

# CHURN PREDICTION PROJECT

*Reducing Customer Churn  
Through Predictive  
Modeling*

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*Welcome*  
TO MY PRESENTATION

# Project Goals & Objectives

Develop a predictive model to identify customers at high risk of churning.

PROVIDE ACTIONABLE INSIGHTS FOR CUSTOMER RETENTION

IDENTIFY KEY FACTORS INFLUENCING CHURN

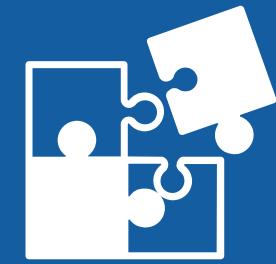
PREDICT CHURN WITH HIGH ACCURACY



# Problem Statement : The Churn Challenge



Customer churn is the rate at which customers stop doing business with a company or service.

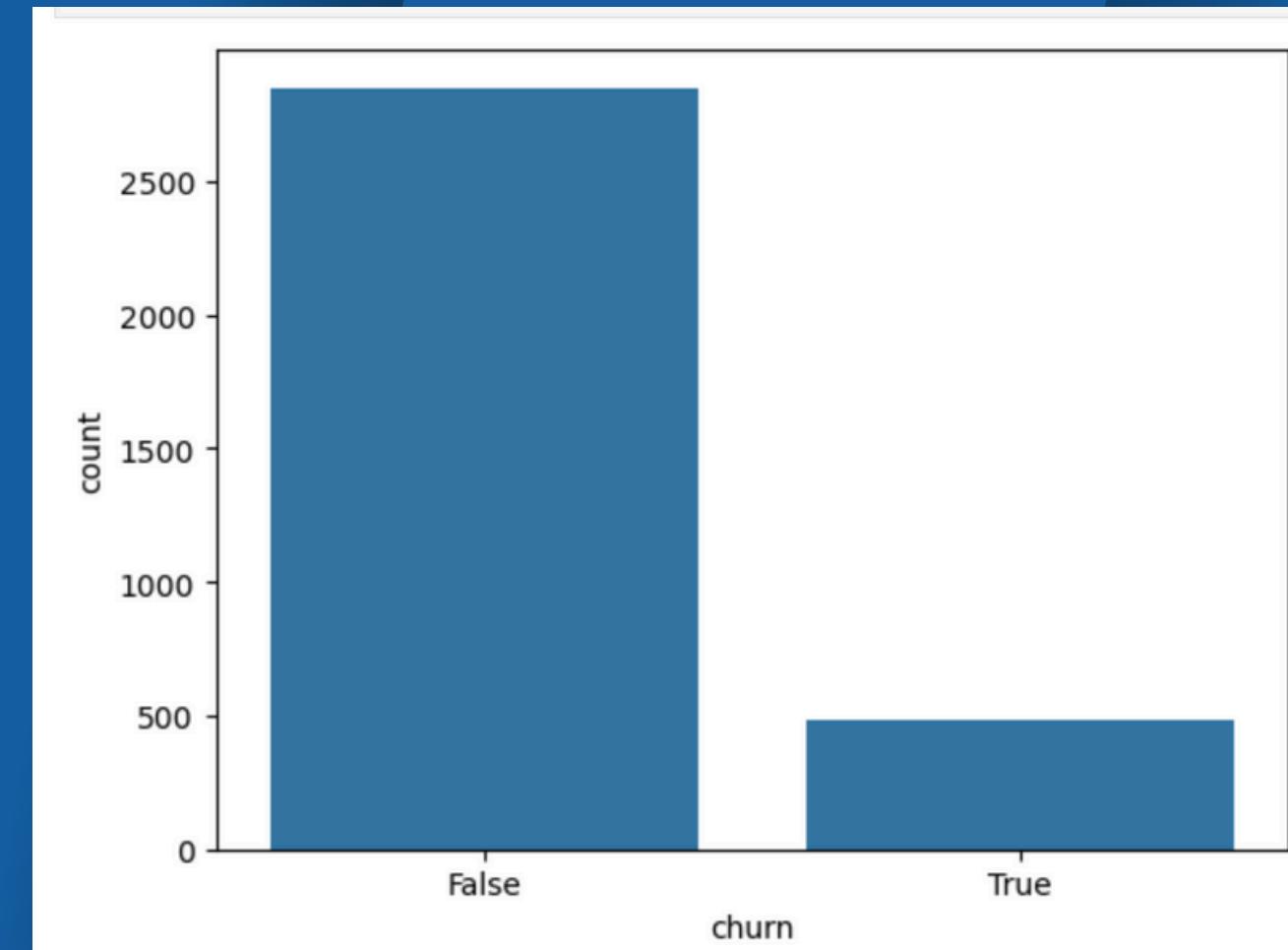


Our company is experiencing high churn rates, impacting revenue and market share.



