Customer Conversion

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01

Data Insights

KEY NUMBERS

5,000

This is the total number of observations

29

Null Values

480

Accepted the personal loan

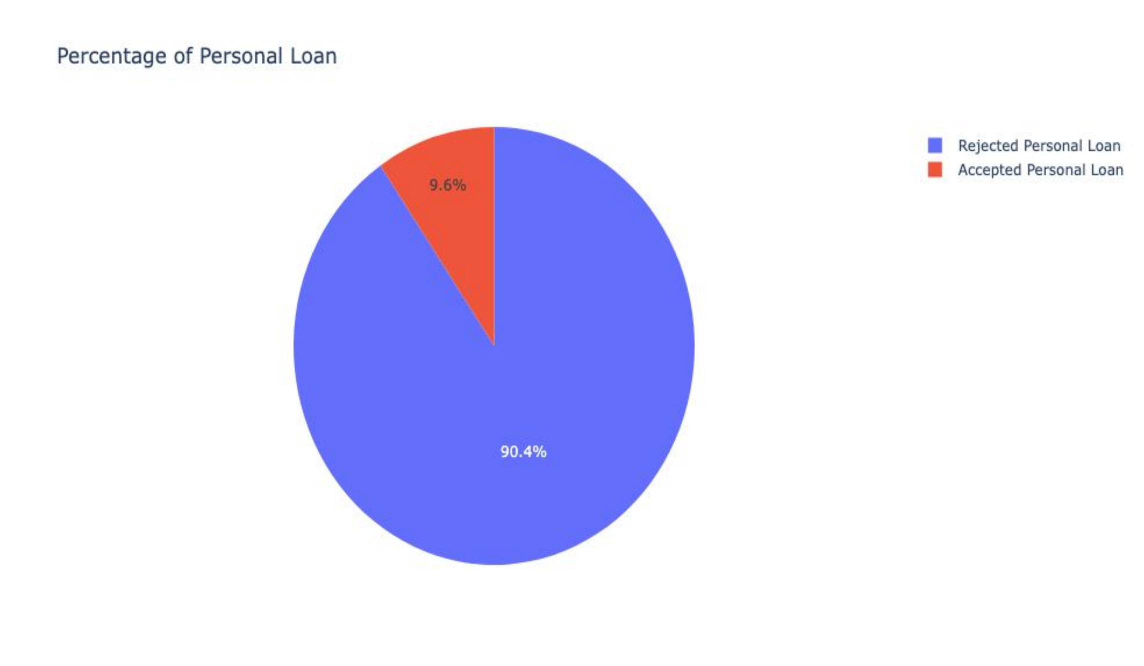
PERSONAL LOAN

- **Accepted Personal loan offer**

  9.6% i.e 480 people accepted the personal loan

- **Rejected Personal loan offer**

  90.4% i.e 4520 people rejected the personal loan

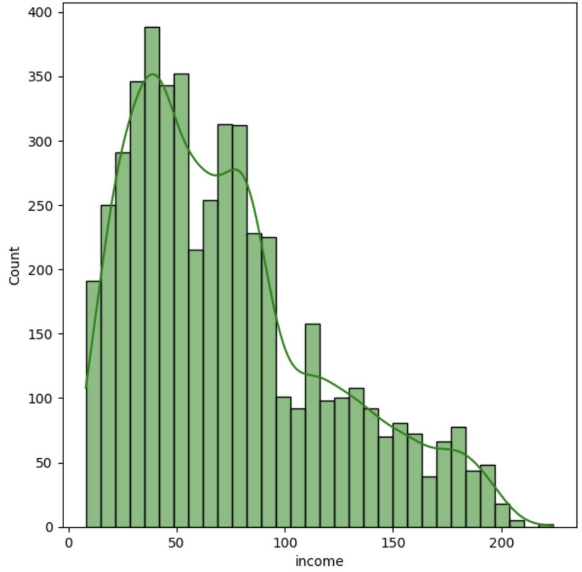


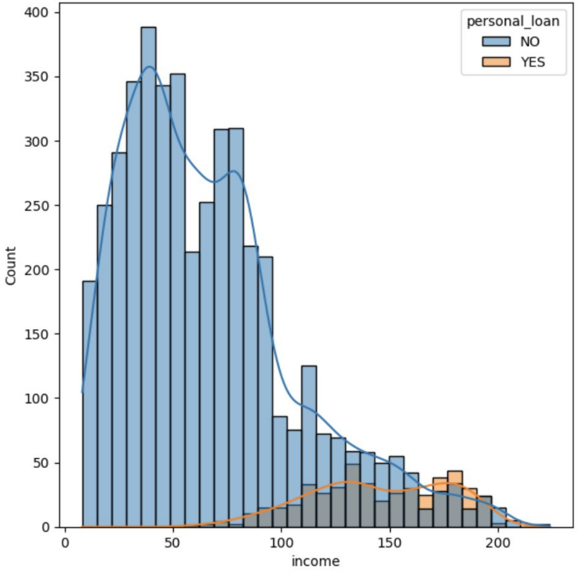
INCOME

Data distribution is right skewed with people with majority earning less than 100k

