

TELECOM CUSTOMER CHURN

ANALYSIS & PREDICTION



CONTENT

- **PROJECT OVERVIEW**
- **DATA PREPARATION & EDA**
- **MODEL DEVELOPMENT**
- **ANALYSIS INSIGHT IN POWER BI**
- **WEB APP PREDICTION**
- **SUMMARY**
- **FUTURE APPROACH**
- **Q&A**



PROJECT OVERVIEW

Objectives



Developing Customer
360 degree
(Root Causes)



Building Churn
Prediction Model

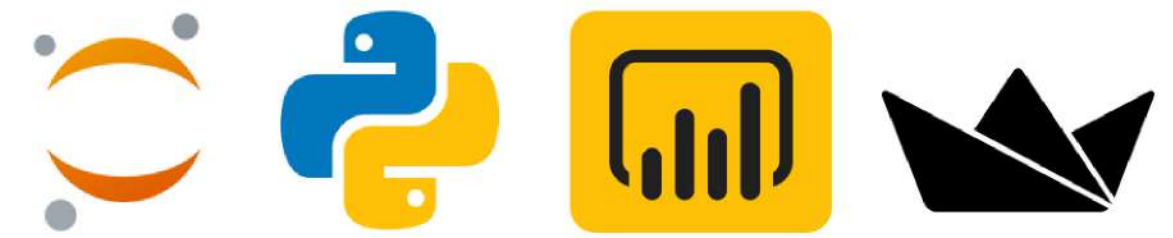


Generate Target lists
for Campaigns
(Optimized Revenues)

Approach:

- Finding Churn Root Causes and Customer Segmentation using Power BI and Python
- Building Machine Learning Prediction Model (Gradient Boost, Random Forest, Decision Tree, Principal Component Analysis, Grid Search CV, SMOTEENN, Joblib & Streamlit)
- Making recommendations and generating new strategy campaigns based on customer personas and targeted customers

All Tools use:



DATA SOURCE & PREPARATION



Load Data

- [IBM Sample Data Sets]:
WA_Fn-UseC_-Telco-
Customer-Churn Data
- Customers who left within
the last month