## BUSINESS IMPACT

- Lost revenue
- Decreased customer lifetime value
- Increased acquisition costs

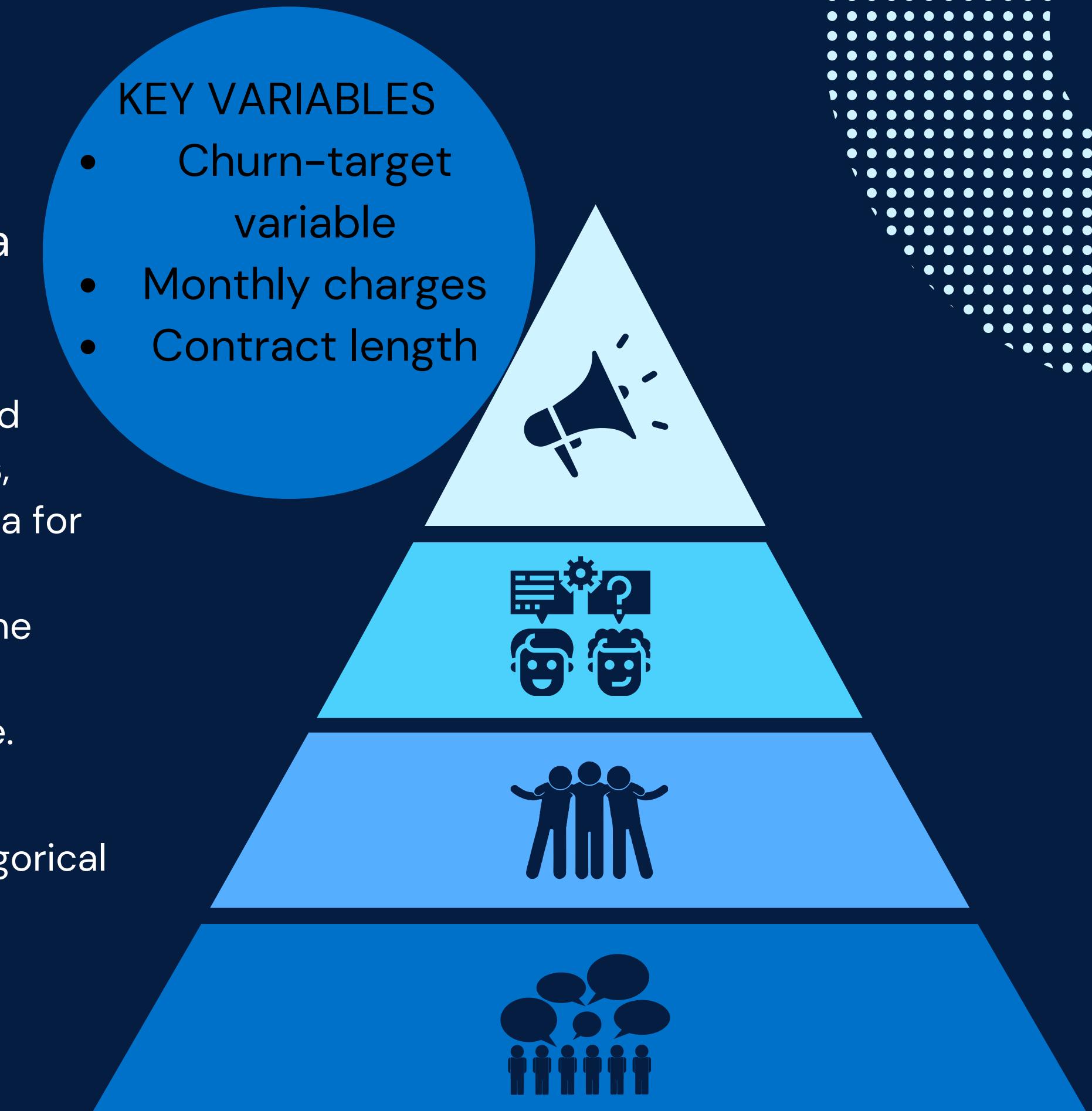


# OUR APPROACH

This is by using a customer churn dataset from a telecommunications company .

- Data Preprocessing: I performed data cleaning and preprocessing steps (e.g., handling missing values, converting categorical variables) before using the data for modeling.
- Feature Engineering: I created new features from the existing ones (e.g., combining variables, creating interaction terms) to improve model performance.

The data types are mostly either numerical or categorical



# MODELS

## LOGISTIC REGRESSION

Logistic Regression finds the best line that separates your data into two groups – in this case, customers who churn and those who don't. It then uses that line to calculate the probability of a customer belonging to the "churn" group.

### STRENGTHS

- Interpretability- one can easily see which factors influence churn the most by looking at the coefficients.
- Probability Estimation: Instead of just a yes/no answer, you get a probability score for each customer for more informed decision-making
- Good Baseline: It's often a good starting point for churn prediction

# DECISION TREES

Imagine a group of decision-making trees, each looking at different aspects of your customer data. They "vote" on whether a customer will churn, and the majority vote wins. This makes it good at capturing complex relationships in your data

