rate
  - Total loan applications: 33155
  - Average interest rate: 11.88
  - Minimum interest rate: 5.42
  - Maximum interest rate: 24.4

# Findings

- State
  - Nebraska (NE) has highest percentage of charged off loans (60%)
  - Wyoming (WY) has lowest percentage of charged off loans (3%)
- Employment length
  - Applicant without any work experience more likely to default on loan (21%)
  - Applicant with 2 years of work experience more likely to replay loan (86.27%)
- Home Ownership
  - Applicants with home ownership status as “Other” more likely to default on loan (20%)
  - Applicants with “Mortgage” home status are more likely to replay loans (85.93%)
- Loan Purpose:
  - Small Business loan purpose applications are more likely to default on loan (27%)
  - Wedding loan purpose are more likely to repay loans (89.8%)
- Loan Grades:
  - Percentage of charged off loan increases linearly from Grade A to Grade G

# Recommendations

- Loans applications requires more scrutiny
  - Loan applications from Nebraska
  - Loans given to small businesses
  - Loans applications from Mortgage home owners
  - Loan application grade “G”
  - Loan application from person with any work experience.
- Loan application requires less scrutiny
  - Loan applications from Wyoming state
  - Applicant with 2 years of work experience
  - Applicant with home status as Other
  - Loans taken for “Renewable energy” purpose
  - Grade A loan applications

Thank You