THE BUSINESS PROBLEM

The Problem:

Acquiring new customers costs more than retaining existing ones.

The goal:

Predict customers who are likely to churn before they leave.

DATASET OVERVIEW

Dataset Summary
- Total customers: 3333
- Target Variable: Churn (True/False)

How many customers terminated their contracts and how many did not.

- The total number of customers was 3333 which was also the number of active accounts.

- The graph shows that more than 500 people did terminate their contract while about 2500 did not terminate their contract.
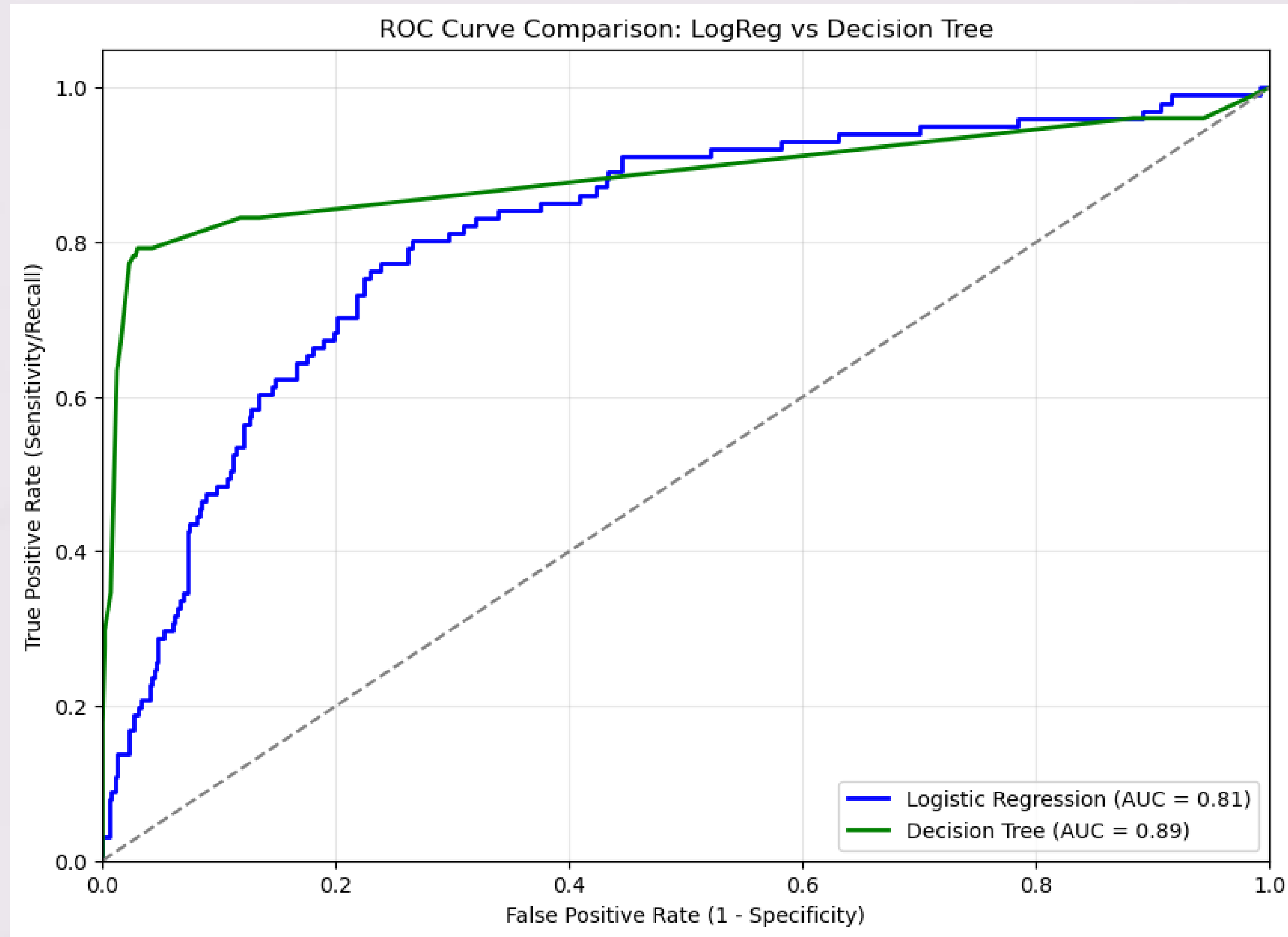