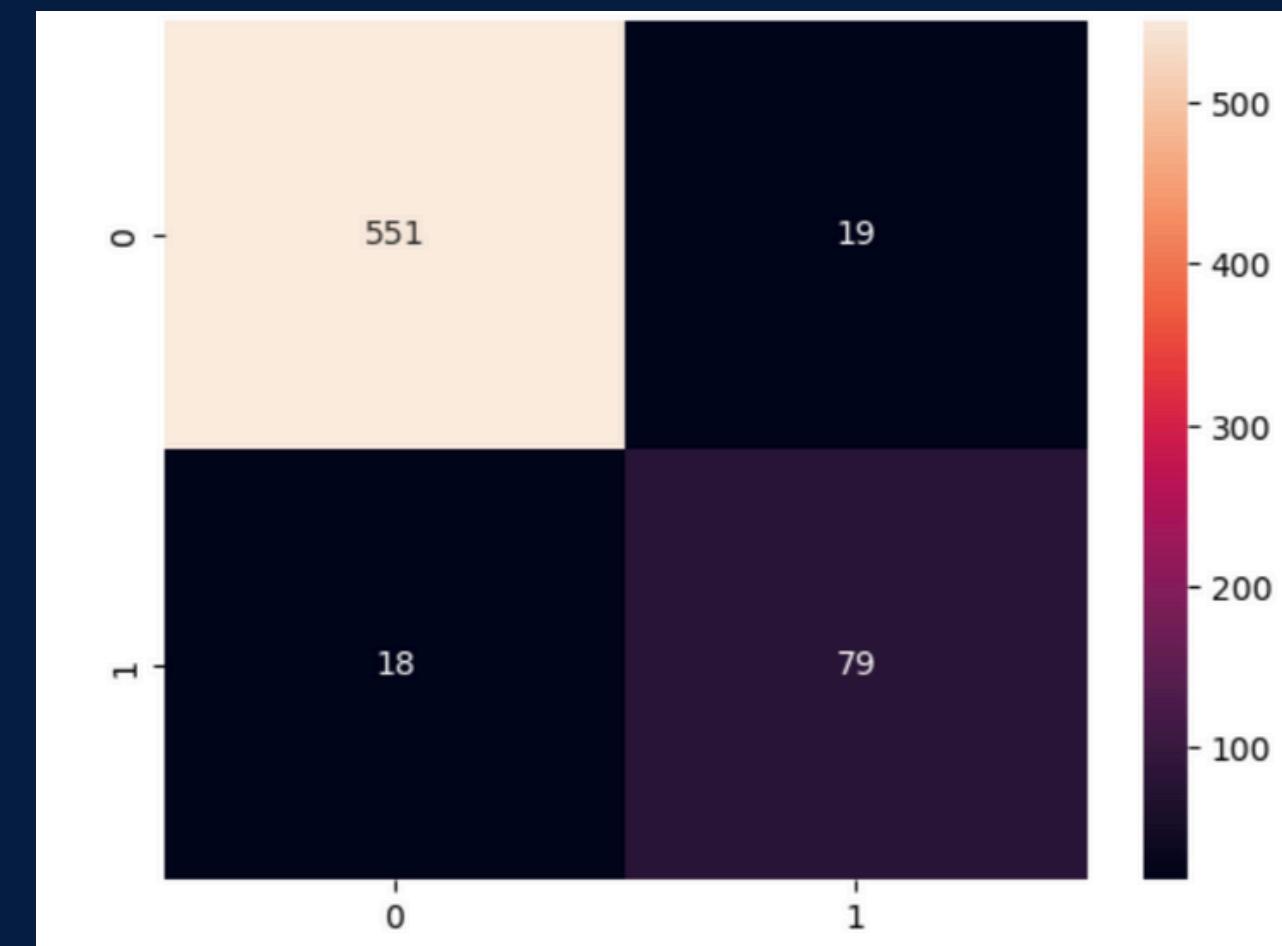
## **STRENGTHS**

- **Handles Non-linearity**– captures complex, non-linear relationships between variables and churn.
- **Feature Importance**:- It tells you which variables are most important for prediction.
- **Robustness**: It's generally less affected by outliers and noisy data compared to Logistic Regression

# RANDOM FOREST - UNCOVERING CHURN DRIVERS



Decision trees achieved an accuracy of 70.1 and revealed monthly charges as the most influential in predicting churn.