Analyze Original Data

- Correlation data
- Unnecessary data



Clean Data

- Duplicate handling
- Data Missing handling
- Null data handling



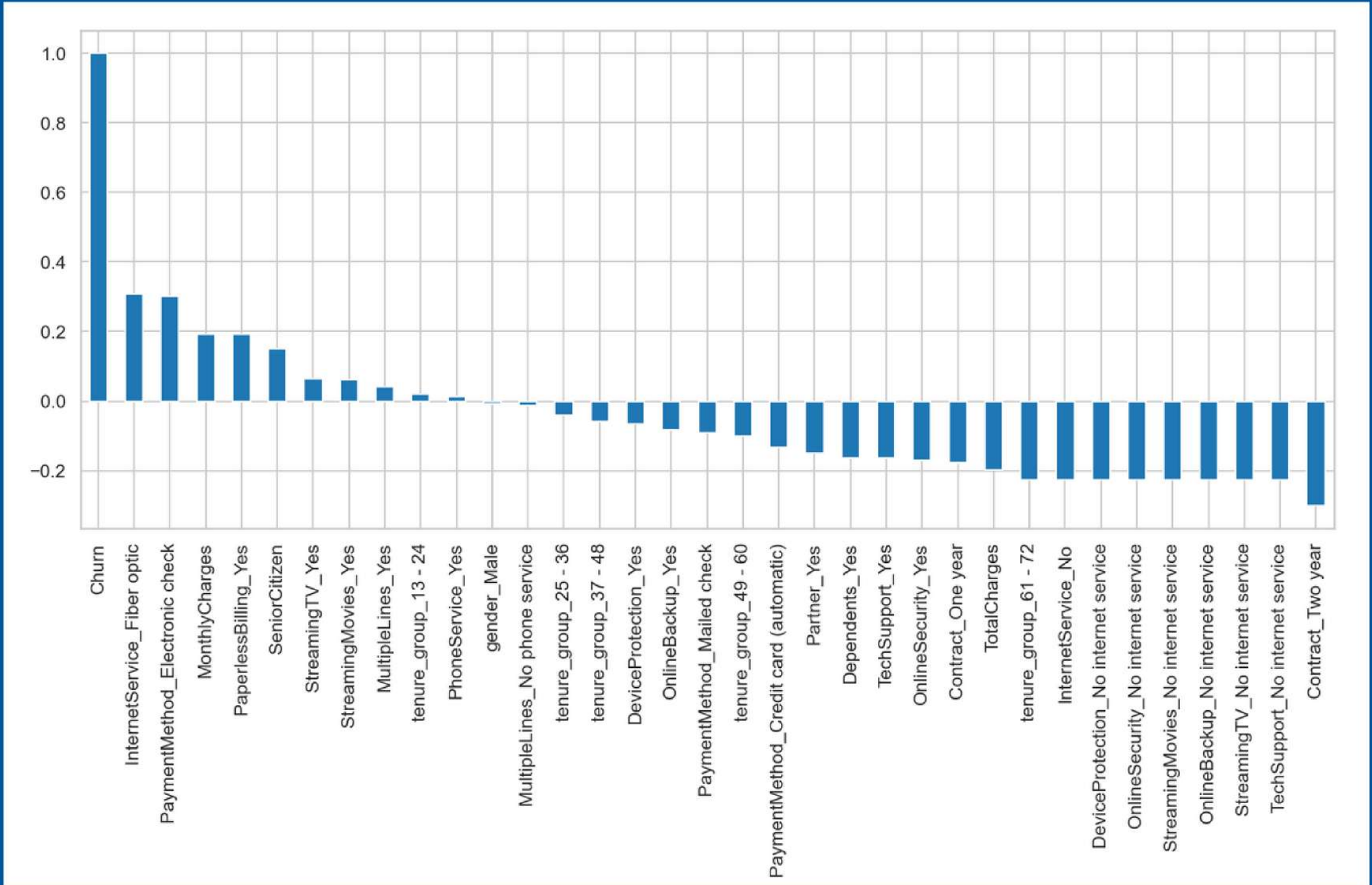
Analyze Cleaned Data

- Feature Engineering
- Best Independent
Variables

This process tools:



EXPLORATORY DATA ANALYSIS (EDA)



HIGH Churn is seen in the case of

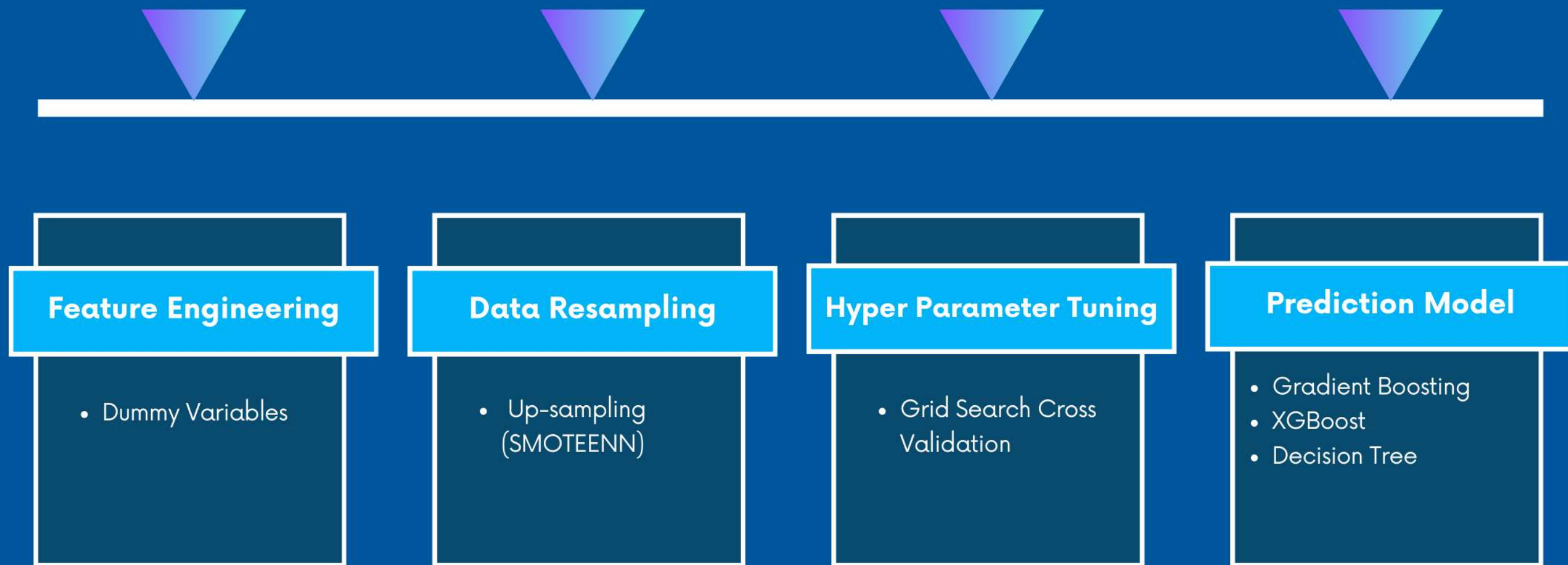
- **Month-to-month contracts**
- **No online security**
- **No Tech support,**
- **Non-senior citizen**
- **First year of subscription**
- and **Fiber Optics Internet**

