

CUSTOMER CHURN & CHARGE PREDICTION



By,
ANU SASIDHARAN

OVERVIEW

DESCRIPTION

- Churn prediction detecting customers who are likely to cancel a subscription to a service.
- Churn is a problem for telecom companies because it is more expensive to acquire a new customer than to keep your existing one from leaving.
- Here, IBM provided customer data for Telco industry to predict behavior of the customers. Main objective is that to analyze customer behaviors and develop strategies for customer retention.

OVERVIEW

DATA DICTIONARY

- ❖ **Demographic**

- ❖ **Services**

- ❖ **Account type**

- ❖ **Usage**

- Monthly charges

- Total charges

- ❖ **Target**

- Churn - Whether customer left the company or still with the company?

PROJECT OBJECTIVE

- ❖ To predict Customer churn
- ❖ Factor Affecting Customer Churn
- ❖ What's the amount to be paid by the customer as total charge ?

METHODOLOGY

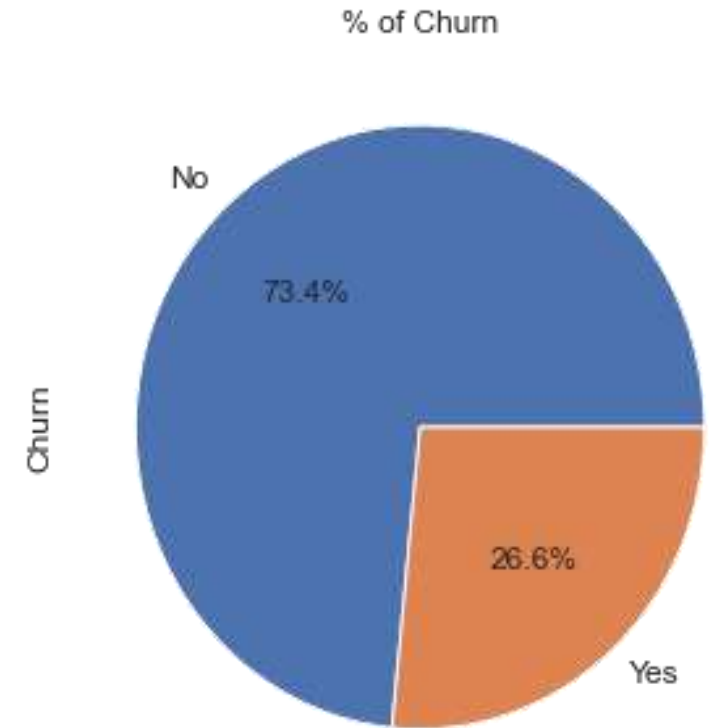
- ❖ Identify Problem Statements.
- ❖ Data Collection
- ❖ Exploratory Data Analysis
- ❖ Feature Engineering
- ❖ Handling Imbalance Data
- ❖ Model Selection & Feature Selection
- ❖ Create and Deploy App

