



I am a,

- Bachelor in Informatics engineering @ UTDI
- Data Science Student @dibimbing.id
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Experiences

Data Science Virtual Internship Experience Home Credit Indonesia (Aug 2022)

Finishing various tasks related to the activity of a Data Scientist from Home Credit Indonesia, such as Data Analysis, Machine Learning Implementation, and Business Acumen

Big Data Analytics Virtual Intership Experience Kimia Farma (Jul 2022)

Create a dashboard from sales data brand Salicyl

Data Scientist Virtual Intership Experience ID/X (Jun 2022)

Build a model that can predict

Skill and Proficiency

- **□** Python (Programming Language)
- **□** Exploratory Data Analysis
- Data Visualization
- Machine Learning Modelling
- Querying SQL
- ☐ Tableau (Dashboard)

Data Science Project

Customer Segmentasi with Algoritma K Prototype

Unsupervised clustering of data on the customer's records from a groceries firm's database.

Customer Churn Prediction

Create a predictive model to determine whether a customer will churn or not. so the company can make the right decisions to reduce the number of churn customers using machine learning

Credit Risk Modeling

Background

Companies Want to predict loan credit risk



Companies want to prevent that, and minimize their loss.

Data Understanding

Objective

Analysis is to improve profitability & help the company & investors determine interest rates. Use machine learning to model credit risk as a binary classification problem.

Goal

Predicting an individual's ability to make payments on loans/credits

Dataset from Kaggle

Lending Club Data from 2007-2014

Data shape: 466.285 rows, 74 columns

VARIABLE TARGET



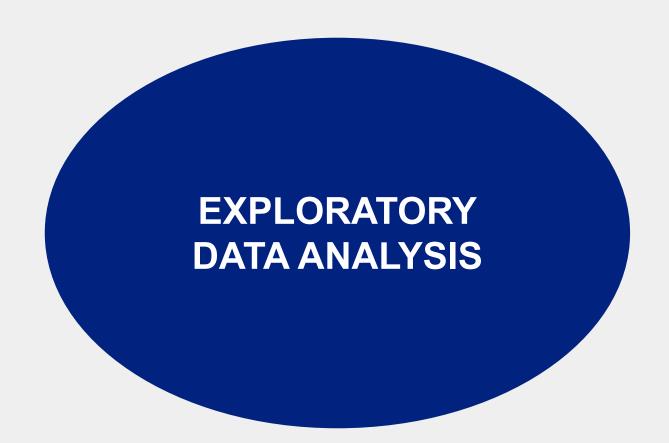
D	Current	48.087757
	Fully Paid	39.619332
	Charged Off	9.109236
	Late (31-120 days)	1.479782
	In Grace Period	0.674695
	Does not meet the credit policy. Status:Fully Paid	0.426349
	Late (16-30 days)	0.261214
	Default	0.178432
	Does not meet the credit policy. Status:Charged Off	0.163205

good loans (0)

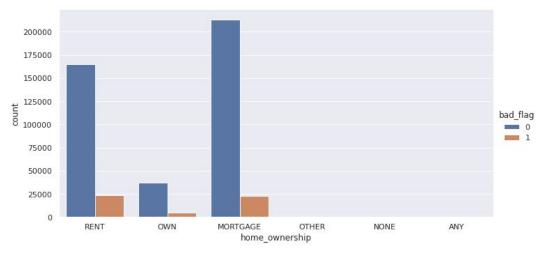
- Fully Paid
- Does not meet the credit policy. Status: Fully Paid

bad loans (1)

- Charged Off
- Late (31-120 days)
- Late (16-30 days)
- Defaul t
- Does not meet the credit policy. Status: Charged Off

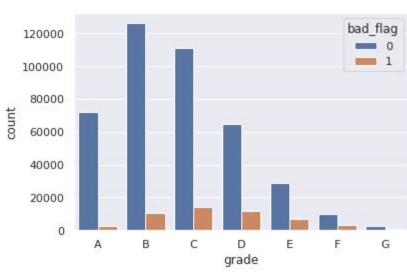


Home Ownership



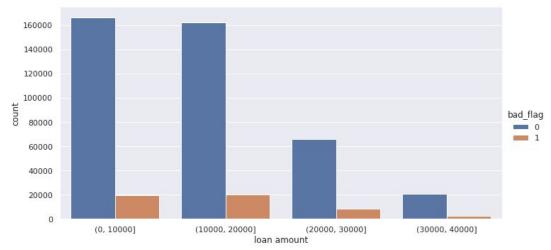
Home Ownership with Mortgage status has a higher chance of returning, but overall the difference is not significant with OWN and RENT status

Grade



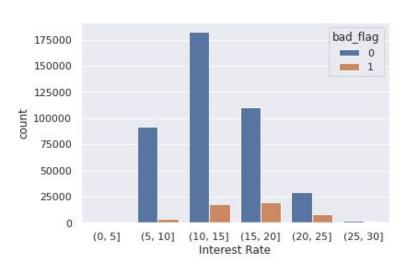
Grade A, F is low risk while grade B, C, E, D has a high risk