We see a distinct difference between people accepting and rejecting personal loans in the box plot with median value 143k for personal loan acceptance

People with income ranging between 122k to 172k have higher chance of accepting the loan



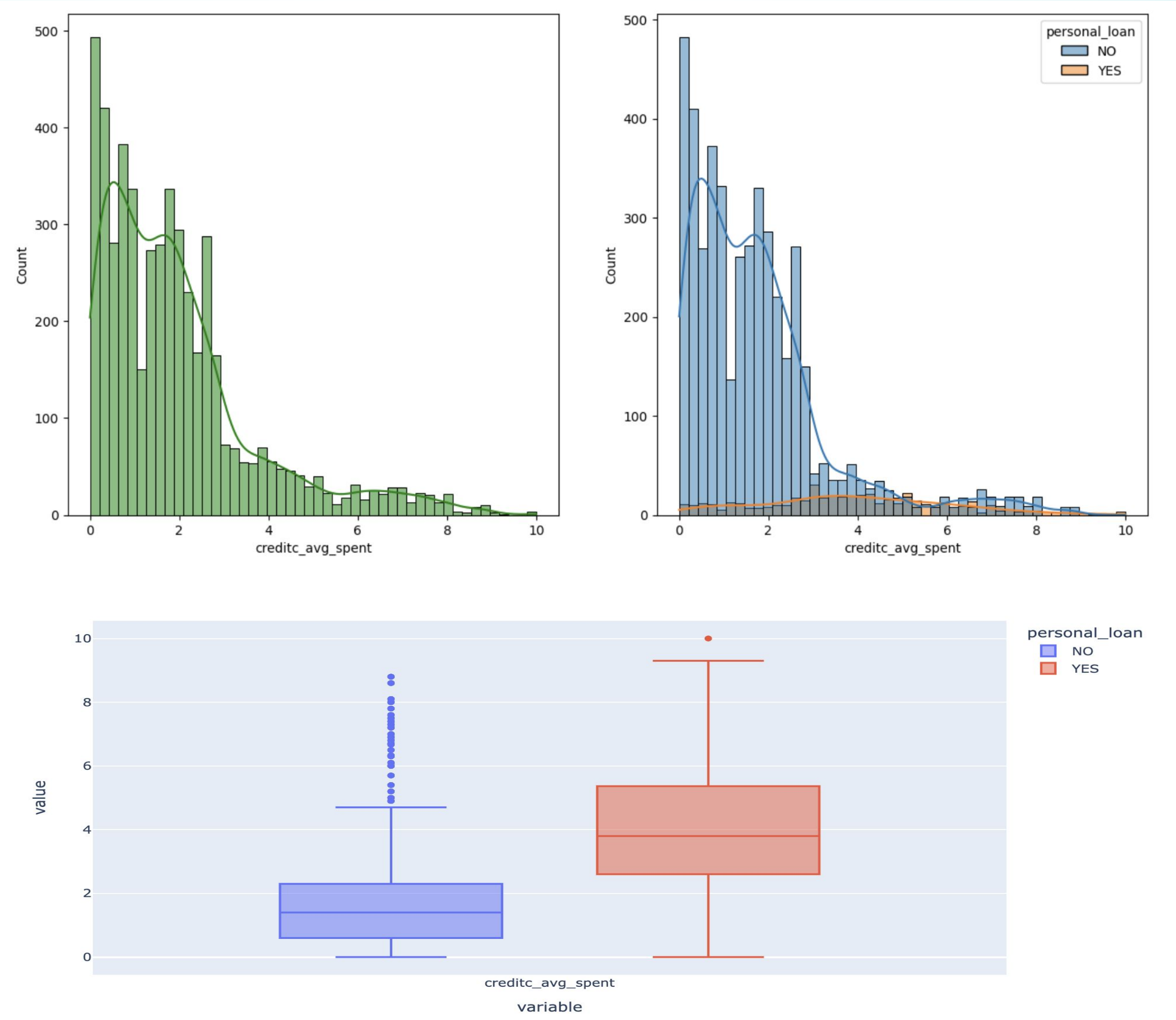


CREDIT CARD AVG SPENDING

Data distribution is right skewed. Majority spending less than 3k per month

We see a difference between people accepting and rejecting personal loans in the box plot with median value 3.8k for personal loan acceptance

People with average spending ranging between 2.6k to 5.4k have higher chance of accepting the loan.



