Customer Churn

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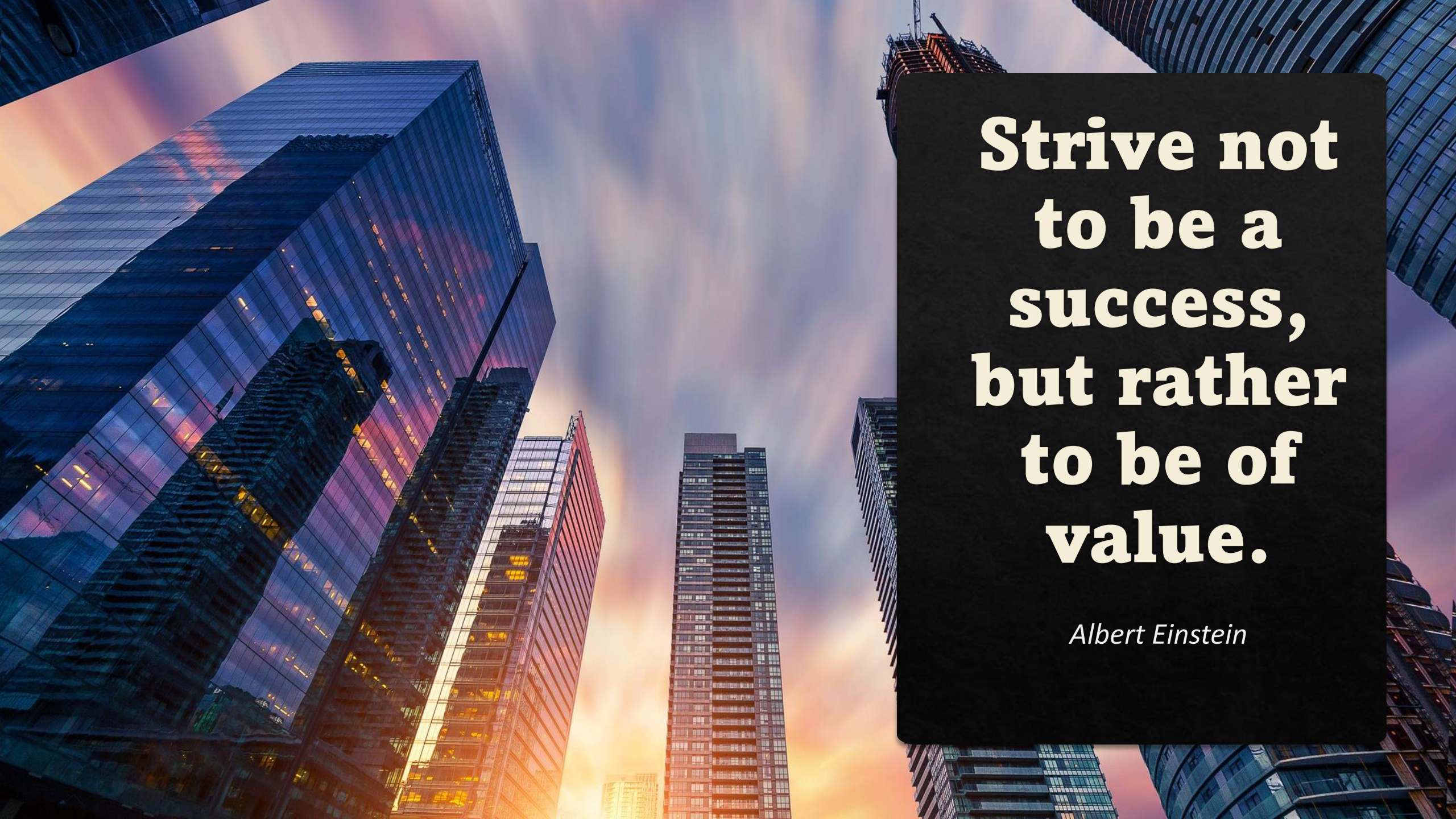
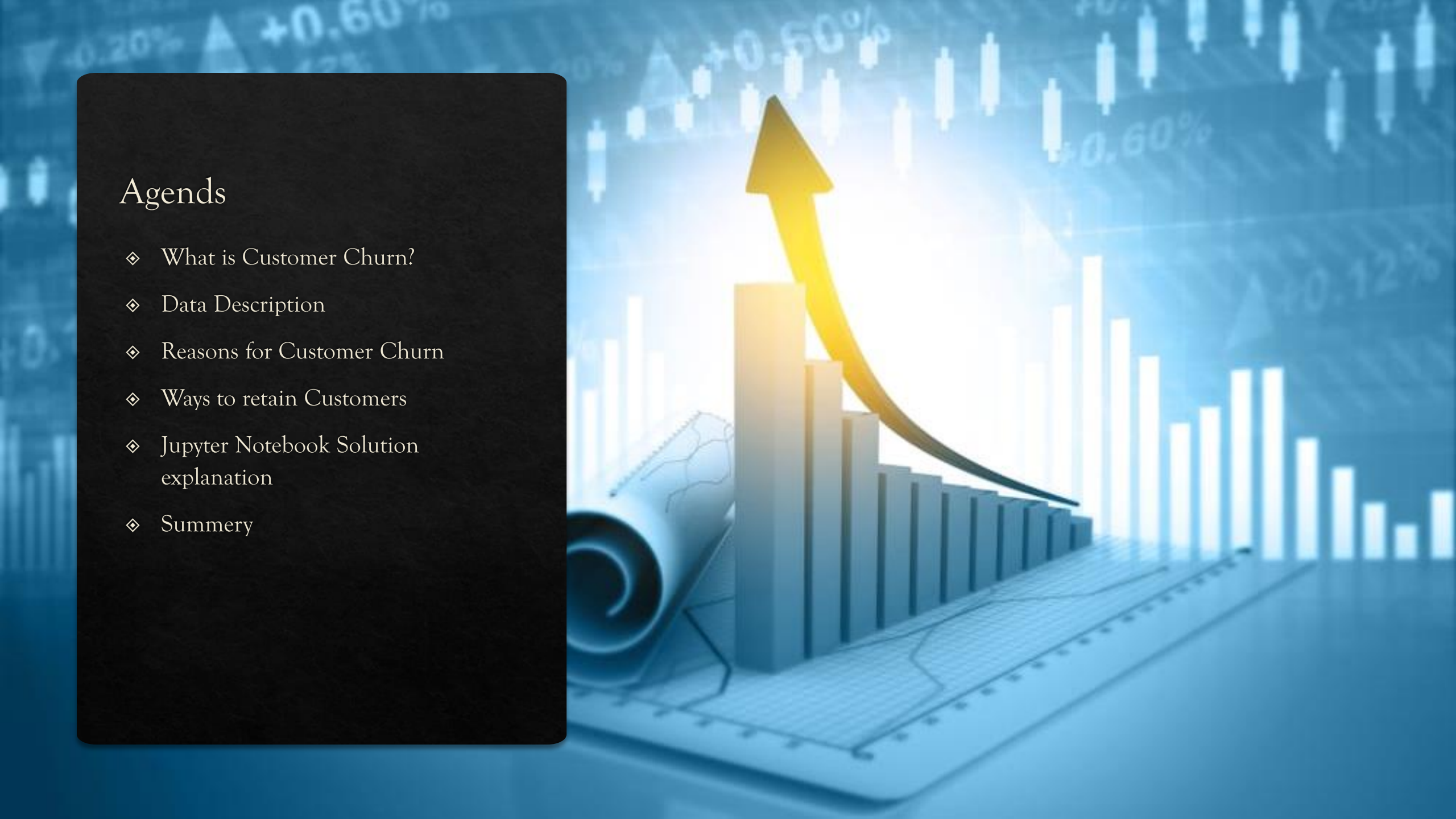

