CAPSTONE PROJECT

# Loan Default Prediction

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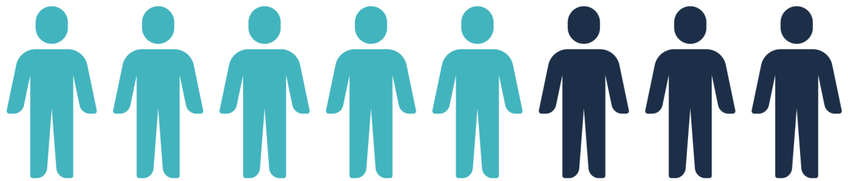
Get Started

# Problem Statement

Can I accurately predict which clients are most likely to default on their loans?



Lenders are constantly at risk of losing their principal + expected interests

They need to balance between loss mitigation and providing credit access to deserving borrowers

## STEPS TAKEN

01

Data collection

02

Cleaning and EDA

03

Feature Engineering & Preprocessing

04

Model Selection & Evaluation

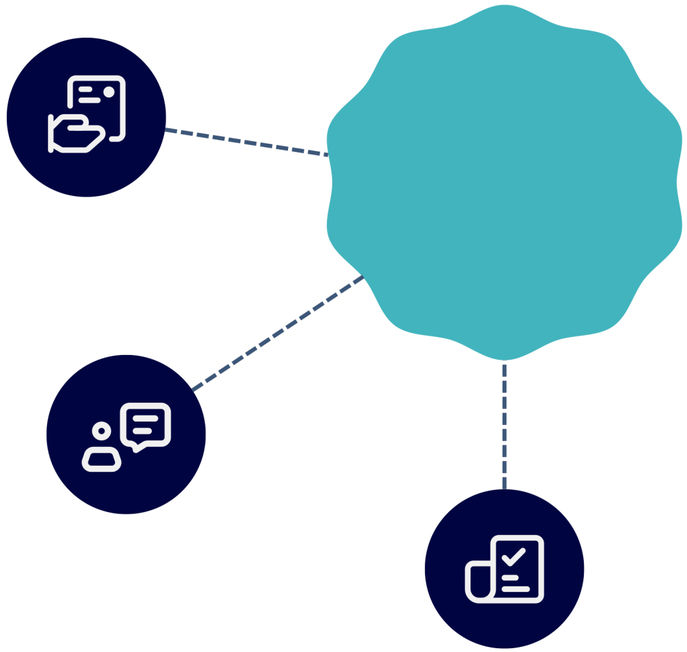
# DATASET

kaggle

LendingClub

## Loan Description

- Loan amount
- Repayment term (short/long)
- Number of Installments
- Interest rate
- Purpose/title
- Application type
- Issue date
- Initial list status



