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DATA ANALYSIS

DATA ANALYSIS HACKATHON

BANK EVIE - CREDIT RISK ASSESSMENT





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BANK EVIE

INTRODUCTION

Bank Evie is a well established bank who is recently experiencing a decline in their revenue and managed to trace the source towards loan defaults. More people can't afford to pay and consequently causing the bank to suffer the losses.





AIM ~ USE CASES



TRAITS

Determine the common traits among these loan defaulters



ADAM

MODEL

Build a model to predict the future defaulters based on their traits



We'll follow Adam's journey to derive the outcomes...





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DATA ANALYSIS

DESCRIPTIVE & DIAGNOSTIC





FEATURES



GIVEN CREDIT AMOUNT

includes both the individual and his/her family (supplementary) credit



MARITAL STATUS

1 = married
2 = single
3 = others



AMOUNT OF BILL STATEMENT

It's the closest planet to the Sun and the smallest in the Solar System



GENDER

1 = male
2 = female



AGE

Year



AMOUNT OF PREVIOUS PAYMENT

It's the closest planet to the Sun and the smallest in the Solar System



EDUCATION

1 = graduate school
2 = university
3 = high school
4 = others



PAST PAYMENT

past monthly payment records (from April to September, 2005)



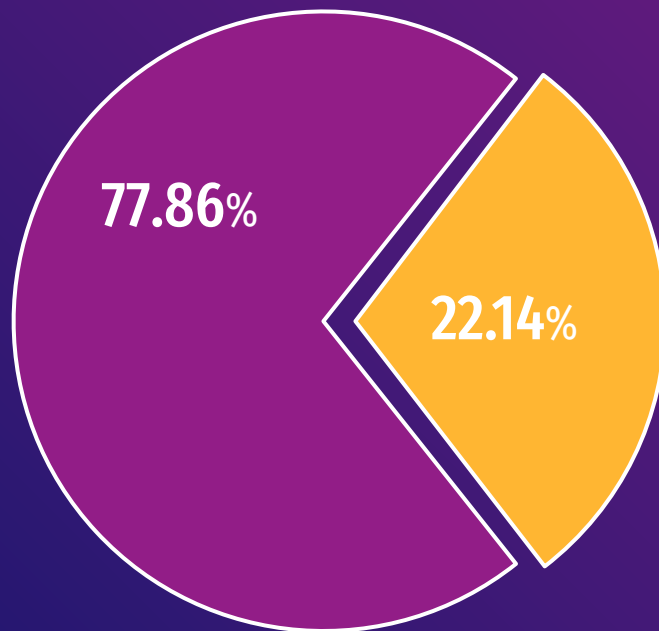
LOAN DEFAULTERS

1 = True
0 = False



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UNBALANCED DATASET



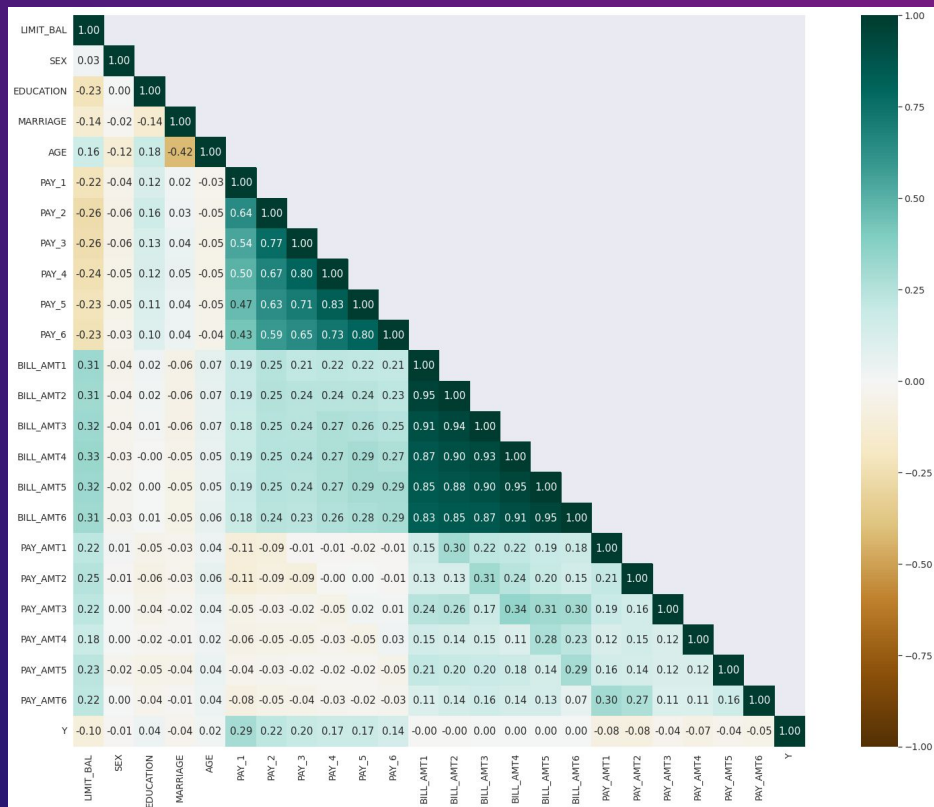
**NON-LOAN
DEFAULTERS**

70%

**LOAN
DEFAULTERS**

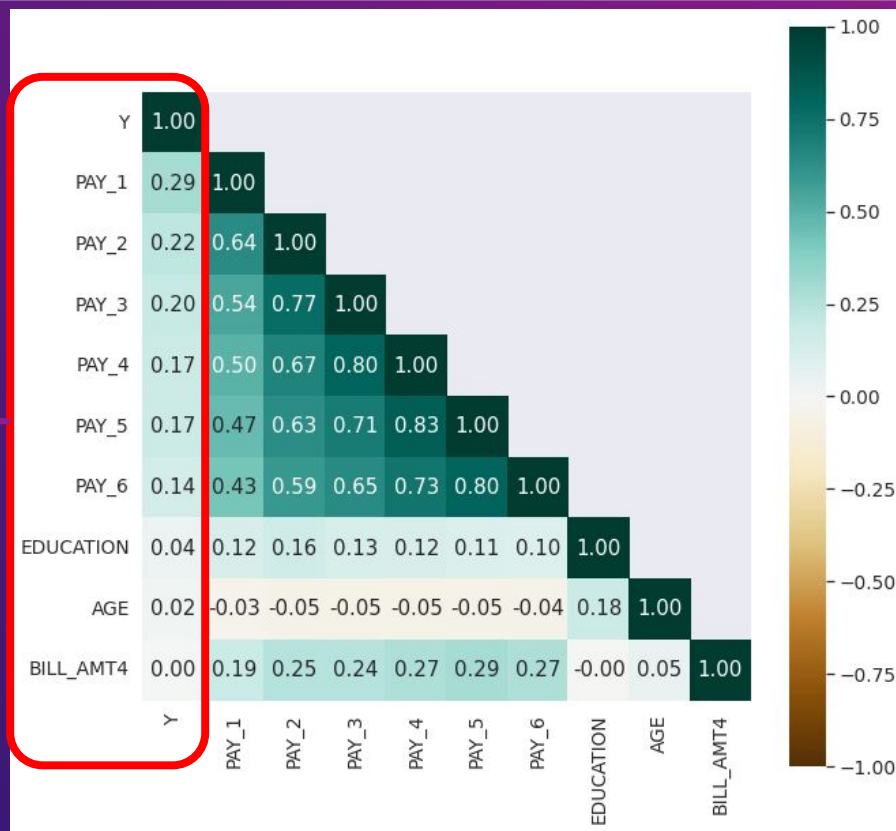
30%

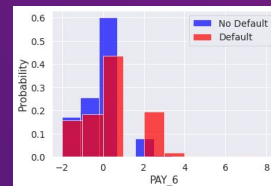
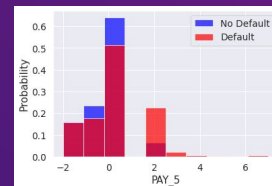
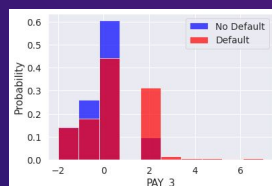
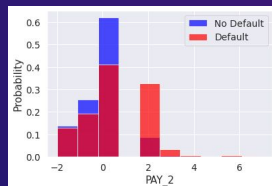
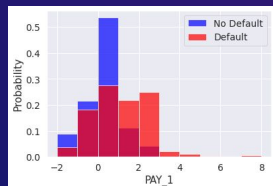
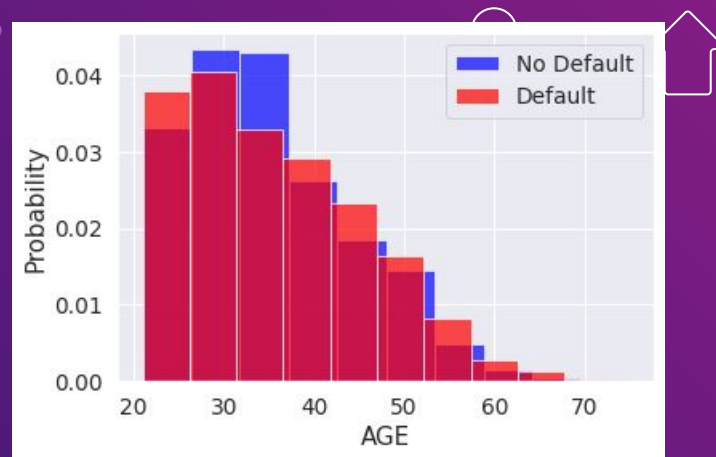