FINDINGS

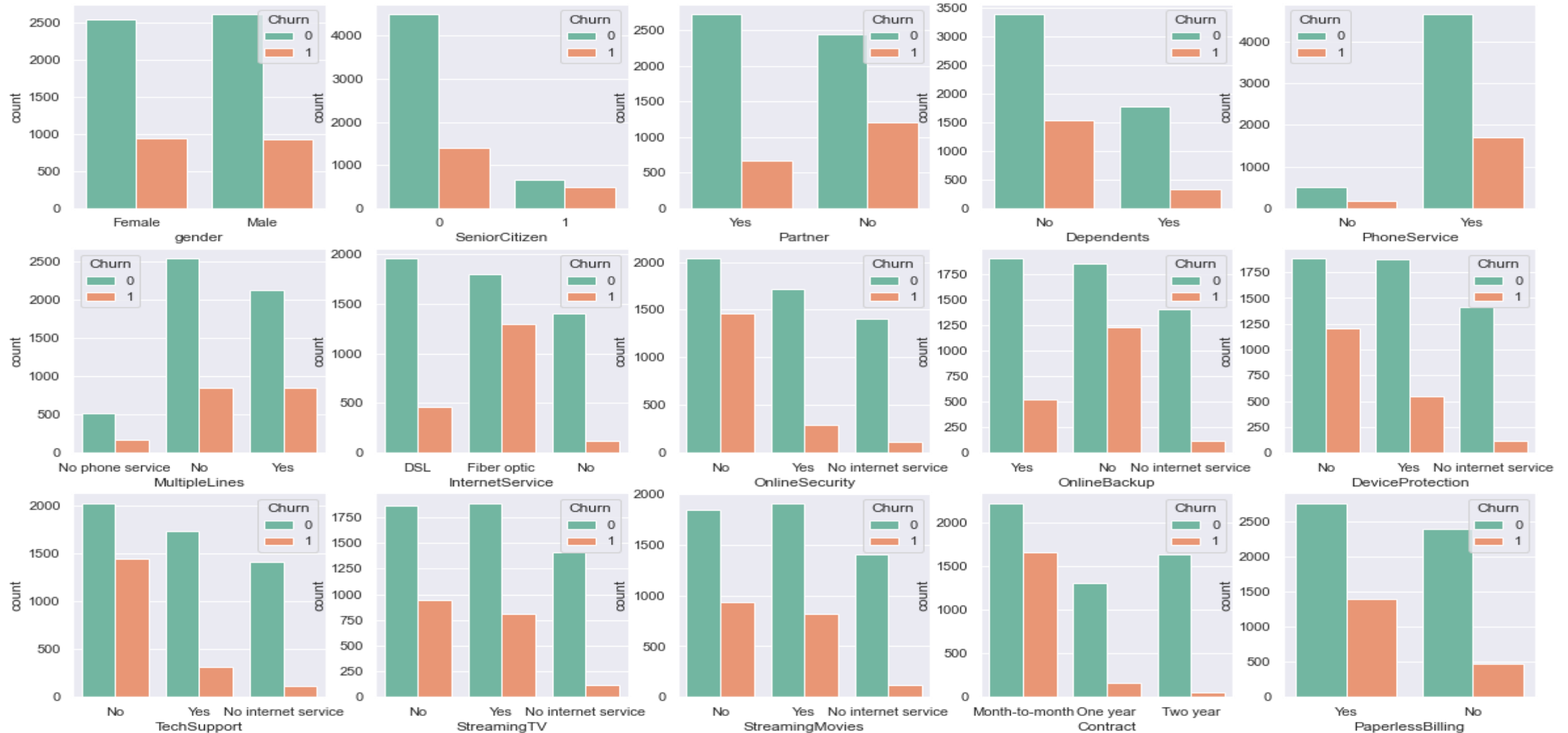
- Telecom company's churn rate is around 26%,
Meaning around 26% of the subscribers from total
left the company during given interval.

- From boxplot

75% of churners pay between 60 and 100 dollars a month
One important mark we can see in this plots that 50% of
Churners leave the company before the first year goes by.



FINDINGS

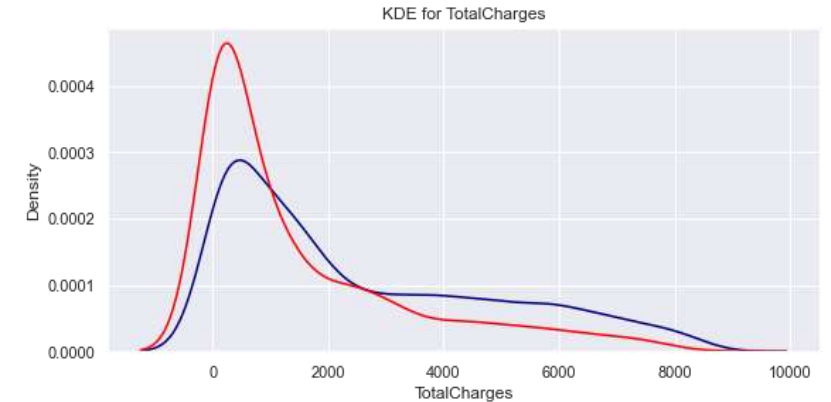
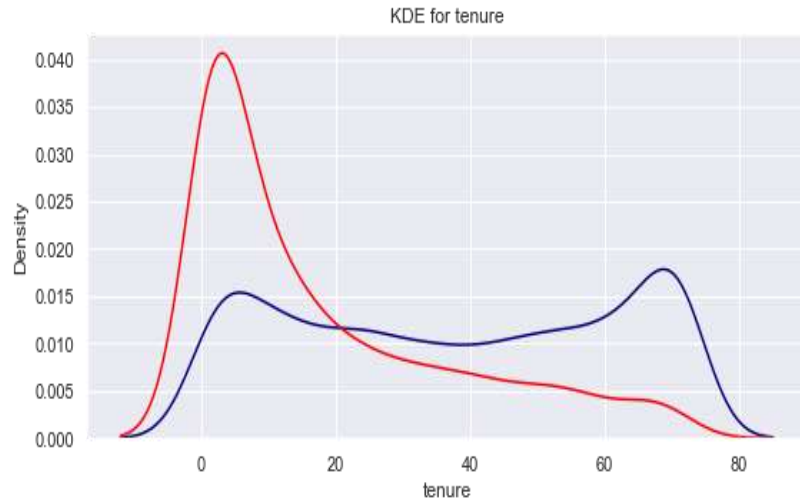