Strive not to be a success, but rather to be of value.
Albert Einstein

Agends

- What is Customer Churn?
- Data Description
- Reasons for Customer Churn
- Ways to retain Customers
- Jupyter Notebook Solution explanation
- Summery



Customer Churn

Customer churn is the percentage of customers that stopped using your company's product or service during a certain time frame.

- Decreasing the Customer Churn is a key goal for any business. Predicting Customer Churn (also known as Customer Attrition) represents an additional potential revenue source for any business. Customer Churn impacts the cost to the business. Higher Customer Churn leads to loss in revenue and the additional marketing costs involved with replacing those customers with new ones.
- In this challenge, as a data scientist of a bank, you are asked to analyze the past data and predict whether the customer will churn or not in the next 6 months. This would help the bank to have the right engagement with customers at the right time.

ID	Feature Name	Description of the feature
01	**ID**	Unique Identifier of a row
02	**Age**	Age of the customer
03	**Gender**	Gender of the customer (Male and Female)
04	**Income**	Yearly income of the customer
05	**Balance**	Average quarterly balance of the customer
06	**Vintage**	No. of years the customer is associated with bank
07	**Transaction_Status**	Whether the customer has done any transaction in the past 3 months or not
08	**Product_Holdings**	No. of product holdings with the bank
09	**Credit_Card**	Whether the customer has a credit card or not
10	**Credit_Category**	Category of a customer based on the credit score
11	**Is_Churn**	Whether the customer will churn in next 6 months or not