DEPOSIT ACCOUNT

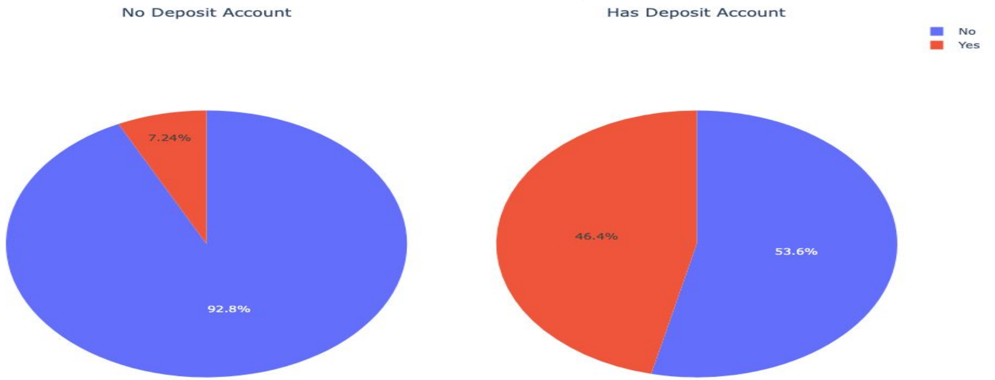
Though the number of people with deposit account is very low, we see a significant difference in loan acceptance rate

Accepted Personal loan offer

46% of people having deposit account accepted personal loan compared to 7.24 % without an account

Rejected Personal loan offer

Only 53% of people having deposit account rejected personal loan compared to 92.8% without an account