LOW Churn is seen in case of

- **Long-term contracts,**
- **Subscriptions without internet service**
- and **The customers engaged for 5+ years**

Factors like **Gender, Availability of PhoneService** and **# of multiple lines** have almost **NO** impact on Churn

MODEL DEVELOPMENT





TELECOM CUSTOMER CHURN

ANALYSIS & PREDICTION



TELECOM
CUSTOMER CHURN ANALYSIS

CUSTOMER ID
0002-ORFBO

0.00
Churn Index

\$593.30
Total Charges

Non risky
Risk Level

Personal Details

ID : 0002

Gender : Female

Other Details

Senior Citizen: No

Tenure in the company (Months): 9

Phone Service

Device Protection: No

Online Security: No

Paperless Billing: Yes

DSL: Yes

Internet Service: Yes

Contract

Yearly

Contract Type: Yearly

Mailed check

Payment Method: Mailed check

SUMMARY


CUSTOMER DETAILS

CHURN REASON

Q&A

TELECOM

CUSTOMER CHURN ANALYSIS



DASHBOARD

- SUMMARY
- CUSTOMER DETAILS
- CHURN REASON
- Q&A

MONTHLY CHARGE (AVG)

64.76

TENURE

100%

INTERNET

2.283

CONTRACT

7043

CUSTOMER PROFILE

DEMOGRAPHIC

3.49K (49.52%)

3.56K (50.48%)

SENIOR CITIZEN

1142

PARTNER

3.6K Yes, 3.4K No

PHONE SERVICE

Yes 6.4K, No 0.7K

MONTHLY CHARGE (AVG)

74.44

TENURE

100%

INTERNET

0.46K (24.5...)

CONTRACT

0.17K (8...)

DEMOGRAPHIC

930 (49.76%)

939 (50.24%)

SENIOR CITIZEN

476

PARTNER

1.2K Yes, 0.7K No

PHONE SERVICE

Yes 1.7K, No 0.2K

MONTHLY CHARGE (AVG)

74.44

TENURE

100%

INTERNET

1.3K (69...)

CONTRACT

0.17K (8...)

DEMOGRAPHIC

3.49K (49.52%)

3.56K (50.48%)

SENIOR CITIZEN

1142

PARTNER

3.6K Yes, 3.4K No

PHONE SERVICE

Yes 6.4K, No 0.7K

MONTHLY CHARGE (AVG)

74.44

TENURE

100%

INTERNET

0.46K (24.5...)

CONTRACT

0.17K (8...)

TELECOM

CUSTOMER CHURN ANALYSIS

SUMMARY

CUSTOMER DETAILS

CHURN REASON

Q&A

113

Risky Customers

36.55

Average Risk Score

\$221.12K

Total Charges of risky custo...