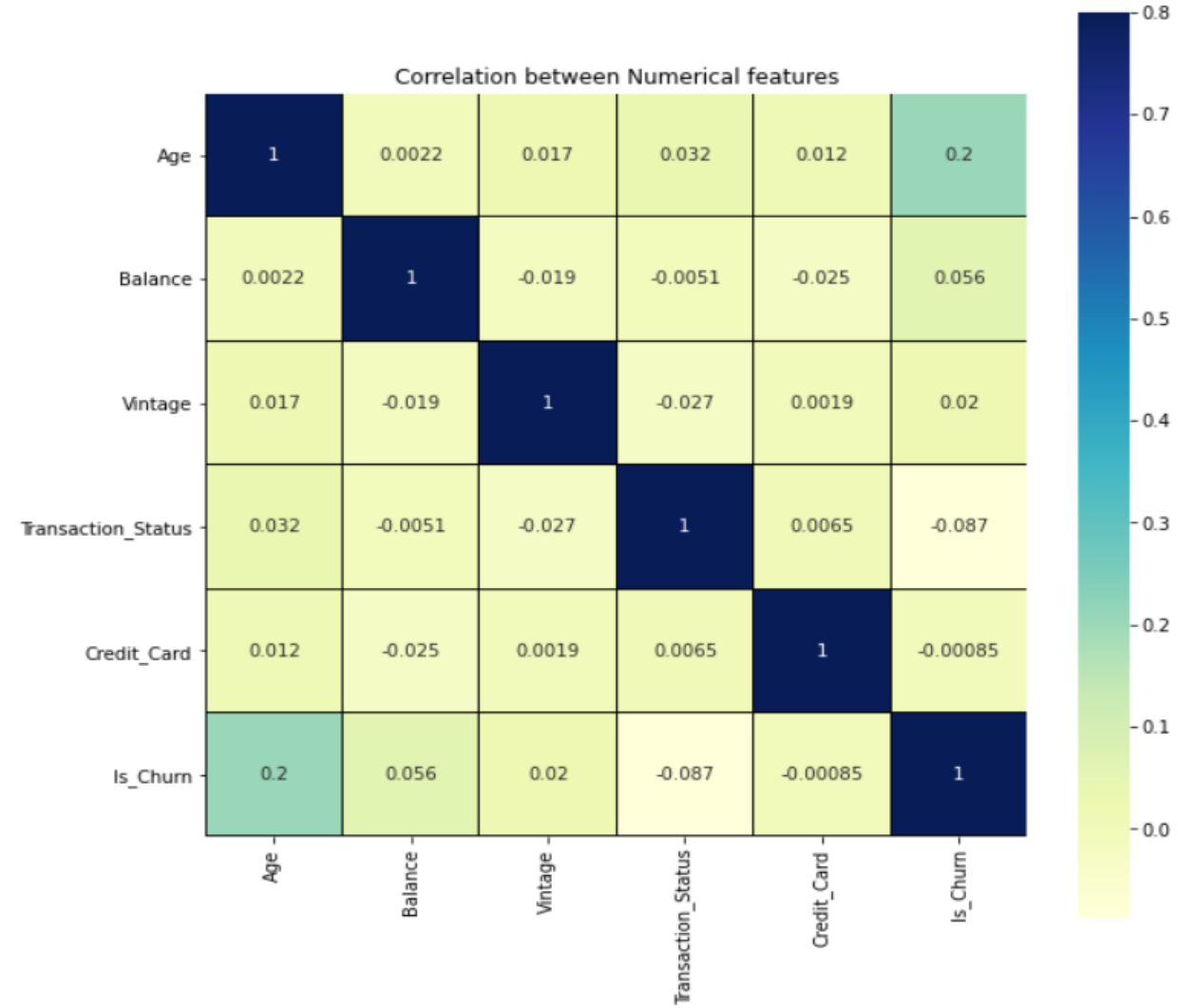
Heat Map

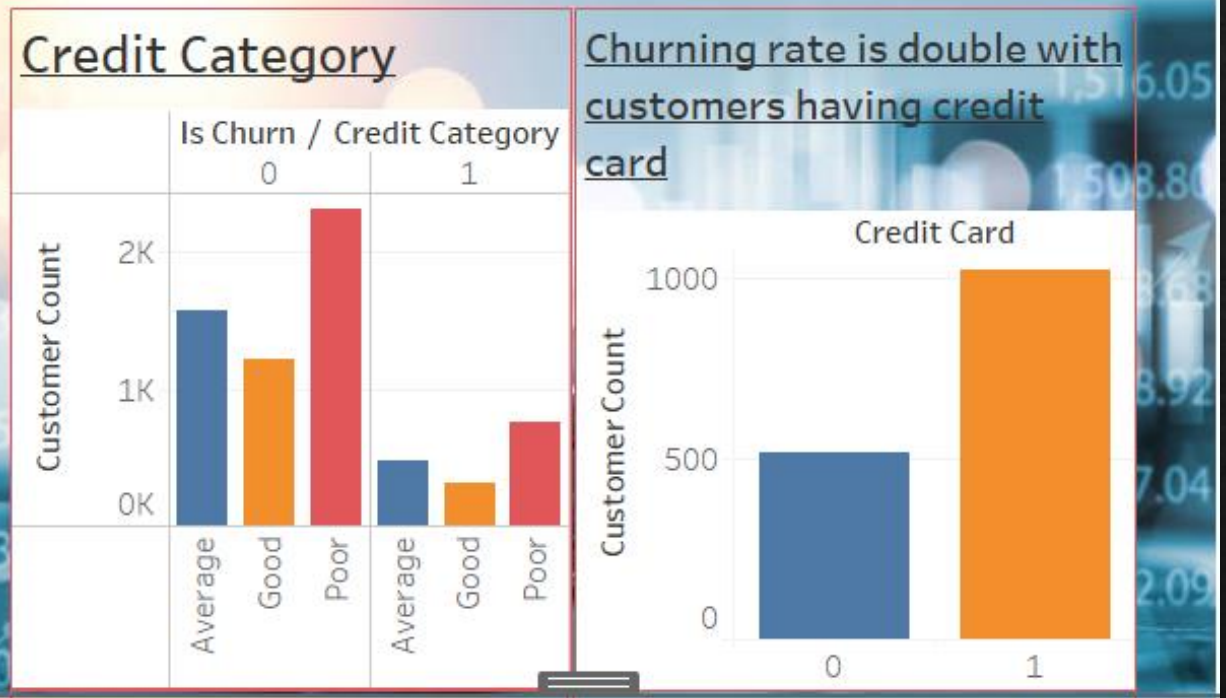
Positively correlated with Is_churn

- Age
- Balance
- Vintage

Negatively correlated with Is_churn

- Transaction Status
- Credit Card





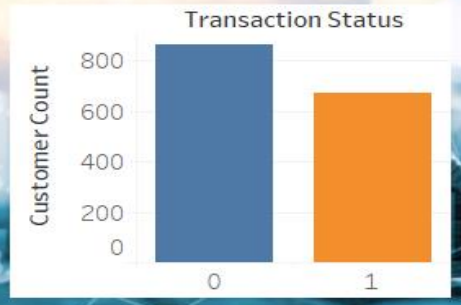
Reasons for Customer Churn

- Poor Credit Category
- Customer associated with the bank < 5 years
- Most of the customers have only max 2 product holdings
