Bank Personal Loan Campaign

- Project Introduction
- Problem Statement
- Data Observation & Understanding
- Conclusion

Bank Project

Bank wants to increase asset customers to bring in more loan business and earn more through the interest on loans. So, the bank wants to convert their liability based customers to personal loan customers. This data set is about a bank (Thera Bank) from Kaggle.

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Bank wants to improve the acquisition of customers to their personal loan scheme from current customer 5000 database.
Project Objective
Identifying and Defining the Problem
This report consists of the following:

The objective of the report is to build aand compare models which can classify the right customers who have a higher probability of purchasing the loan. Which segment should be targeted and visualise the performance of the models and find the best model.


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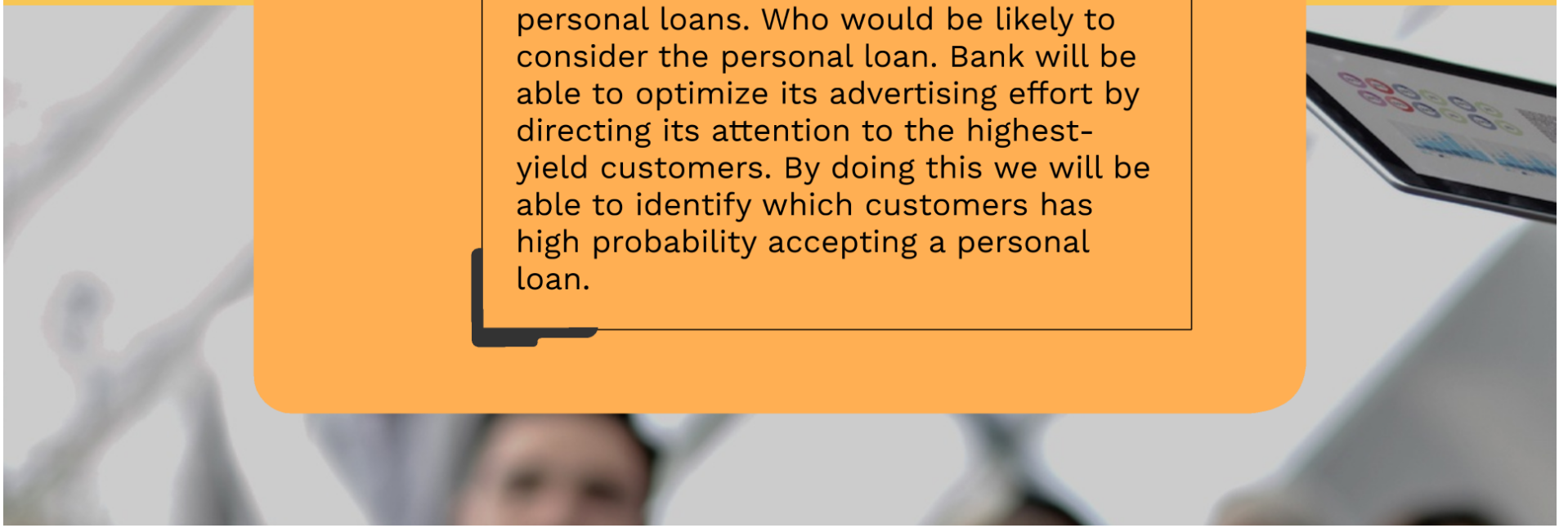
By defining the problem bank would know which customers to target for personal loans. Who would be likely to consider the personal loan. Bank will be able to optimize its advertising effort by directing its attention to the highest-yield customers. By doing this we will be able to identify which customers has high probability accepting a personal loan.