Churn distribution
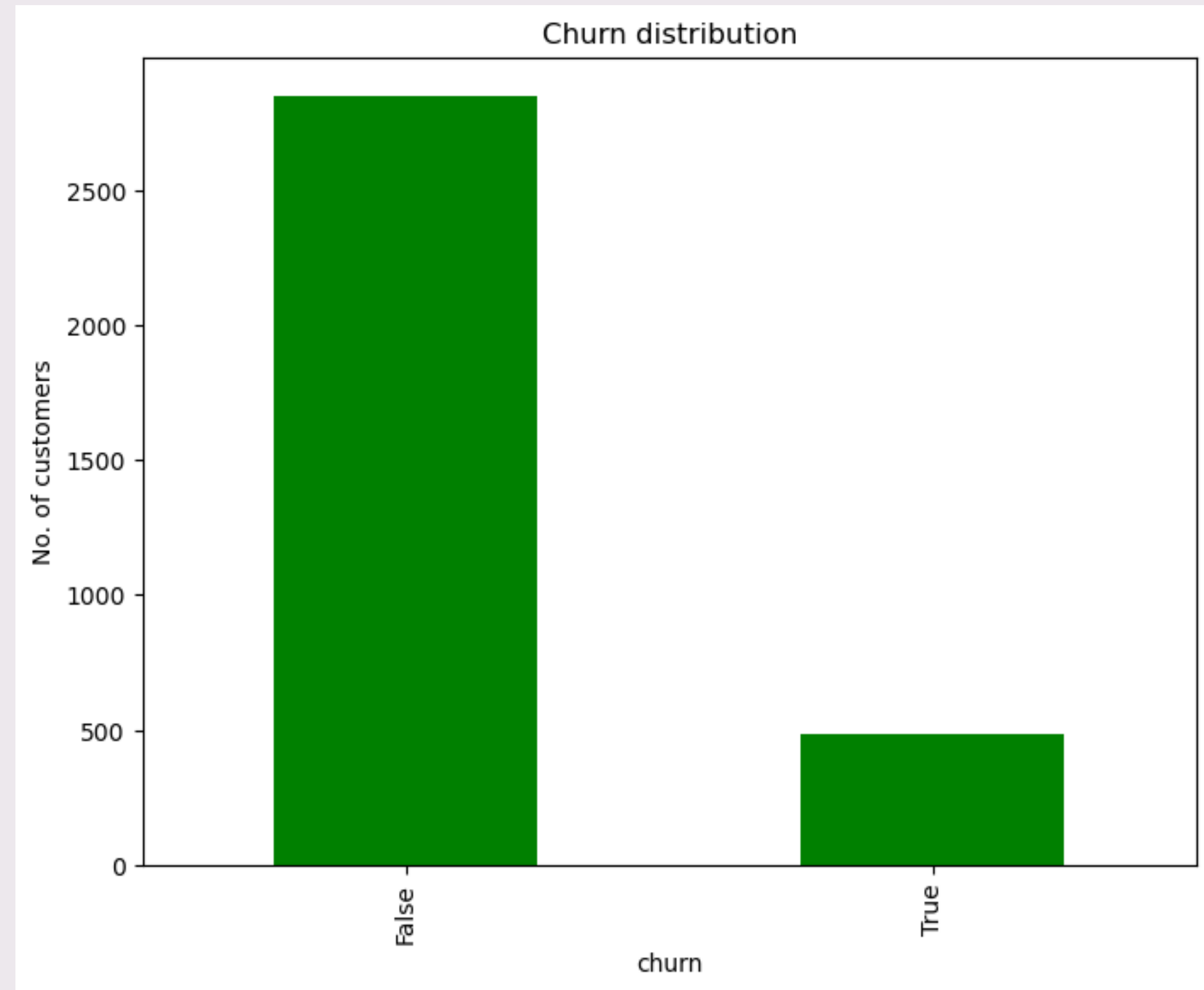
How does the number of customer service calls relate to churn rate?

- As the number of customer service calls increases, the number of customers decreases.