- Transaction status of a customer for last 3 months

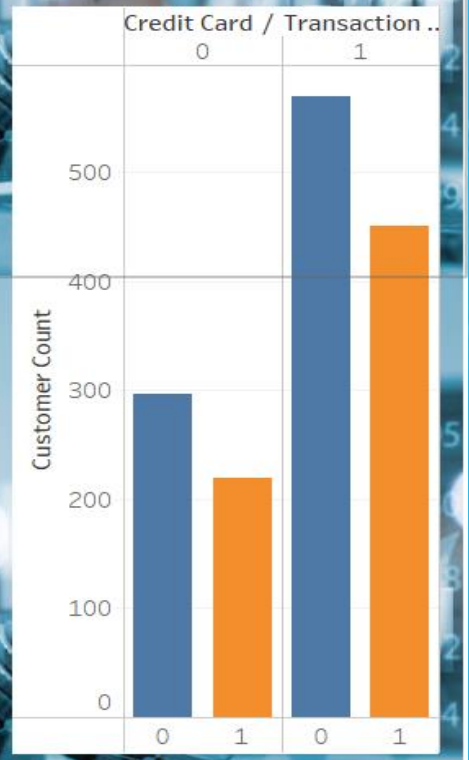
Transaction status and Credit cards

- Transaction status(TS) is whether the customer has done any transaction in last 3 months
  - TS is higher for customers who haven't done any transaction in last 3 months
- Customers with credit cards have high churn rate
  - Credit card expires every 3 years
  - Competitors provided better perks