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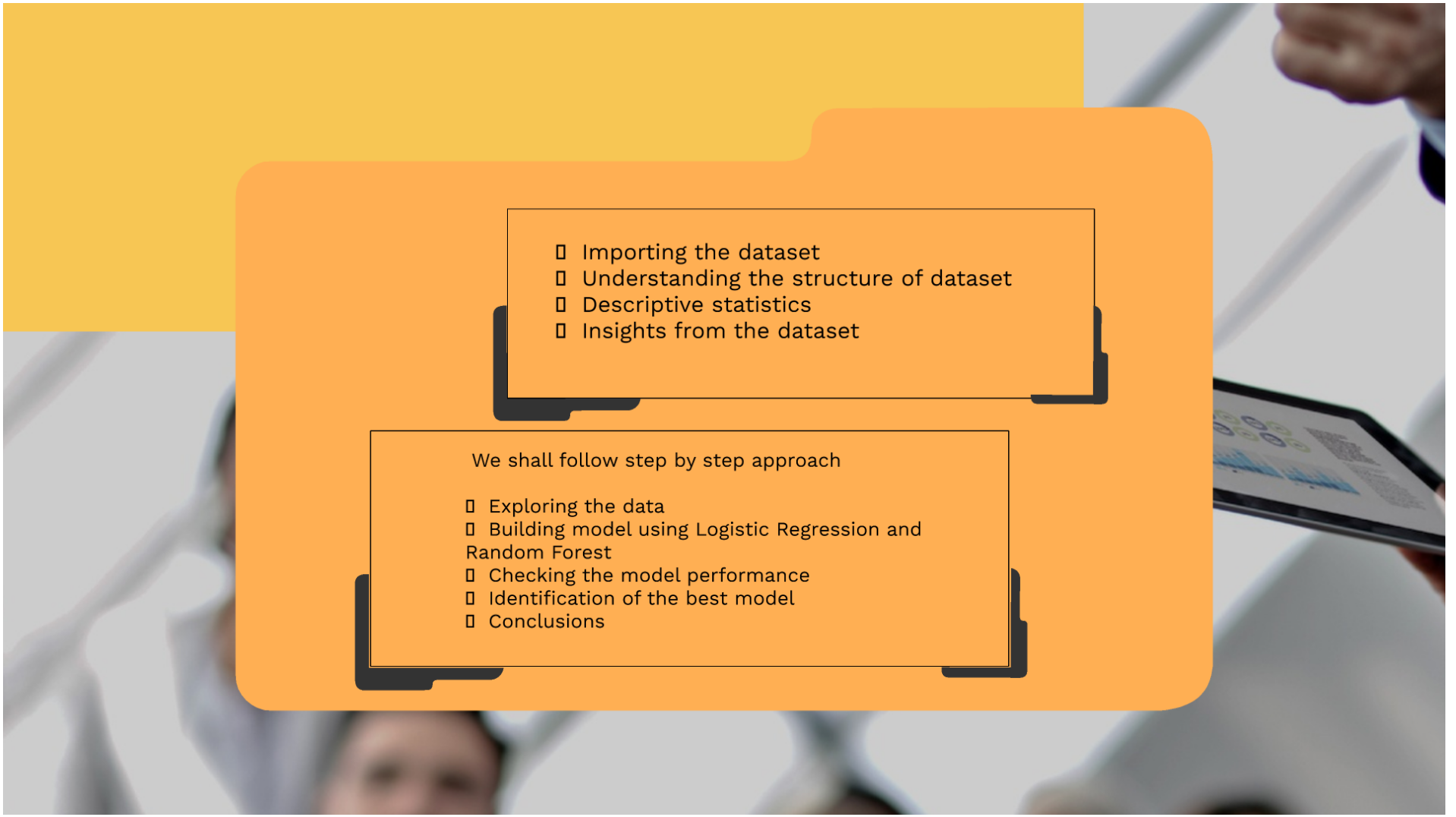
Importing the dataset
Understanding the structure of dataset
Descriptive statistics
Insights from the dataset
We shall follow step by step approach
Exploring the data
Building model using Logistic Regression and Random Forest
Checking the model performance
Identification of the best model
Conclusions