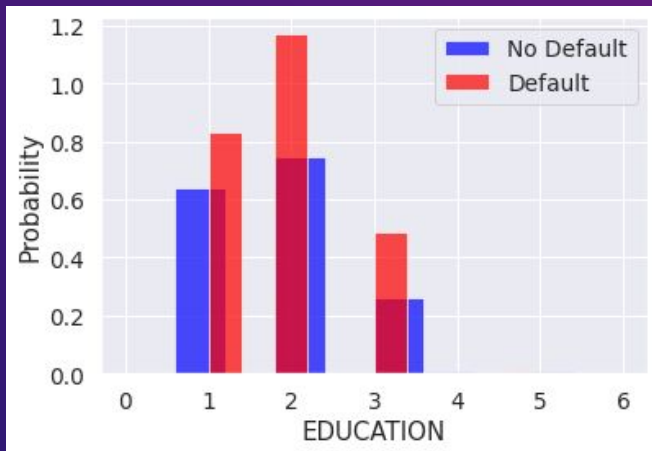


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REPAYMENT STATUS,
EDUCATION, AGE, BILL AMOUNT



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DIAGNOSTIC ANALYSIS



AGE GROUP

With increasing age group the number of clients that will default the payment next month is decreasing.



REPAYMENT

The earlier the payment is made lesser are the chances of those clients defaulting the payment.

EDUCATION

High school has the highest default %





DIAGNOSTIC ANALYSIS



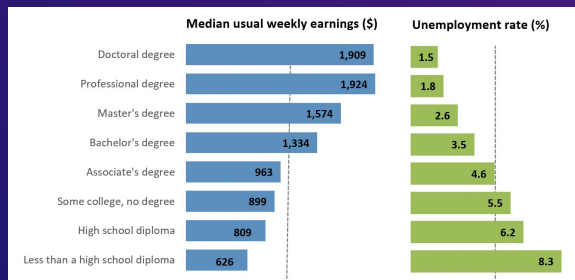
AGE GROUP

Household debt reduces when the individual ages due to increase in income earning and less burden to withhold.



REPAYMENT

Earlier payments shows a discipline within the client's behavior, thus showing less tendency of being default.



EDUCATION

People with high school background





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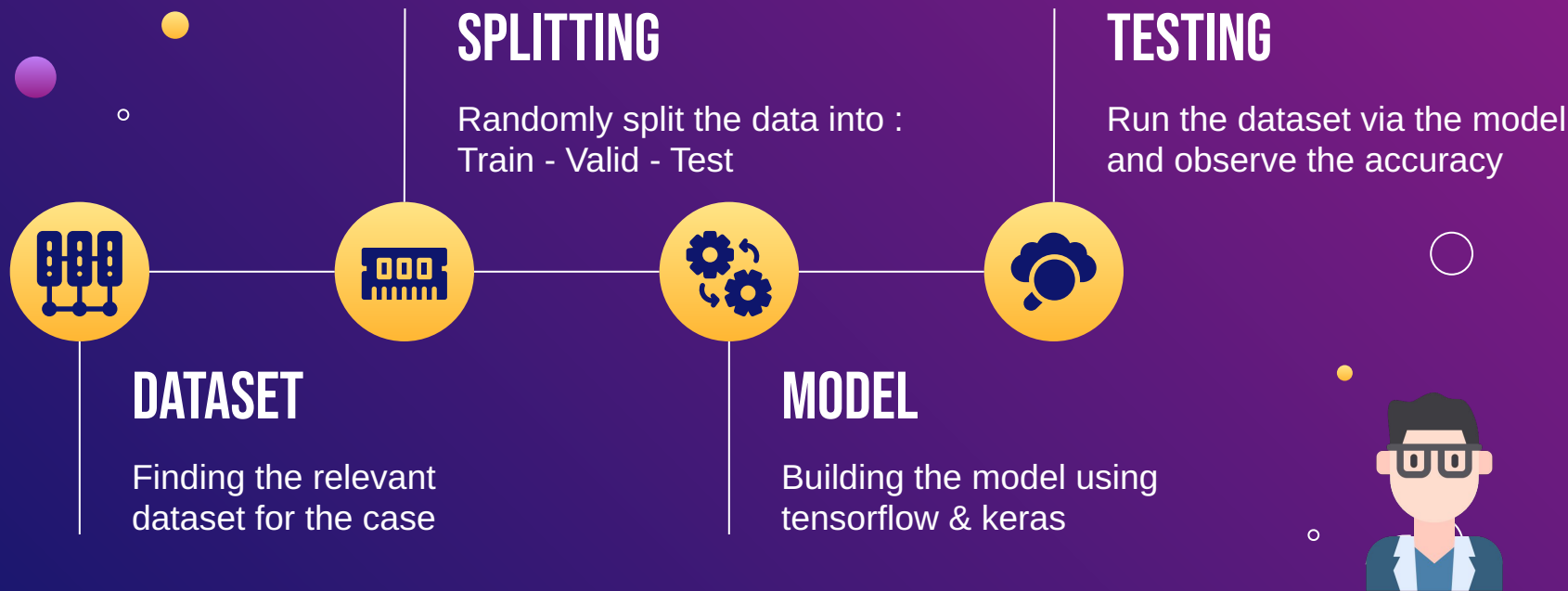
ML MODEL