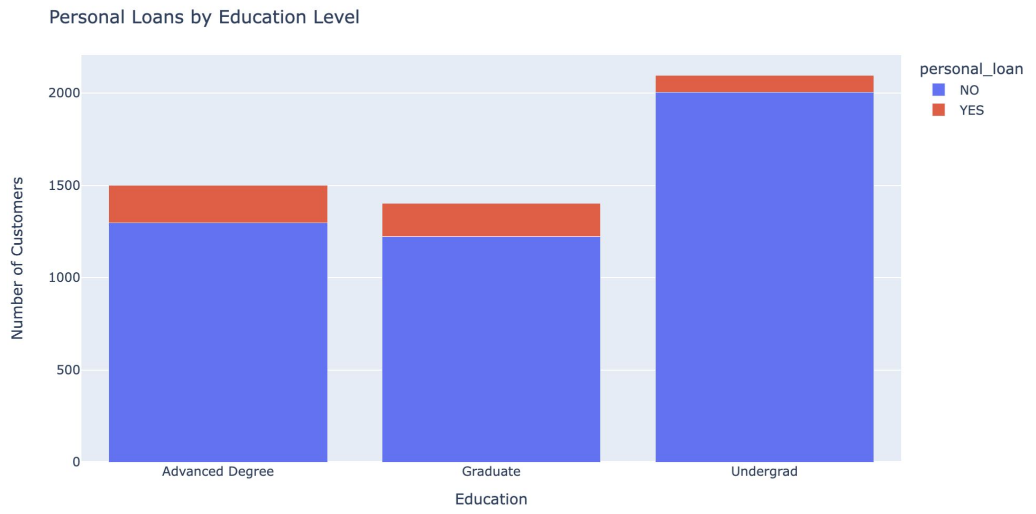
EDUCATION

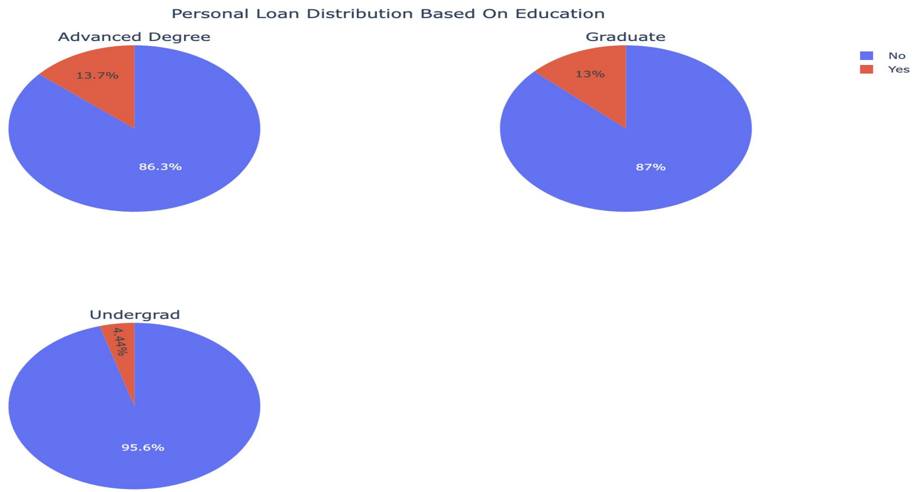
Accepted Personal loan offer

Clients with higher education tend to accept the personal loan more with 13.7 % for Advanced degree, 13% Graduate vs 4.44% acceptance for undergraduate

Rejected Personal loan offer

Clients with less education tend to reject the personal loan more with 95.6% rejection for undergraduate vs 87 % for Graduate, 86.3% Advanced degree



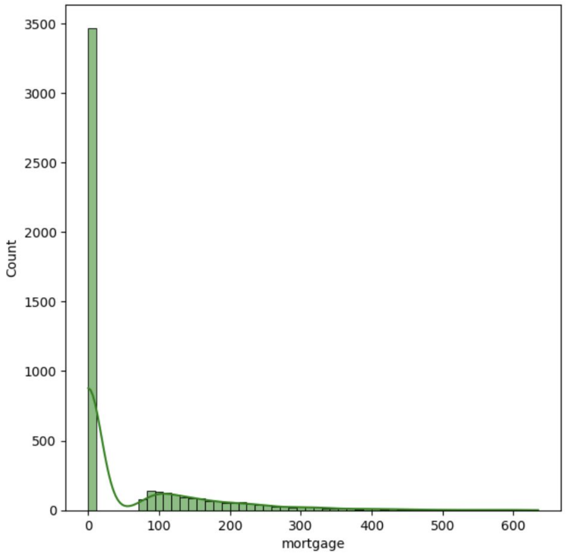


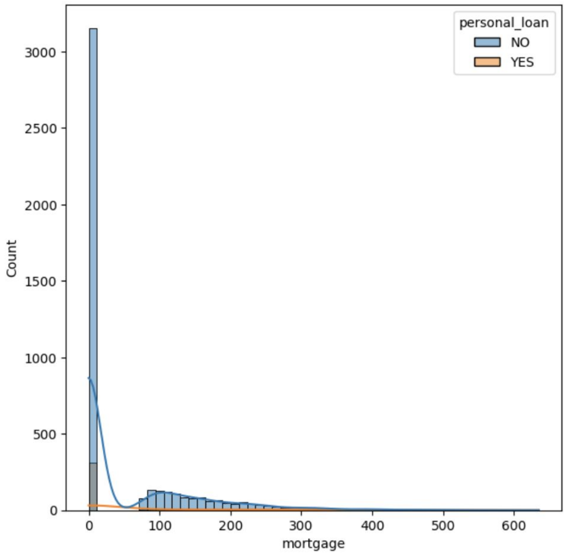
MORTGAGE

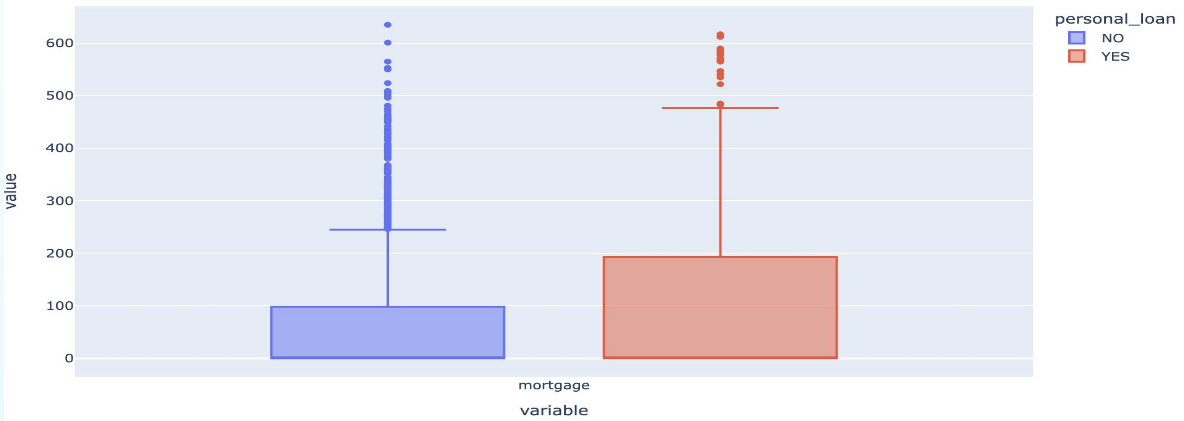
Data distribution is right skewed with people with Maximum people having no mortgage