FINDINGS

From analysis, **churn customers** are likely to

- ❖ not have partners and Dependents; Means likely to be Single
- ❖ have Internet service and specifically Fiber optics
- ❖ not have online security service, online backup service, device protection service, Tech support service
- ❖ have streaming TV and streaming Movies services
- ❖ be with monthly based contract
- ❖ have paperless billing service
- ❖ have electronic check payment method

FINDINGS

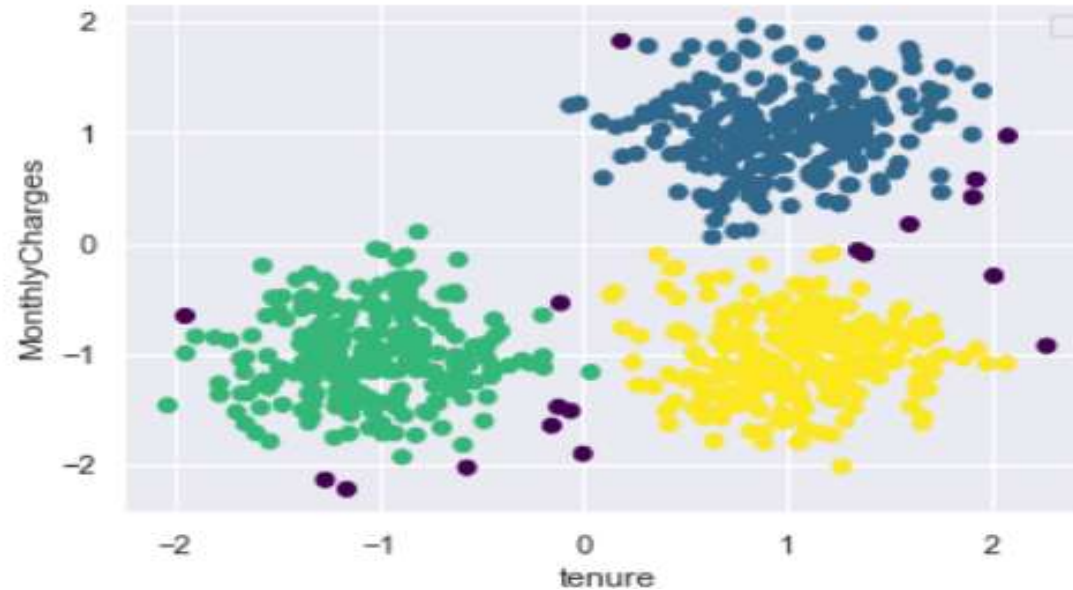


From the plots above we can conclude that:

- 1.Recent clients are more likely to churn. - more likely to leave company who's tenure is less than a year**
- 2.Clients with higher Monthly Charges are also more likely to churn.- more likely to have more than \$65 monthly charges**
- 3.Tenure and Monthly Charges are probably important features.**

FINDINGS

- Relationship between Tenure and Monthly Charges.



- Based on DBSCAN cluster graph, we can see that there are three groups.
 1. Low Tenure and Low Monthly Charges (Green cluster)
 2. High Tenure and Low Monthly Charges (Yellow cluster)
 3. High Tenure and High Monthly Charges (Blue cluster)