# Model Evaluation & Results (Logistic Regression)

ACCURACY

0.76

AUC ROC

0.751

PRECISION

0.95 - NON-CHURN  
0.34 - CHURN

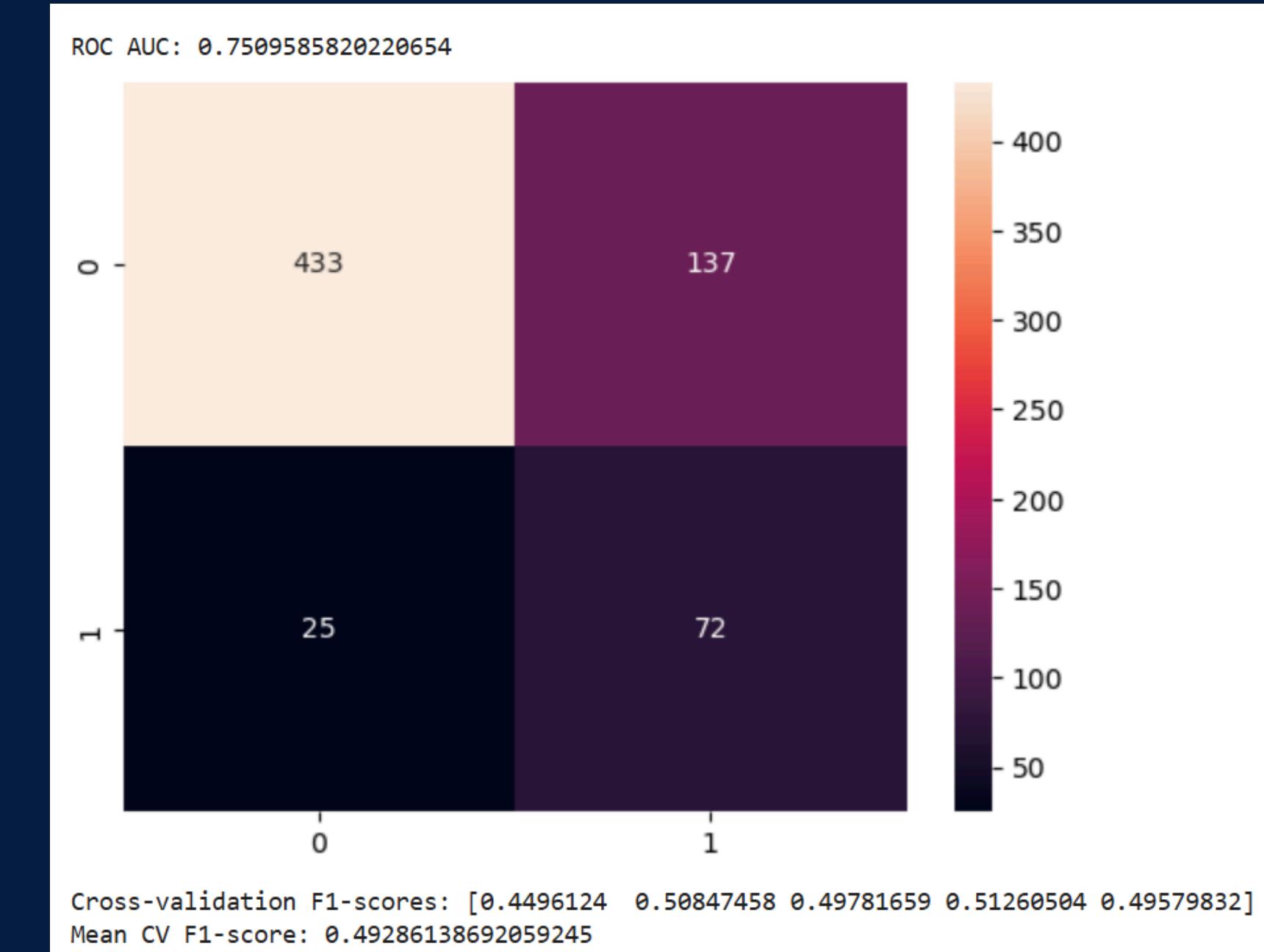
RECALL

0.76 - NON CHURN  
0.74 - CHURN.

MEAN

0.4929

Logistic Regression achieved an accuracy of 79.6 and identified Contract length and Monthly charges as strong predictors of churn.



# KEY INSIGHTS & FINDINGS

- Contract length and Monthly charges are the strongest predictors of churn
- Customers with shorter contracts and higher monthly charges are more likely to churn.
- Customer service calls and international plan have a great influence on churn prediction





# TURNING INSIGHTS INTO ACTION

## Potential Business Impact:

Increased customer lifetime value



Improved revenue



Enhanced brand loyalty



Actionable recommendations based on the findings:

- Offer incentives for longer contracts
- Review pricing strategies
- Implement proactive customer support.
- By targeting at-risk customers with personalized offers, we can improve retention rates and reduce churn.

# The Road Ahead

- Develop a pilot program to test targeted retention strategies.
- Explore additional data sources, experiment with other modeling techniques, refine feature engineering.
- Continuously monitor churn rates and adapt strategies as needed.

# Reducing Churn, Growing Together

Churn prediction is crucial for sustainable business growth.



By understanding and addressing the drivers of churn, we can build stronger customer relationships.

***THANK YOU FOR YOUR TIME AND  
ATTENTION!***