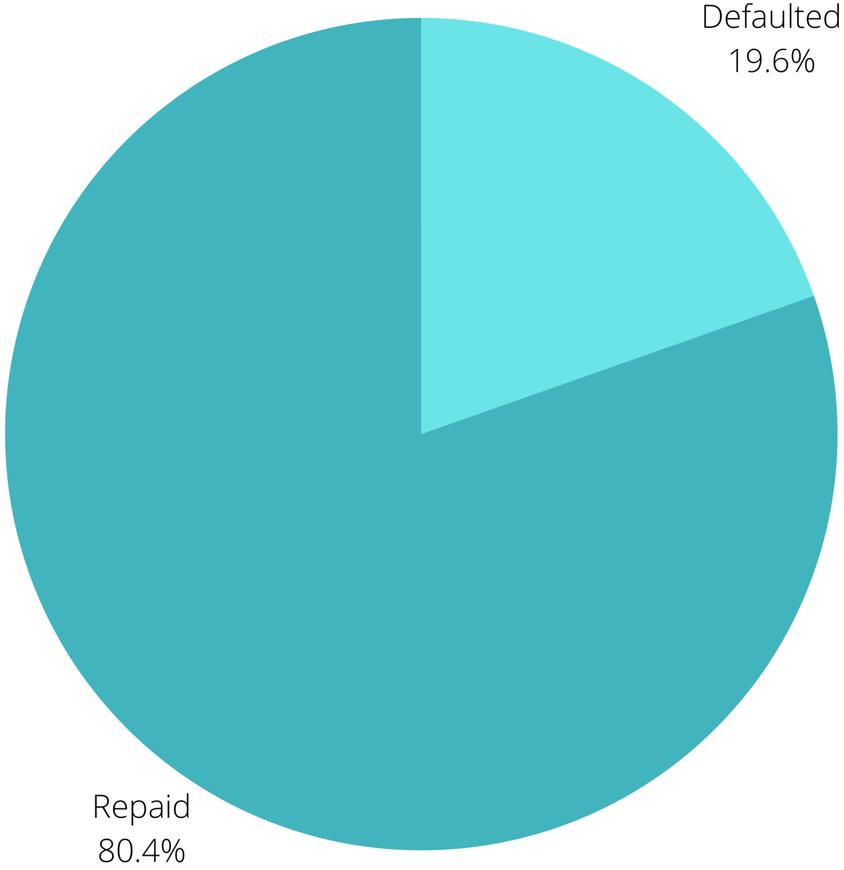
## Applicant's Status

- Annual income
- Employment title
- Length of employment
- Home address
- Homeownership status (rent/own/neither)
- Number of mortgage accounts
- Number of open/closed accounts

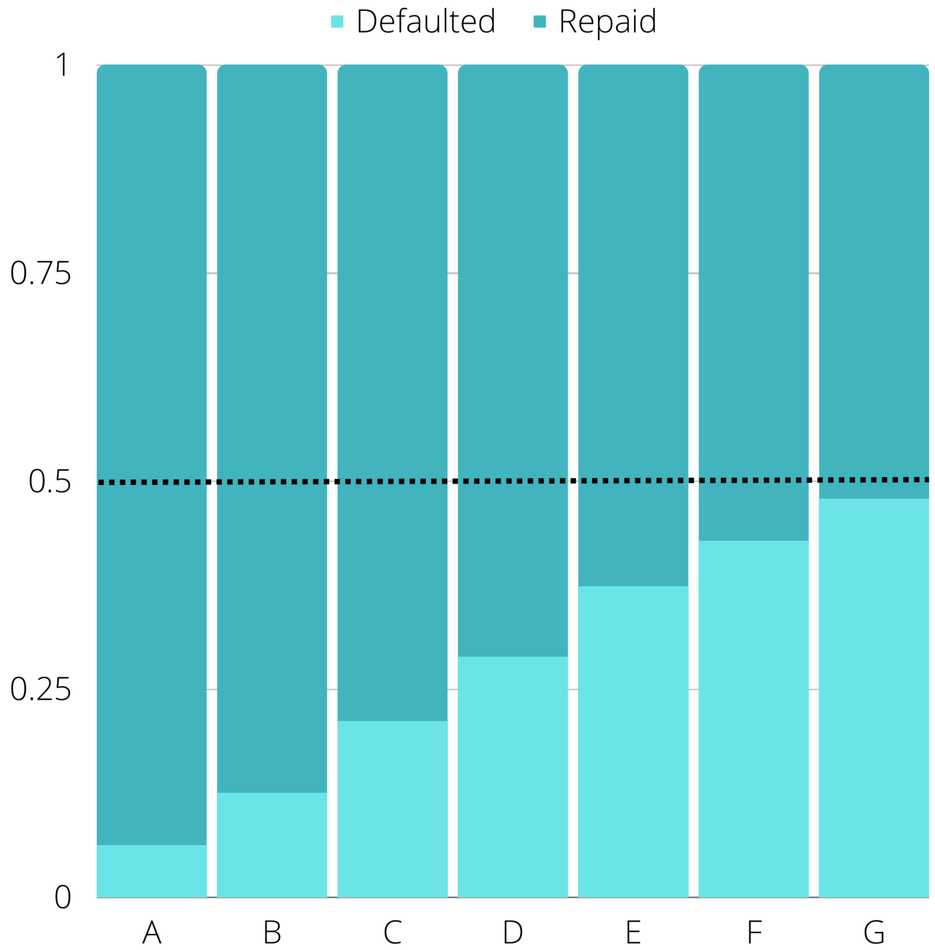
## Credit History

- Date earliest credit line was opened
- Revolving utilization rate
- Revolving balance
- Debt to income ratio
- Number of public derogatory records
- Number of public record bankruptcies