Whether the customer has done transaction in last 3 months



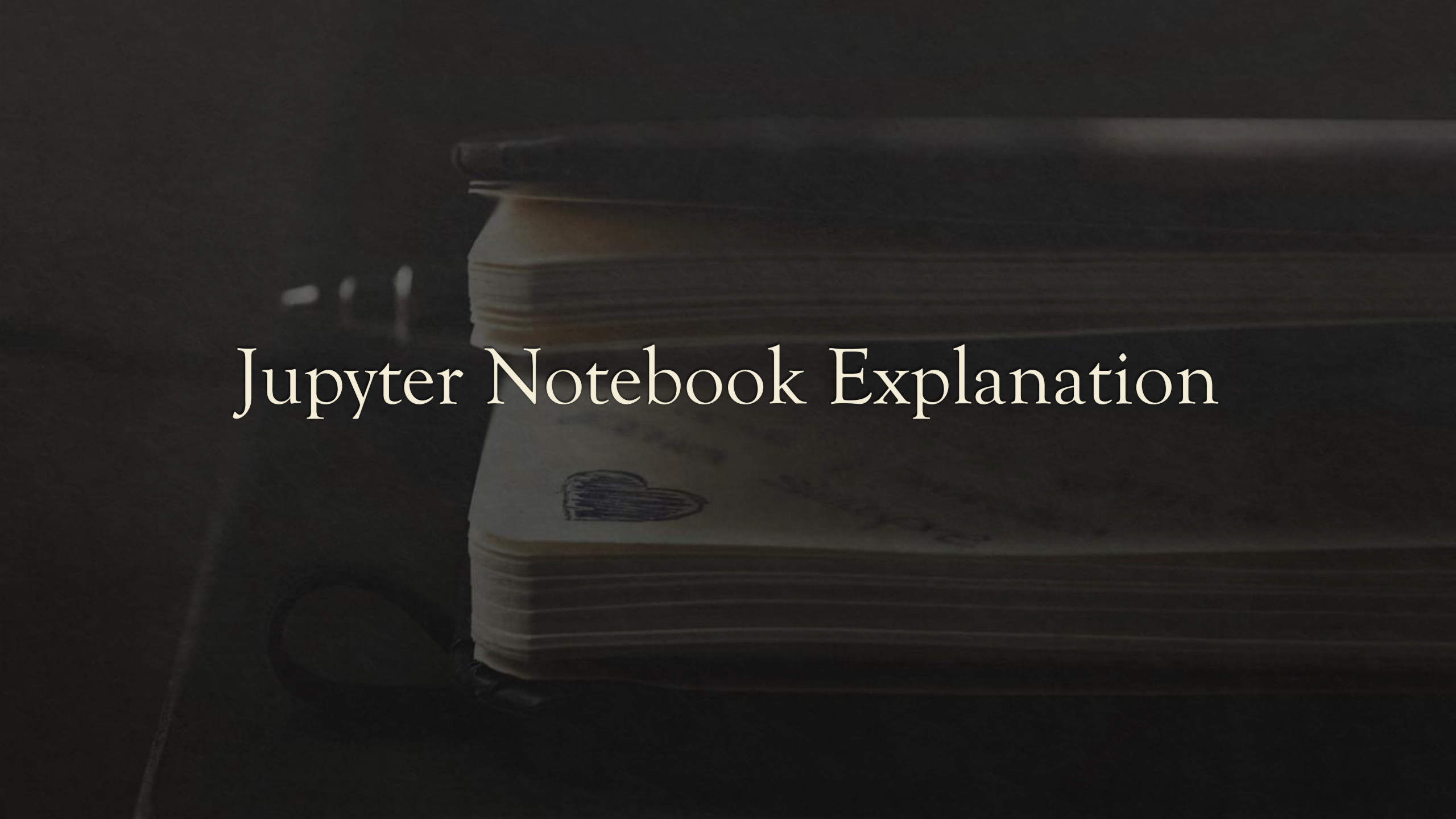
Transaction Status=0 and Credit card=1 is highest



Churning rate is double with customers having credit card

Ways of retaining customers

- Maximising Product holdings
- Your product is a tool to help them get faster success
- Add more features compared to your competitors
- Regular feedback driven customer service
- Competitive rates on long-term
- Higher profit investment vehicles
- Online and mobile experiences are smooth, easy, secure, and enjoyable