We see a mild difference between people accepting and rejecting personal loans in the box plot with median value 0

50% of people accepting loan have mortgage ranging from 0 to 193k



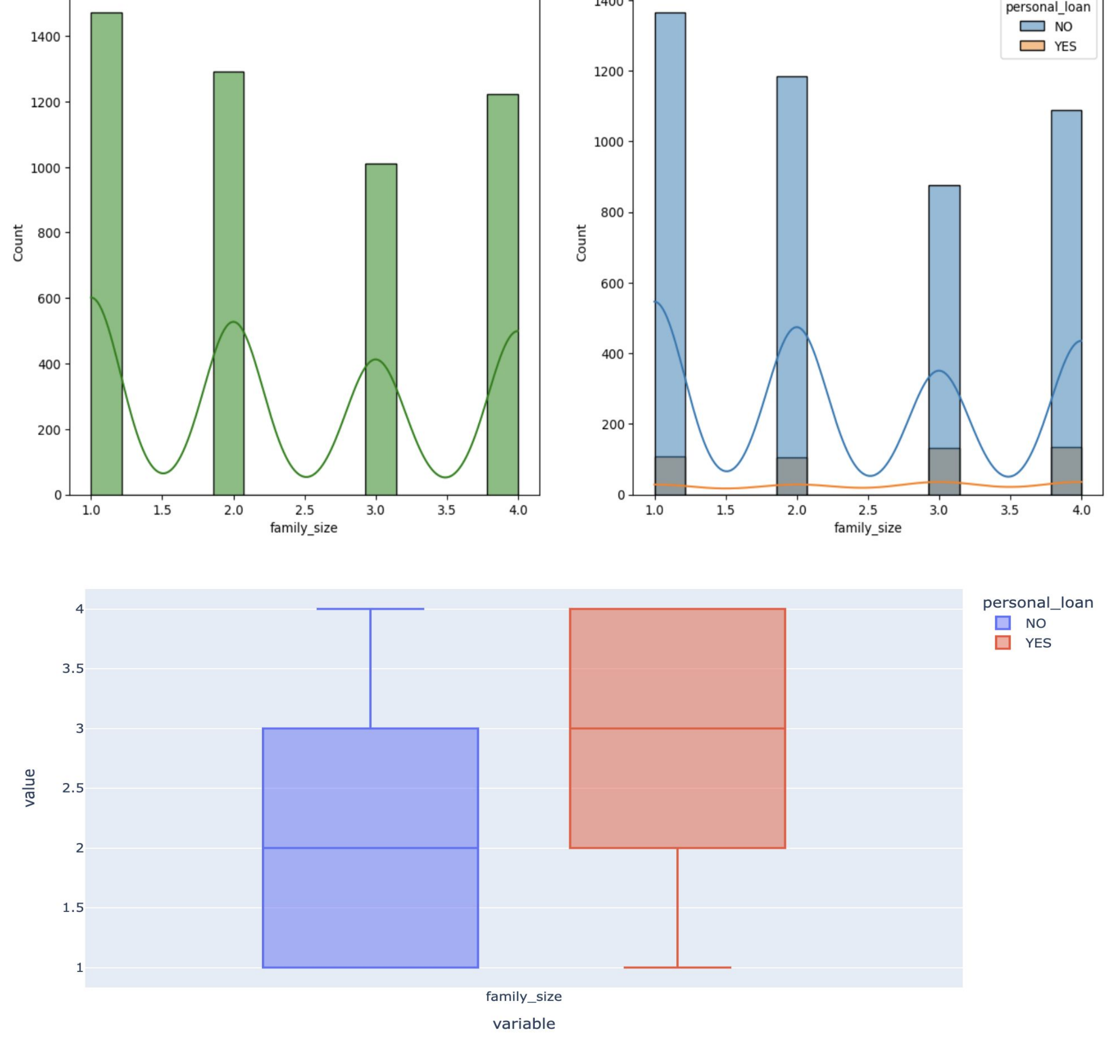




FAMILY SIZE

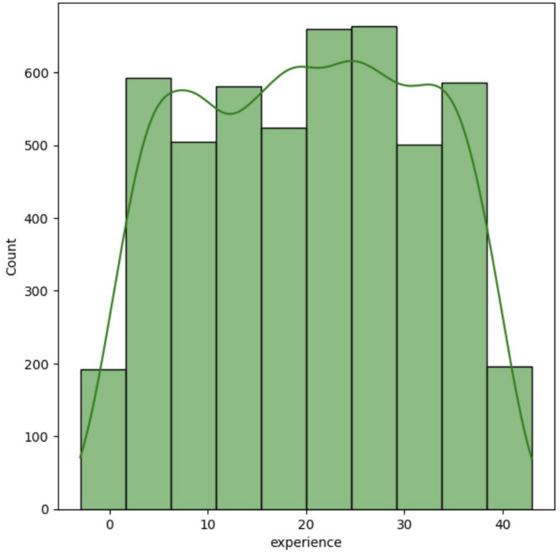
Box plot shows that there is a mild difference in distribution for personal loan acceptance or rejection