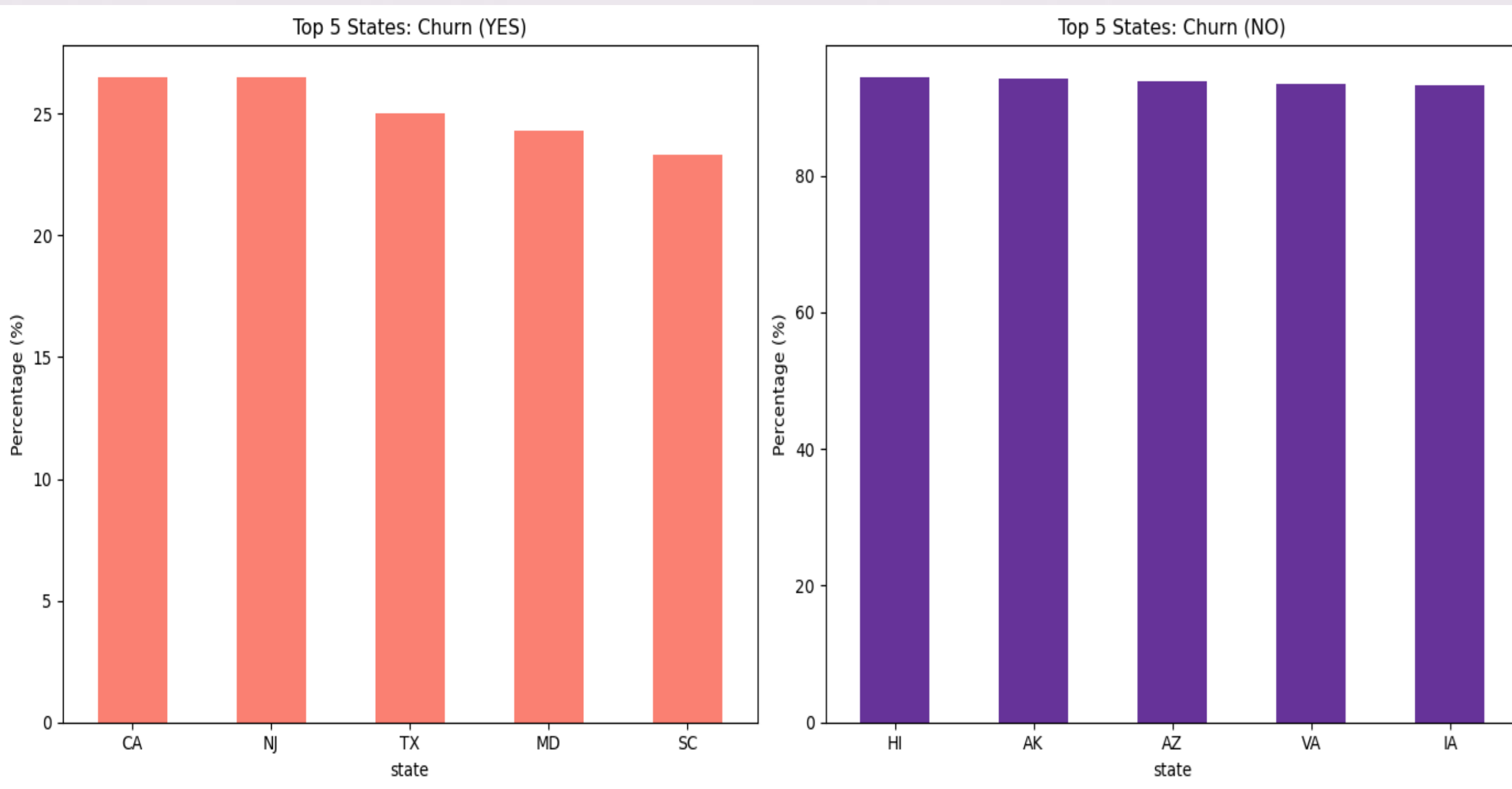- Customers who made more than 3 calls to customer service are more likely to churn.