FLASK DEMO

Churn Prediction

127.0.0.1:5000

127.0.0.1:5000

Telecom_Churn_Prediction

gender

SeniorCitizen

Partner

Dependents

tenure

PhoneService

MultipleLines

InternetService

OnlineSecurity

OnlineBackup

DeviceProtection

TechSupport

StreamingTV

StreamingMovies

Contract

PaperlessBilling

PaymentMethod

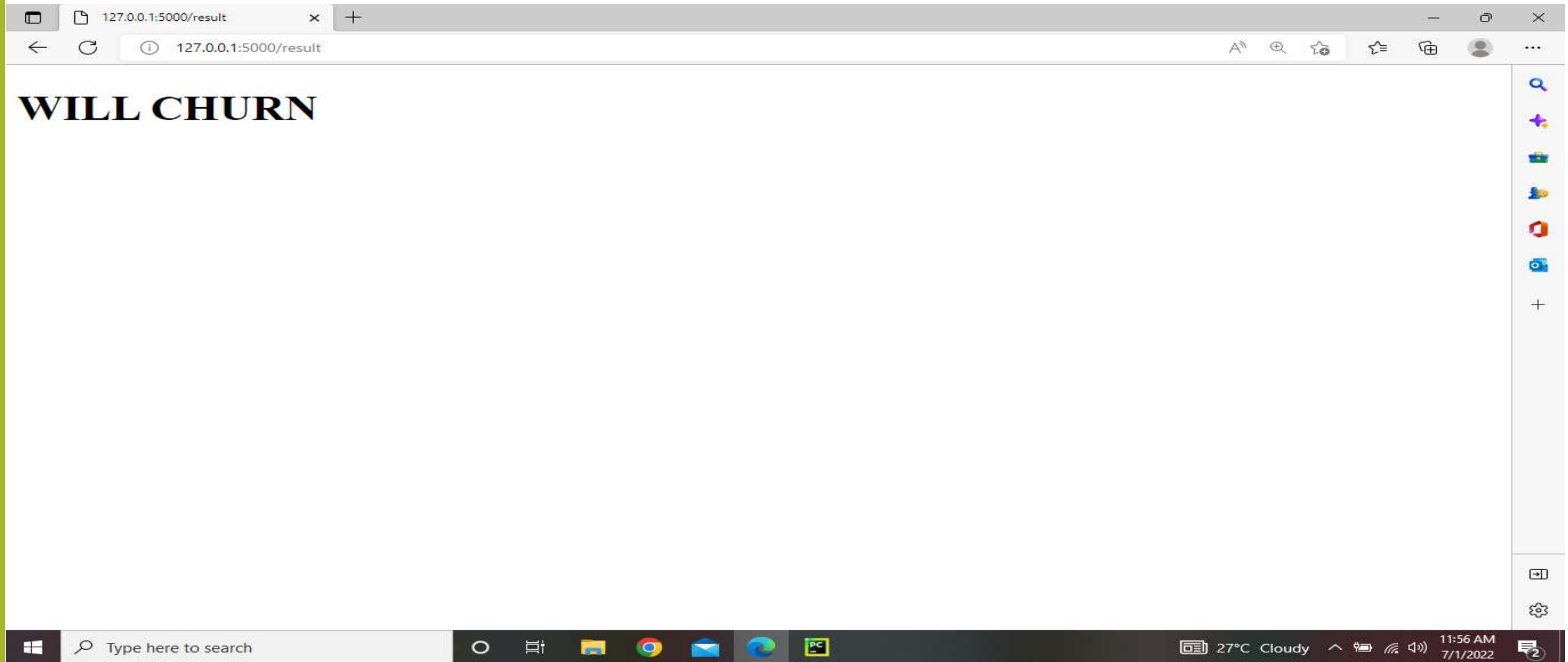
MonthlyCharges

Type here to search

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FLASK DEMO

Churn Prediction



FLASK DEMO

Churn Prediction

127.0.0.1:5000

127.0.0.1:5000

Telecom_Churn_Prediction

gender

Female

▼

SeniorCitizen

yes

▼

Partner

no

▼

Dependents

no

▼

tenure

31

PhoneService

no

▼

MultipleLines

no

▼

InternetService

DSL

▼

OnlineSecurity

no

▼

OnlineBackup

no

▼

DeviceProtection

no

▼

TechSupport

no

▼

StreamingTV

no

▼

StreamingMovies

no

▼

Contract

Month-to-month

▼

PaperlessBilling

no

▼

PaymentMethod

Bank transfer (automatic)