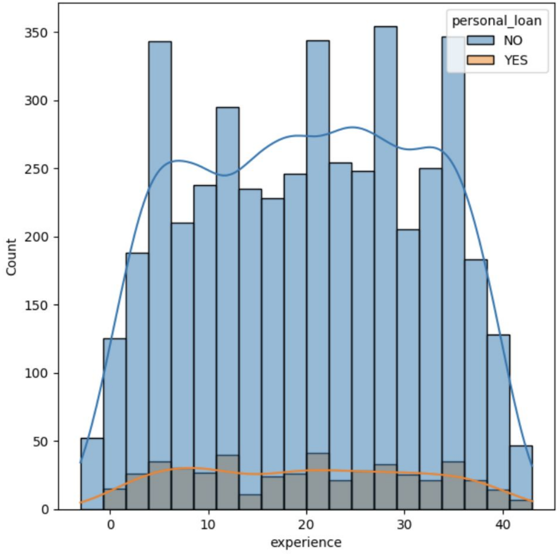
Clients with Family size ranging from 2-4 have higher chances of personal loan acceptance with median value 3 for personal loan acceptance



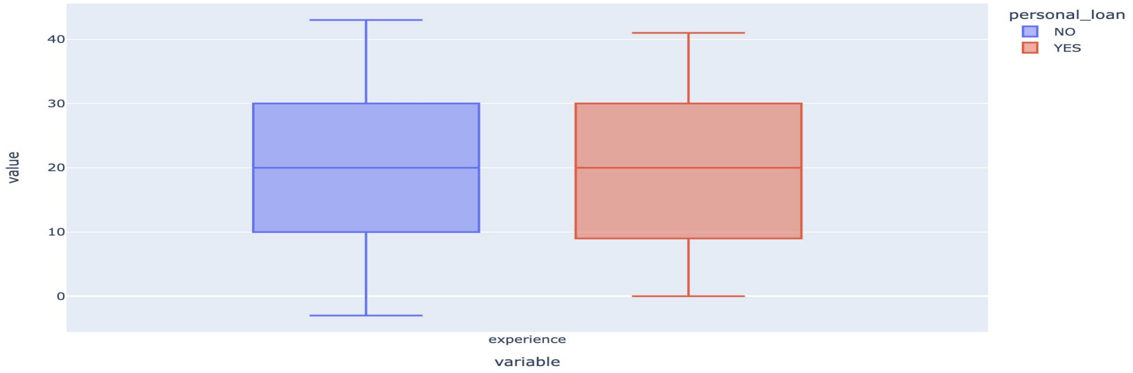
EXPERIENCE

Data distribution is normal





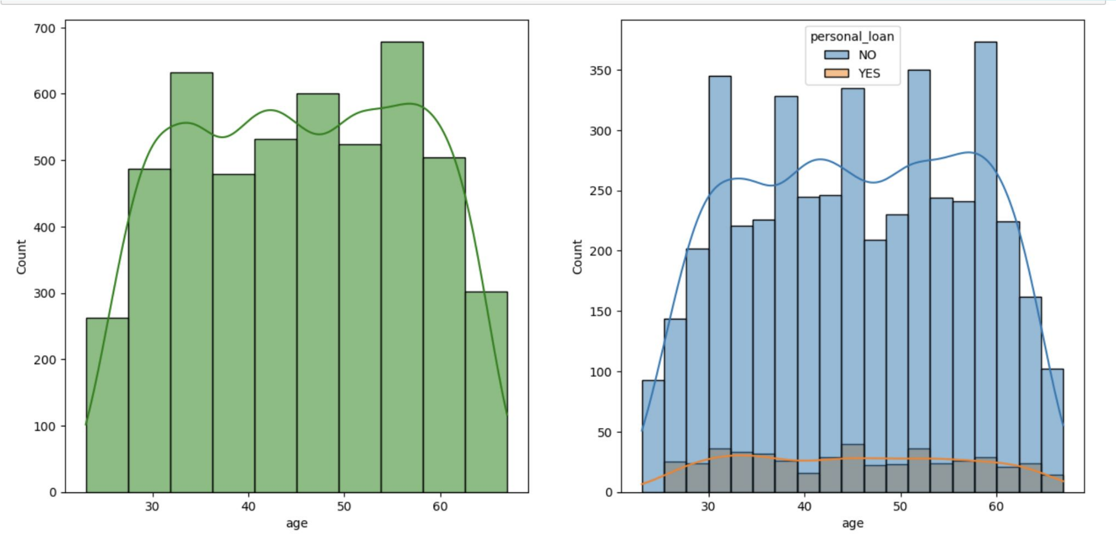
Box plot shows that there is hardly any difference in distribution for personal loan acceptance or rejection