PREDICTIVE





PREDICTIVE ANALYTICS





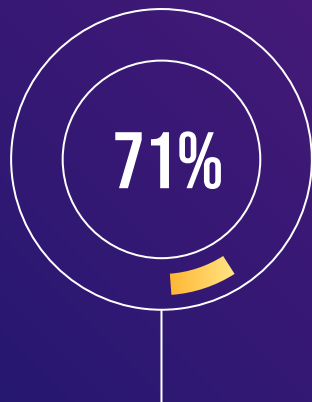
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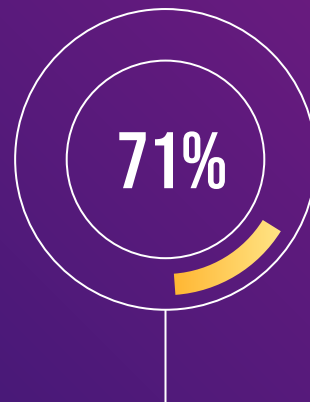
DATA ANALYSIS

ACCURACY OF THE MODEL (1)



Training Dataset

Validation Dataset



Testing Dataset

Used
Tensorflow
& Keras



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ACCURACY RESULTS OF ALGORITHM (2)



MACHINE LEARNING MODELS	ACCURACY
Linear Regression	78.1%
SVM	77.8%
Bayes	78.3%
Stacked	78.8%





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OUTCOME

CONCLUSION & NEXT STEPS

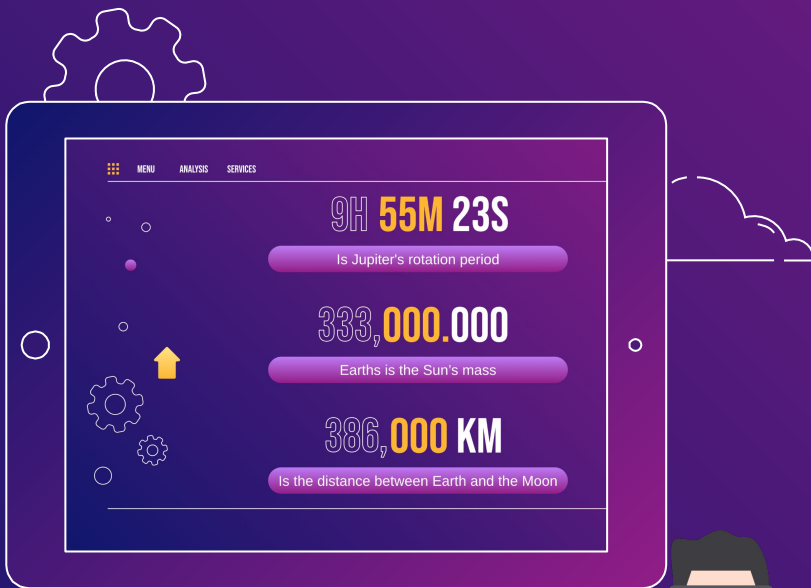


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TRAITS

To start of, we best traits that predicts the defaulters behavior are - Repayment Status, Education, Age, Bill Amount



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MODELS

The best model with the highest accuracy thus far is the STACKED model



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NEXT STEPS

Further explore the correlation
between the features & develop a
better model - Confusion Matrix,
Gaussian Kernel





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THANK YOU



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