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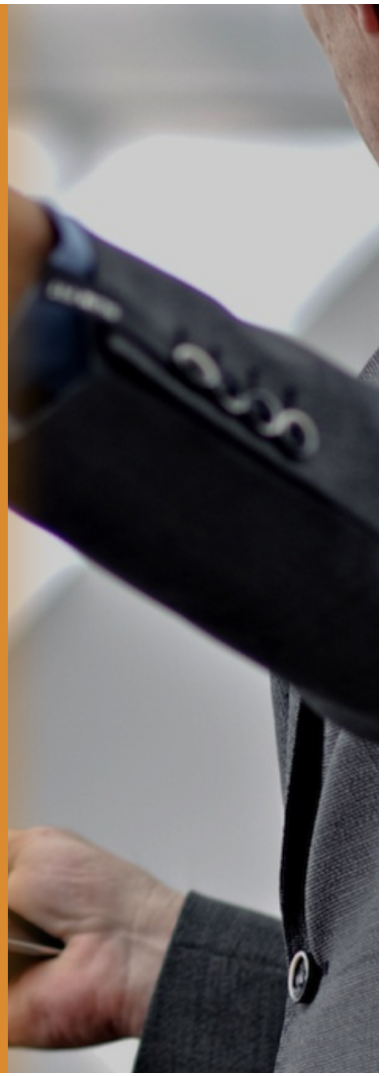
Observation

- There were No missing data
- Average Age is 45 years
- Experience have negative value of -3
- Most of the customer don't have a certificate of deposit (CD) account with the bank.
- Customers don't use a credit card 71%
- 59% of customers use online banking.
- 10% of the customer accepted the personal loan offered in the last campaign.
- Around 90% of the customer don't have a securities account with the bank.

Visual Heat Map

Age
Mean(45.33) and Median(45.00) are very close to each other
Experience
Mean(21.10) and Median(21) are very close to each other
Credit Card Average
Mean(1.93) is greater than the Median(1.5)
Income
Mean(73.77) is greater than the Median(64.0)



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Visual Heat Map


<matplotlib.axes._subplots.AxesSubplot at 0x7f5f35302650>
Age
Income
Family
CCAvg
Education
Mortgage
Personal Loan
Securities Account
CD Account
Online
CreditCard
1.0
0.8
0.6
0.4
0.2
0.0

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Conclusion

Here I used 2 classification models to compare
From the accuracy score it looks like Random classifier model had the highest accuracy.

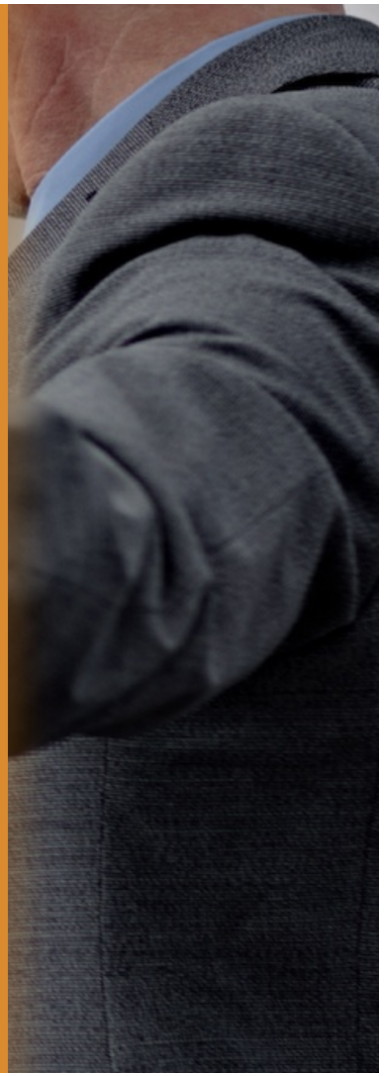
Random Forest Classifier

Logistic Regression

Random Forest Classifier

Training Data Score: 1.0
Testing Data Score: 0.982

	precision	recall	f1-score	support
0	0.98	1.00	0.99	1351
1	0.96	0.85	0.90	149
accuracy			0.98	1500
macro avg	0.97	0.92	0.95	1500
weighted avg	0.98	0.98	0.98	1500



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Random Forest Classifier

Logistic Regression

Logistic Regression

Training Data Score: 0.9531428571428572
Testing Data Score: 0.9486666666666667

	precision	recall	f1-score	support
0	0.99	0.96	0.97	1398
1	0.58	0.85	0.69	102
accuracy			0.95	1500
macro avg	0.79	0.90	0.83	1500
weighted avg	0.96	0.95	0.95	1500

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