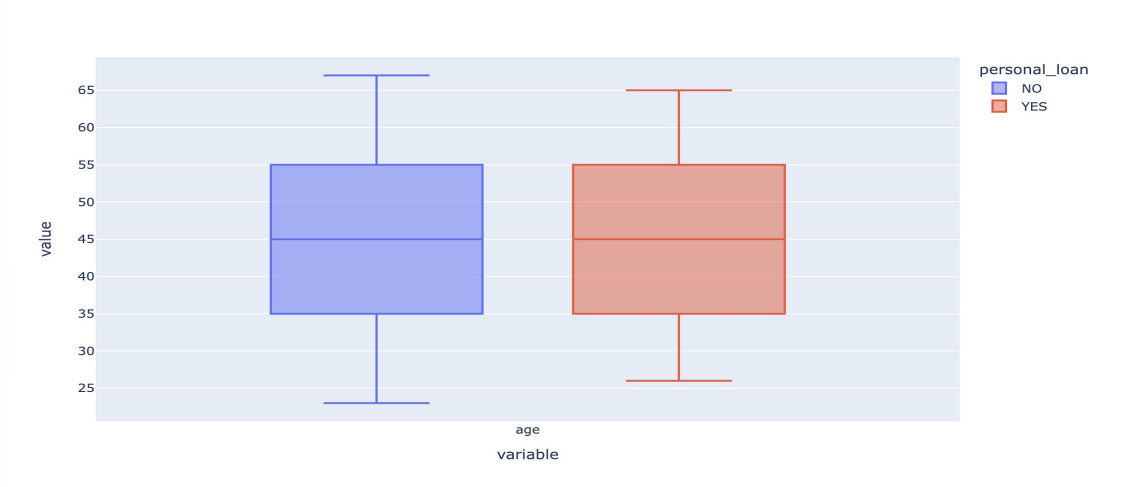


AGE

Data distribution is normal

Box plot shows that there is hardly difference in distribution for personal loan acceptance or rejection





Primary Target Audience

01

Income

Income ranging between 122k to 172k

02

Average Credit Card Spending

Credit card average spending ranging between 2.6k to 5.4k

03

Deposit Account

People with deposit account

PROCESS

01 EDA

Click here for Github repository and here Notebook for EDA

02 Feature Selection, Modelling

Click here for Notebook

03 End to end pipeline Scripts with web application

All the scripts are available in src folder of Github

04 Dockerfile

Dockerfile created for seamless deployment of project

02

Models Explored

MODELS & THEIR METRICS

I explored the following models with and without SMOTE oversampling . Models trained on SMOTE oversampled data performed better.

MODEL NAME	ROC AUC SCORE	PRECISION	RECALL	F1 SCORE	ACCURACY
Random Forest	0.963	0 0.99 1 0.90 macro avg 0.95 weighted avg 0.98	0 0.99 1 0.94 macro avg 0.96 weighted avg 0.98	0 0.99 1 0.92 macro avg 0.95 weighted avg 0.98	0.98
Gradient Boosting	0.969	0 0.99 1 0.95 macro avg 0.97 weighted avg 0.99	0 0.99 1 0.94 macro avg 0.97 weighted avg 0.99	0 0.99 1 0.94 macro avg 0.97 weighted avg 0.99	0.99
XGBClassifier	0.955	0 0.99 1 0.95 macro avg 0.97 weighted avg 0.99	0 0.99 1 0.92 macro avg 0.96 weighted avg 0.99	0 0.99 1 0.93 macro avg 0.96 weighted avg 0.99	0.99
KNeighborsClassifier	0.932	0 0.97 1 0.89 macro avg 0.94 weighted avg 0.98	0 0.99 1 0.88 macro avg 0.93 weighted avg 0.98	0 0.99 1 0.88 macro avg 0.94 weighted avg 0.8	0.98