▼

MonthlyCharges

25

Predict

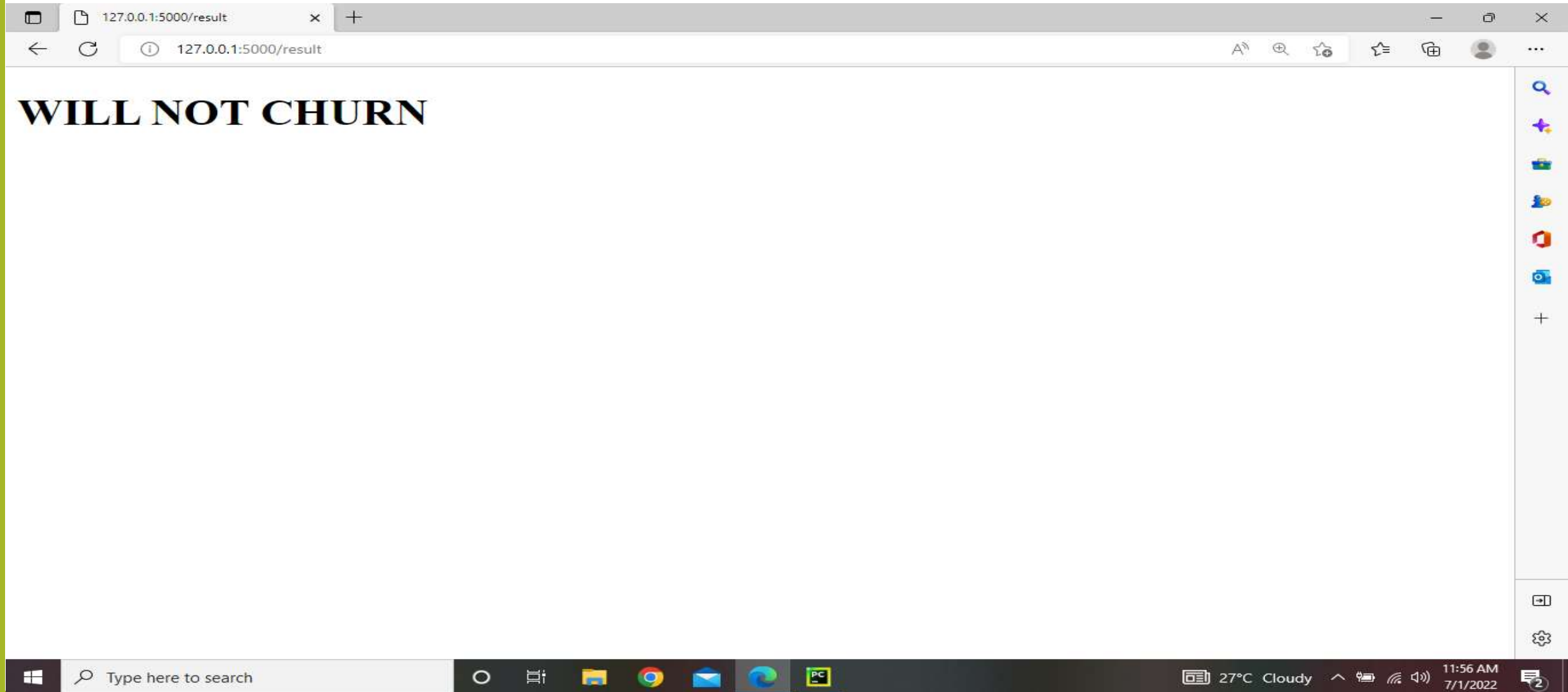
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FLASK DEMO

Churn Prediction



FLASK DEMO

Charge Prediction

Telecom_Total_Charge_Prediction

gender	<input type="text" value="Female"/>
SeniorCitizen	<input type="text" value="yes"/>
Partner	<input type="text" value="no"/>
Dependents	<input type="text" value="no"/>
tenure	<input type="text" value="3"/>
PhoneService	<input type="text" value="no"/>
MultipleLines	<input type="text" value="no"/>
InternetService	<input type="text" value="DSL"/>
OnlineSecurity	<input type="text" value="no"/>
OnlineBackup	<input type="text" value="no"/>
DeviceProtection	<input type="text" value="no"/>
TechSupport	<input type="text" value="no"/>
StreamingTV	<input type="text" value="no"/>
StreamingMovies	<input type="text" value="no"/>
Contract	<input type="text" value="Month-to-month"/>
PaperlessBilling	<input type="text" value="no"/>
PaymentMethod	<input type="text" value="Bank transfer (automatic)"/>
MonthlyCharges	<input type="text" value="25"/>
<input type="button" value="Predict"/>	

FLASK DEMO

Charge Prediction



127.0.0.1:5000/index

Total Charge will be 104.43Rupees

PRACTICAL USE OF APP

- ❖ **INSTANTLY CLASSIFY A CUSTOMER WILL CHURN OR NOT.**

- ❖ **FREE UP MANPOWER ON ROUTINE TASK**

FUTURE WORK

- ❖ **CUSTOMER PRIORITIZATION**

- ❖ **SCHEMES THAT CAN BE GIVEN TO
CUSTOMER IN ORDER TO NOT TO
CHURN**