Number of Churned Customers vs Service Calls
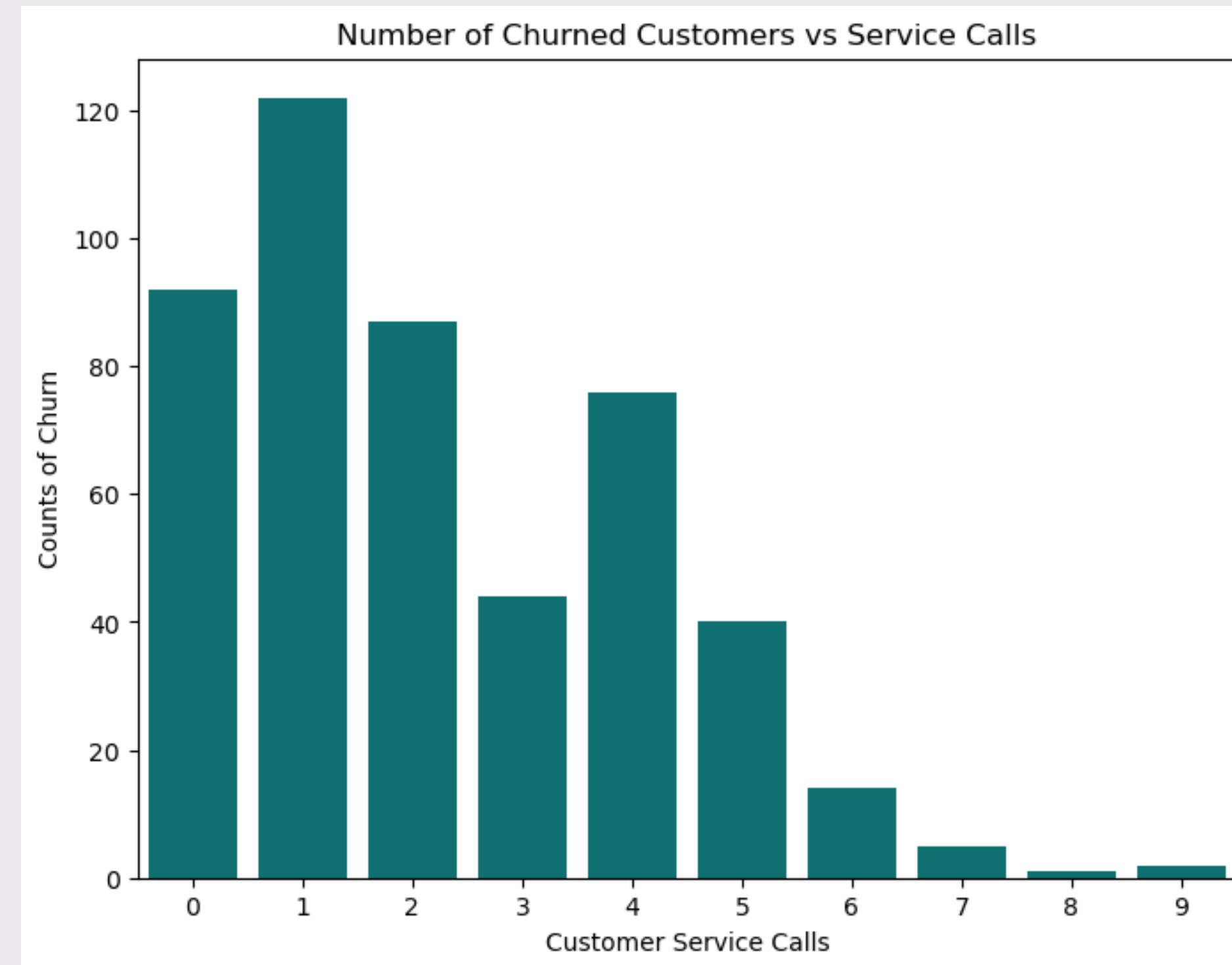
Model Selection

o ROC curve shows strong separation from random guessing.

o Model performs significantly better than baseline.

ROC Curve Comparison: LogReg vs Decision Tree

Logistic Regression (AUC = 0.81)
Decision Tree (AUC = 0.89)

What percentage of customers churned versus did not churn in

- California (CA), New Jersey (NJ) had the highest number of churned customers (who terminated their contracts), followed by Texas (TX), Maryland(MD) and South Carolina(SC) with more that 20% who terminated their contracts.
- While for customers who did not churn (did not terminate their contracts), Hawaii (HI), Alaska (Ak), Arizona (AZ), Virginia (VA) and Iowa (IA) had the highest number of customers who did not terminate their contracts which is more than 80% of the customers in these states.

Results

- The model identifies 80% of potential churners before they leave.
- Suitable for early intervention strategies.

Strategic Recommendations

- SyriaTel should implement an automated alert system.
- Review international plan pricing.
- Target high day usage customers.

Conclusions

- Customer churn can be predicted before revenue is lost.

- The model enables early, targeted intervention for high-risk customers.

- Applying these insights can significantly reduce churn and retention costs.

- Integrating the model into operations turns data into actionable business decisions.

Thank You!!!