\$16.06M

Total Charges

Prediction by risk group

Risk Group	Number of Customers
Non risky	4.4K
Very high risky	2.5K
Low risky	0.1K
High risky	0.1K
Risky	0.1K

Avg Total Charges by risk group by Risk

Risk Group	Avg Total Charges
Non risky	10.4M
Very high risky	5.2M
Low risky	0.2M
High risky	0.1M
Risky	0.1M

09 | 18





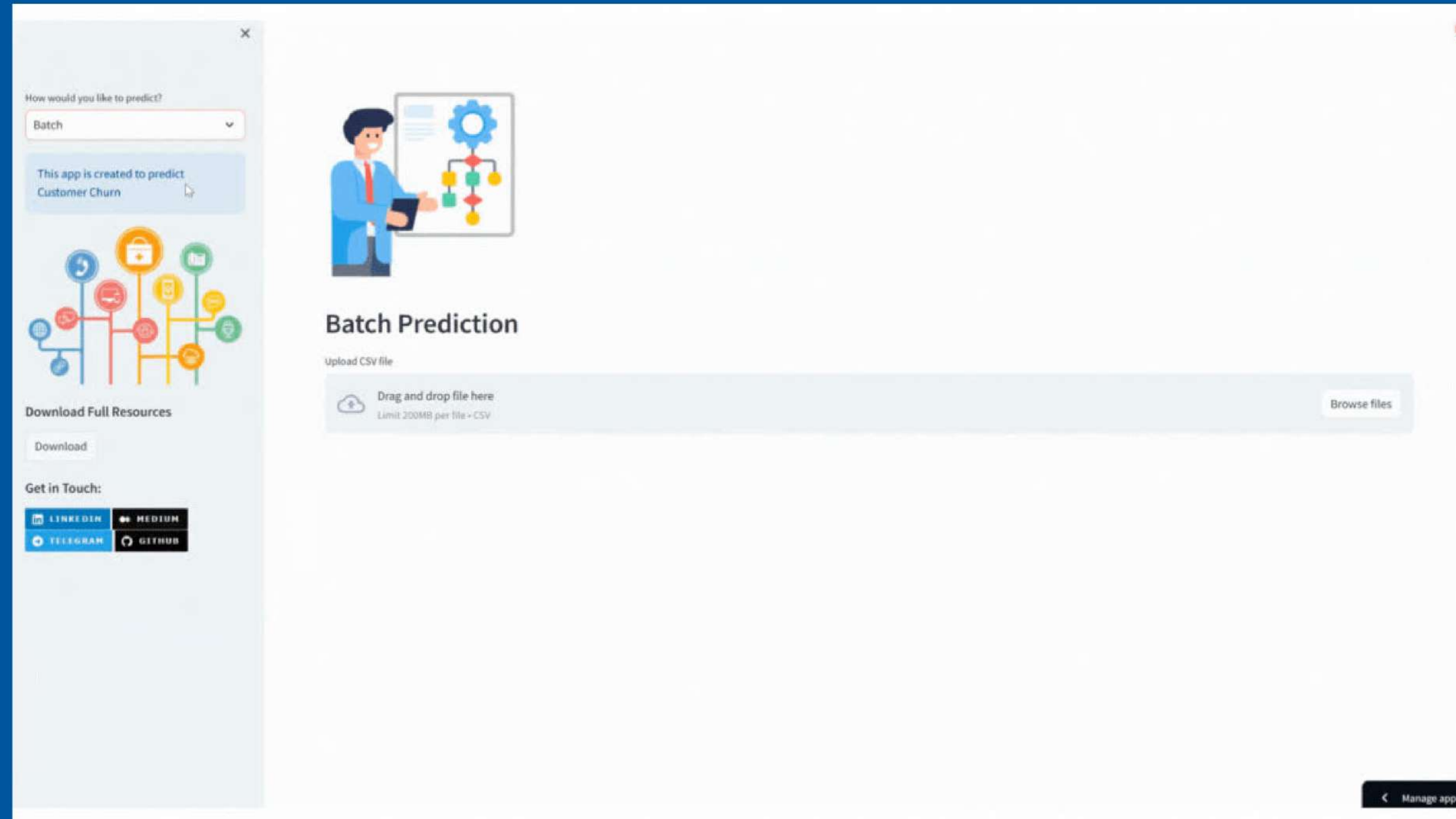
Reasons of **HIGH** Churn

- **Electronic check medium**
- **Month-to-month contracts**
- **No online security**
- **No Tech support**
- **Non-senior citizen**
- **The first year of subscription**
- and **Fiber Optics Internet**



TELECOM CUSTOMER CHURN

ANALYSIS & PREDICTION



- Using 7 independent variables
- The model used: Gradient Boosting Classifier
- Joblib & Streamlit

This process tools:



FEEL FREE TO DM ME!

 **EMAIL**

 **LINKEDIN**

 **TELEGRAM**