Jupyter Notebook Explanation

Data Processing

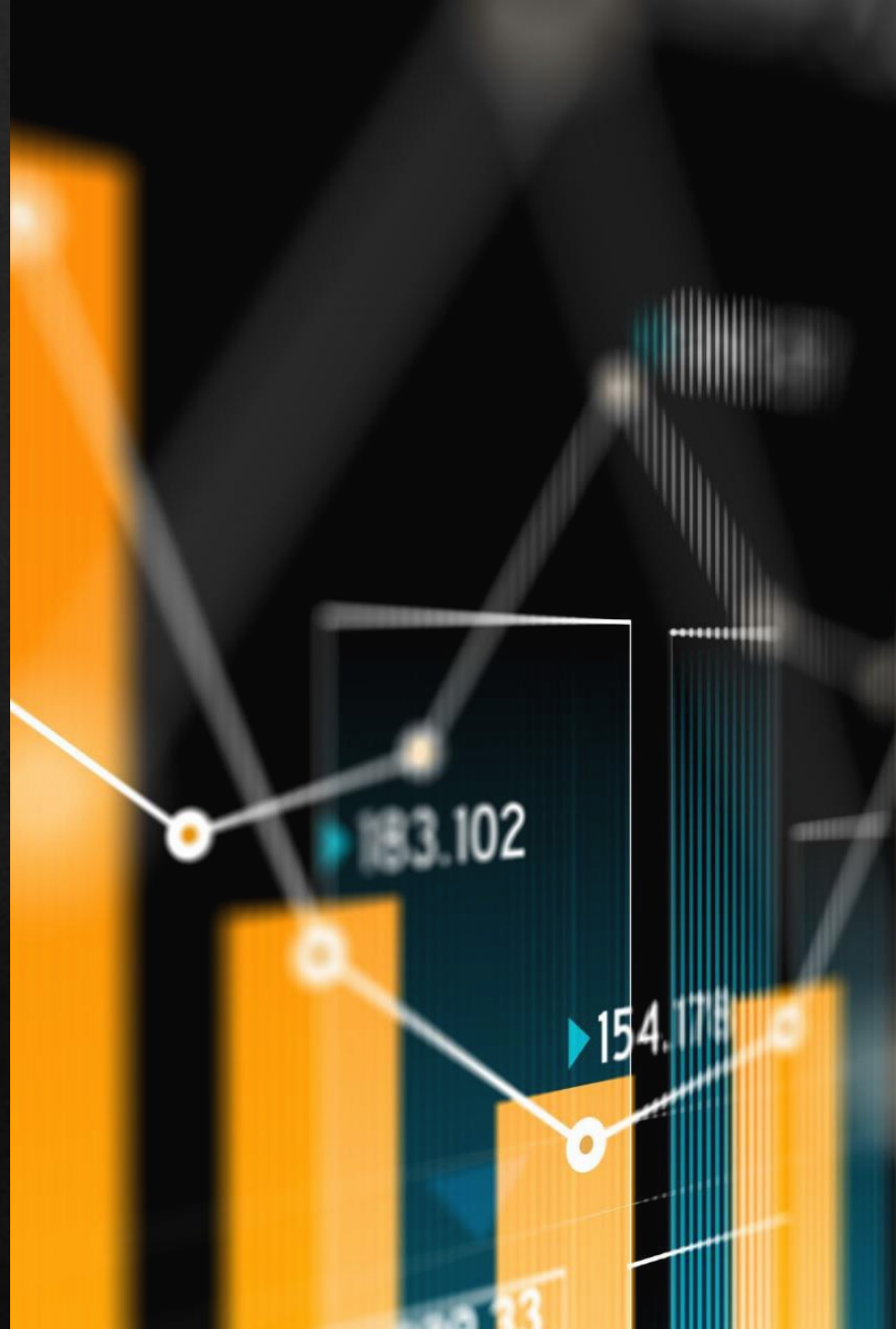
- One – Hot Encoding for Categorical fields
  - Gender
  - Income
  - Credit_Category
  - Product_Holdings

Data Modeling

- Algorithms tried and their macro F1 scores on training data:
  - Logistic Regression
  - DecisionTree : 0.47
  - GaussianNB: 0.43
  - Random Forest: 0.43
  - KNN: 0.46
  - **XGBClassifier: 0.51**

Conclusion

- XGBoost model was used for model evaluation and prediction as it gave the best macro F1 score
- Macro F1 Score was used to arrive at model evaluation which is required for this Project
- One-Hot Encoding using one hot encoder was used
- StandardScaler scaling provided best Macro F1 Score for this dataset as most of numeric feature did not have normal distribution and contains outliers



Summary

Customer churn issue is faced by all the banks

Now a days there a tough competition among all the banks

To have a upper hand banks need to:

- Regular feedbacks from the customers
- Retaining customers by issuing new credit cards before their expiration
- Giving the best features in the products and convincing customers to take more than 2 products
- Best online user experience

Thank you