03

Scripts & Web Application

SCRIPTS

data_ingestion.py

Script for reading data from source and ingesting data splits and model creation

data_transformation.py

Transform data using sklearn pipeline. Handle missing data, apply Scalar transformation

model_trainer.py

Trains models on different hyperparameters and saves the best model

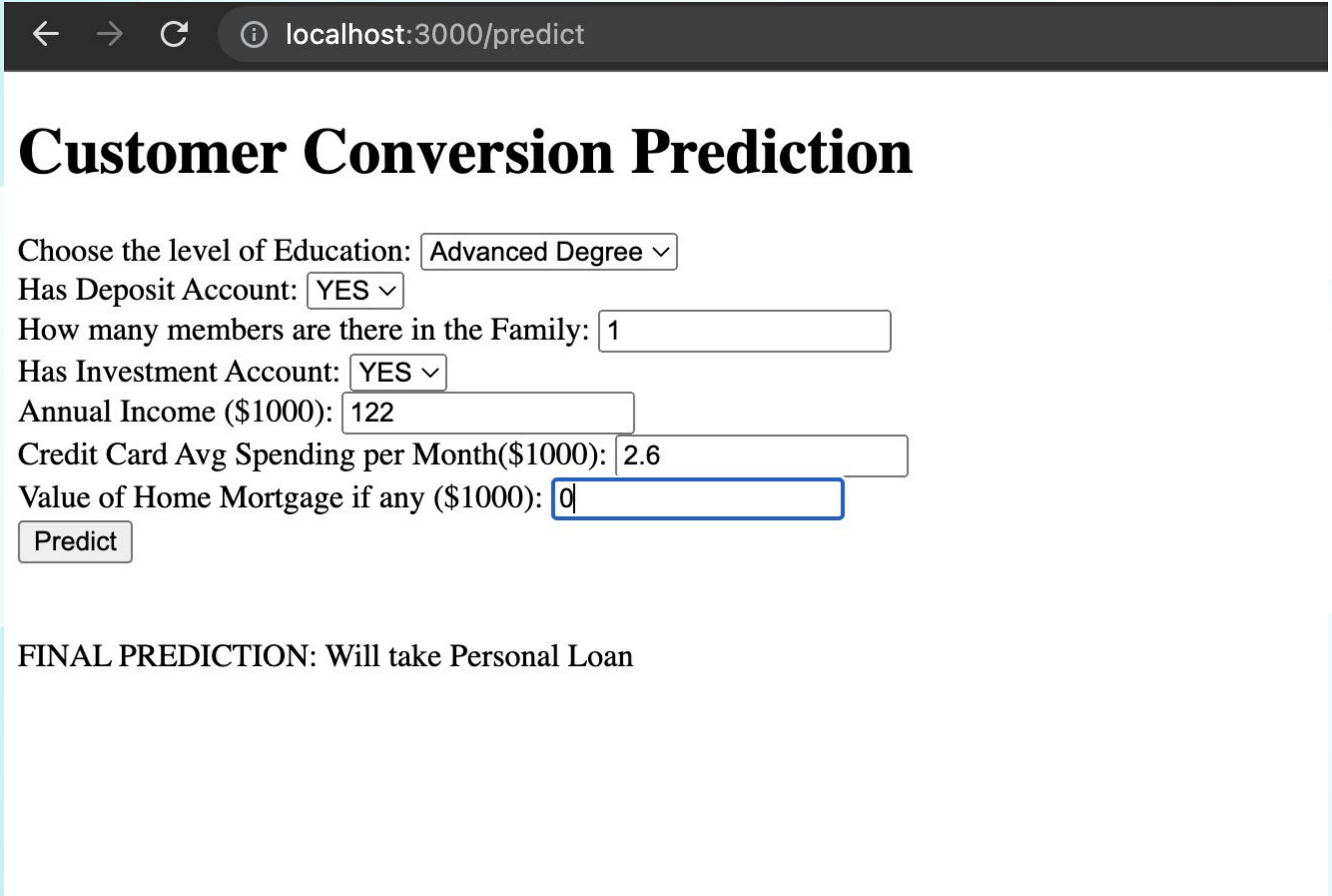
predict_pipeline.py

Performs prediction using saved model

app.py

Runs web application built on flask for prediction

Web Application



04

DockerFile

DOCKERFILE

Created a dockerfile to enable smooth deployment on any platform

You can run the dockerfile using the following command from root of the projects:

```
>>docker build -t customer_conversion .
>>docker run -p 3000:3000 customer_conversion
```

THANK YOU!

Do you have any questions?

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