Loan Amount



The larger the loan amount, the smaller the percentage of loan money returned

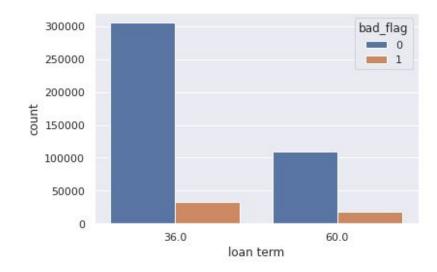
Interest Rate



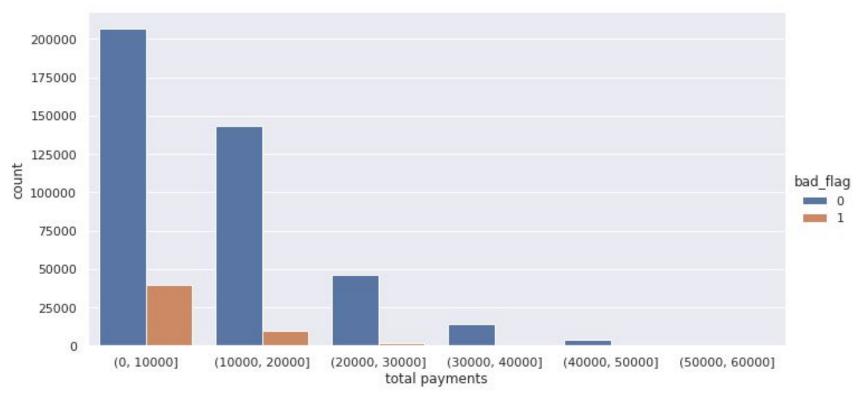
The higher the interest rate, the less likely it is for the loan money to be returned. The highest risk when the interest rate is above 20%

Term

Term or maturity period above 36 months has a high risk for loan money not being returned

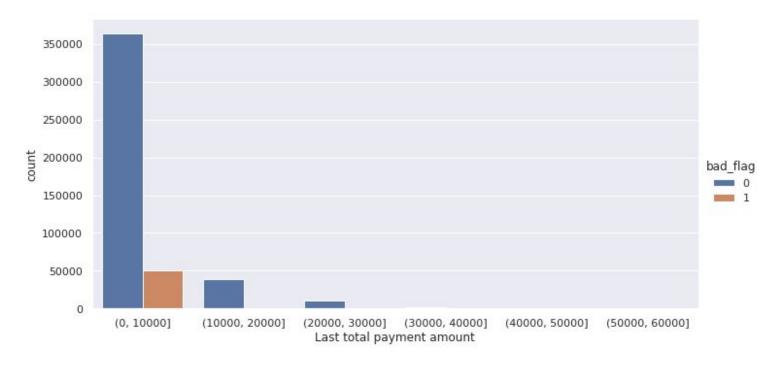


Total Payments received



The greater the total received principle, the greater the percentage of loan money to be returned. The highest risk when the total received principle is below 20000

Last Payment Amount

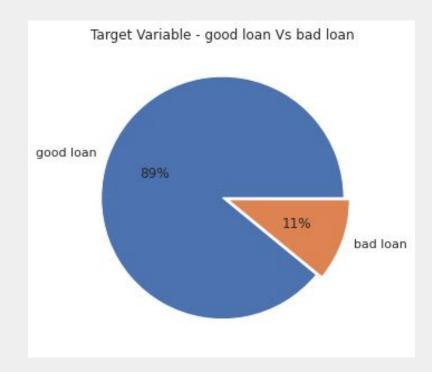


Last payment amount below 15000 has a high risk of loan money not being returned

Model Machinee Learning Classification

TARGET VARIABLE

Target variable is imbalanced. So we preferred AUC Score to evaluate models than Accuracy



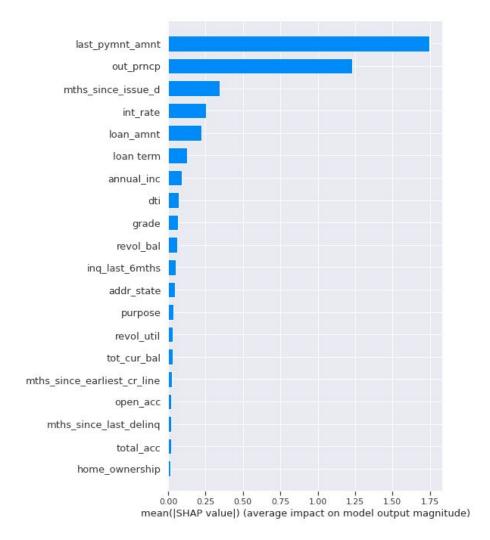
Model Evaluation Results

Model Classification	AUC Train	AUC Test	KS Train	KS Test		
XGBOOST	0.94	0.94	0.75	0.75		
Decission Tree	0.94	0.93	0.73	0.73		
Random Forest	0.91	0.91	0.73	0.73		
TUNN XGBOOST	0.97	0.96	0.81	0.77		

The model that was built resulted in the performance of AUC = 0.96 and KS = 0.77. In credit risk modeling, generally, AUC above 0.7 and KS above 0.3 is considered good performance.

Feature importance

- Last total payment amount received
- Remaining outstanding principal for total amount funded
- The month which the loan was funded
- Interest Rate on the loan
- Amount of the loan applied



CONCLUSION & RECOMENDATION

- Borrowers who live rented or Mortage have a higher risk of default
- Interest Rate above 20% tends to default
- term above 36 months has a high risk
- Grade B,C,D,E Has a high risk

To minimize credit risk, when the company finds a borrower with bad credit.

- When the loan is running (look Last total payment amount received & outstanding principal), the company can provide the option to give financing restructuring
- Companies should consider multiplying products with interest rates below 20% and with a loan period of 60 months

Thank you!

Thank you for checking my portfolio, I hope we can work together in the near future. For further informations or details, you can contact me through e-mail at nurpurwanto@outlook.com

Best regards,

Nur Purwanto