## EDA INSIGHTS




Loan Status




Grade Type

## PREPROCESSING

### Data cleaning

- Replace null values
- Remove outliers

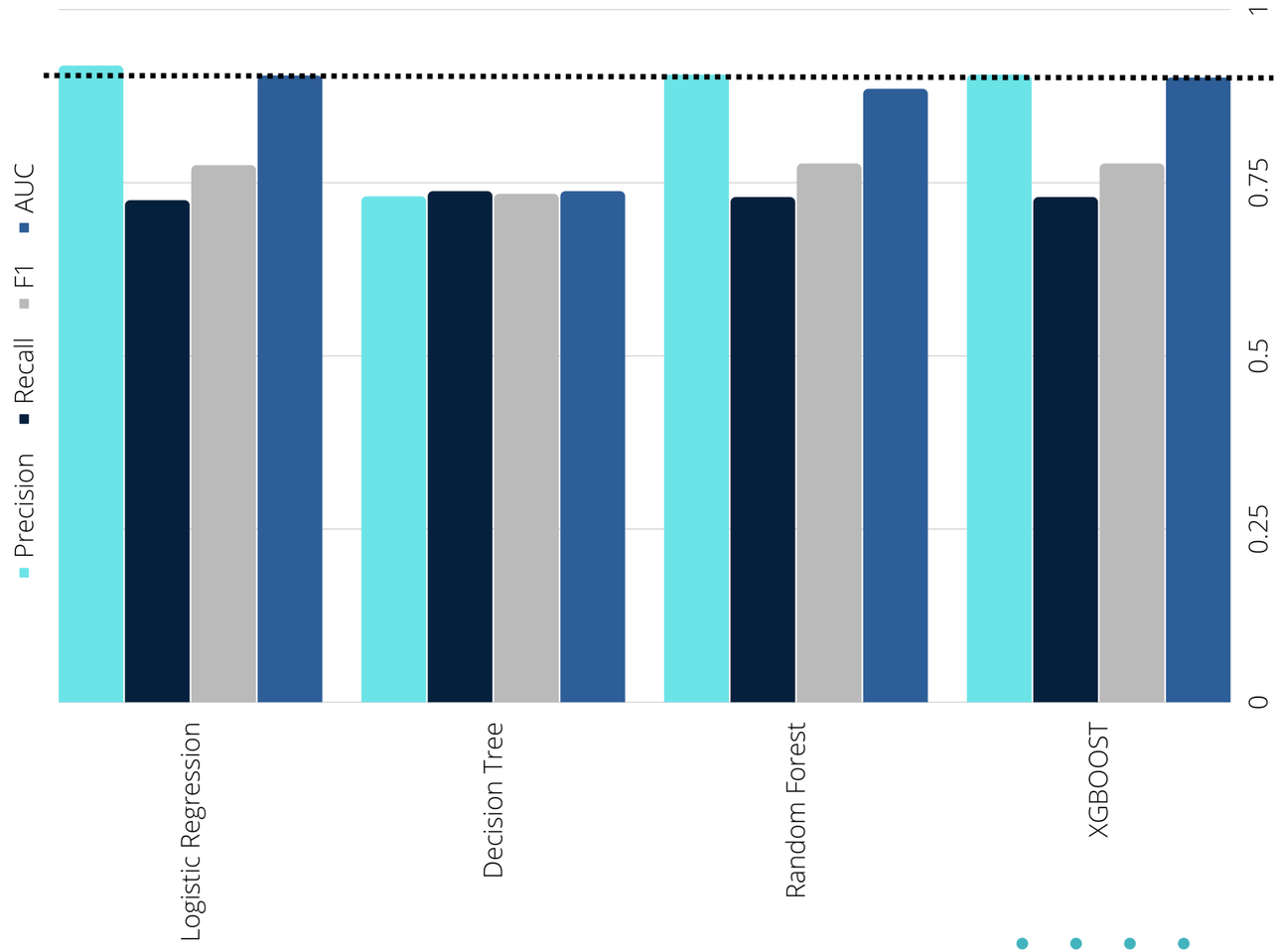
### Feature engineering & selection

- Creation of new features
- Statistics & hypothesis
- Correlations & VIF

### Splitting & scaling

- Scaling using MinMax Scaler
- Oversampling minority class

# BASELINE MODELS

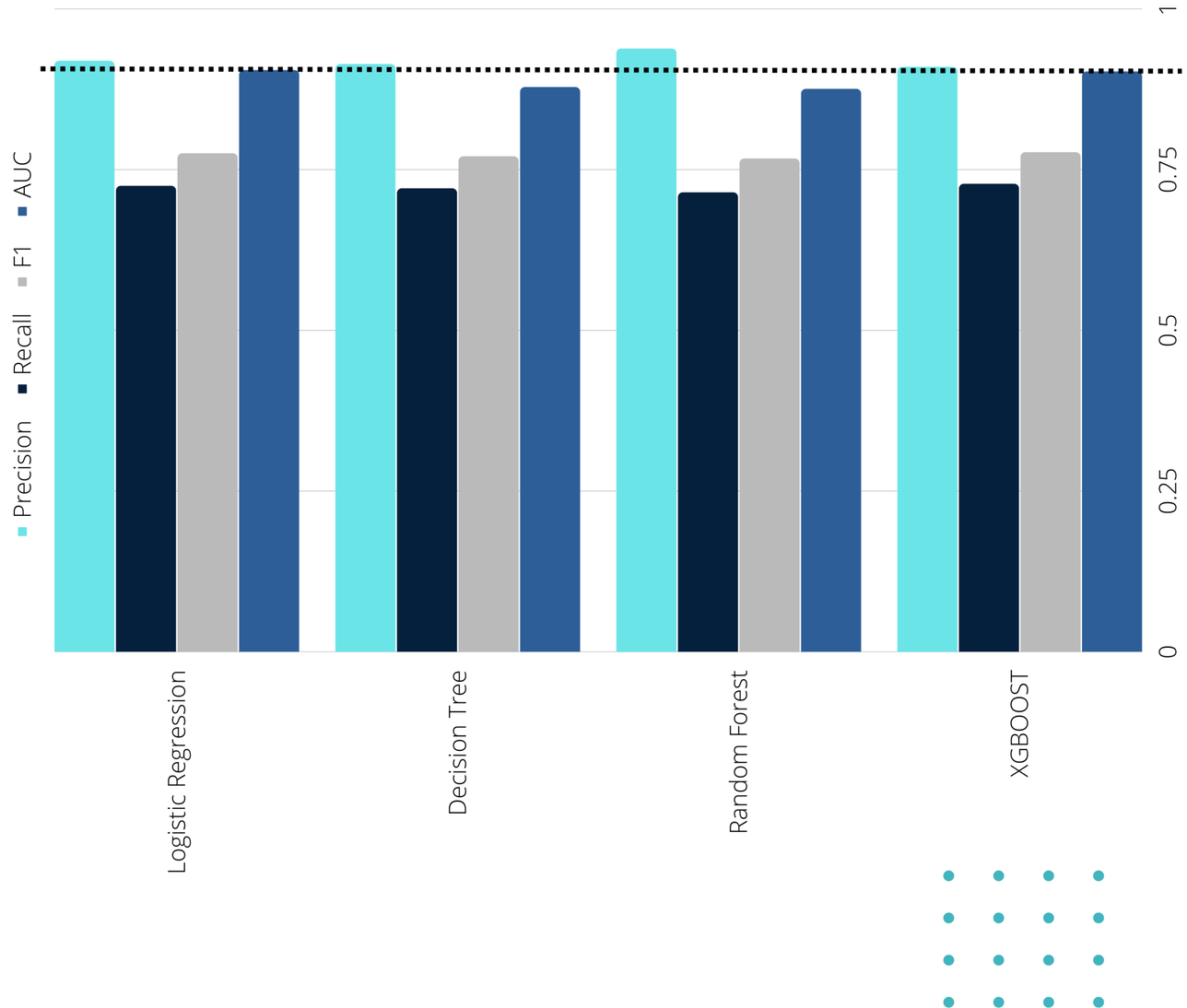



## Target

**80%** Accuracy score If the model predicts ‘Fully paid’ 100% of the time.

**89%** Accuracy score using the Logistic regression model.

# OPTIMIZED MODELS




**0.9043** AUC score of tuned Logistic Regression Model

**0.9021** AUC score of tuned XGBOOST Model

## CONCLUSION

- Best performer - Logistic Regression
- Improved prediction accuracy by 9%
- 92% Precision & 72% Recall
- Practical applications
- Next steps

# Thanks for listening!

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