

# Churn Prediction in Telecommunications using Machine Learning



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# Project Overview

## ✓ Objective

Identify customers likely to leave our telecom service so we can retain them.

## ✓ Why it matters

Losing customers reduces revenue and increases the cost of acquiring new ones.

## ✓ Method

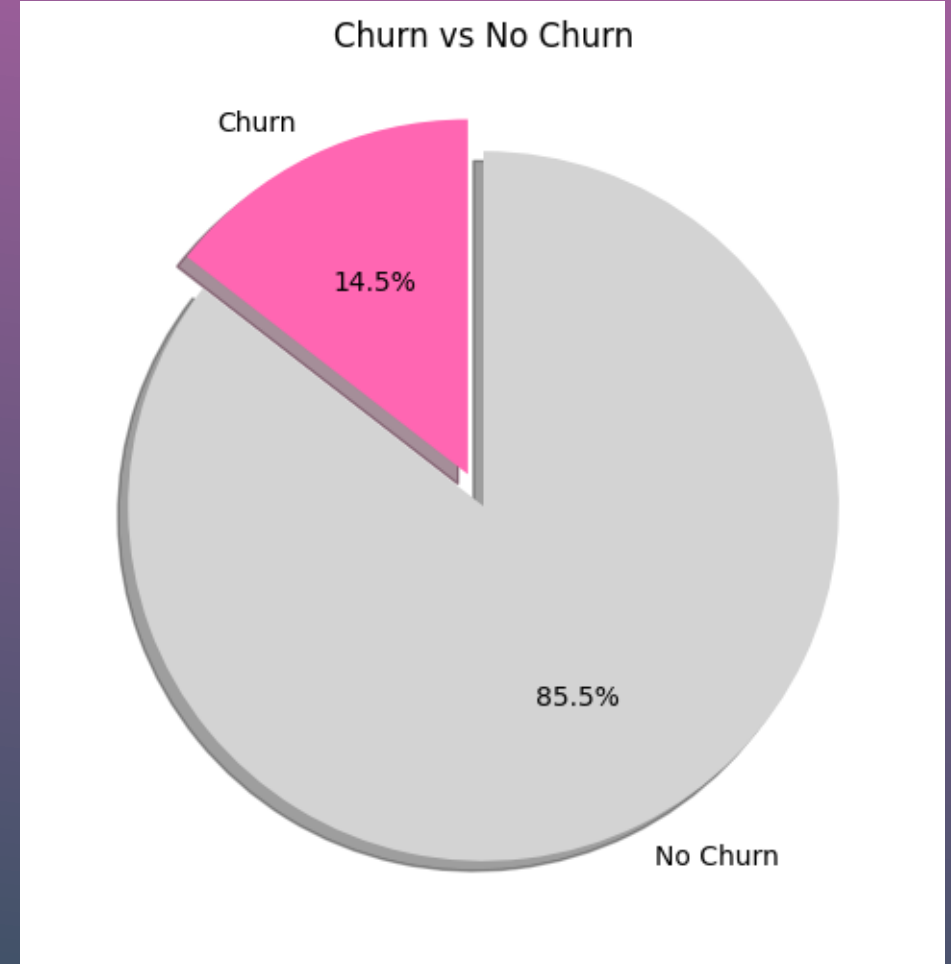
Exploratory analysis, data preparation, and classification models.





## Business Context & Data

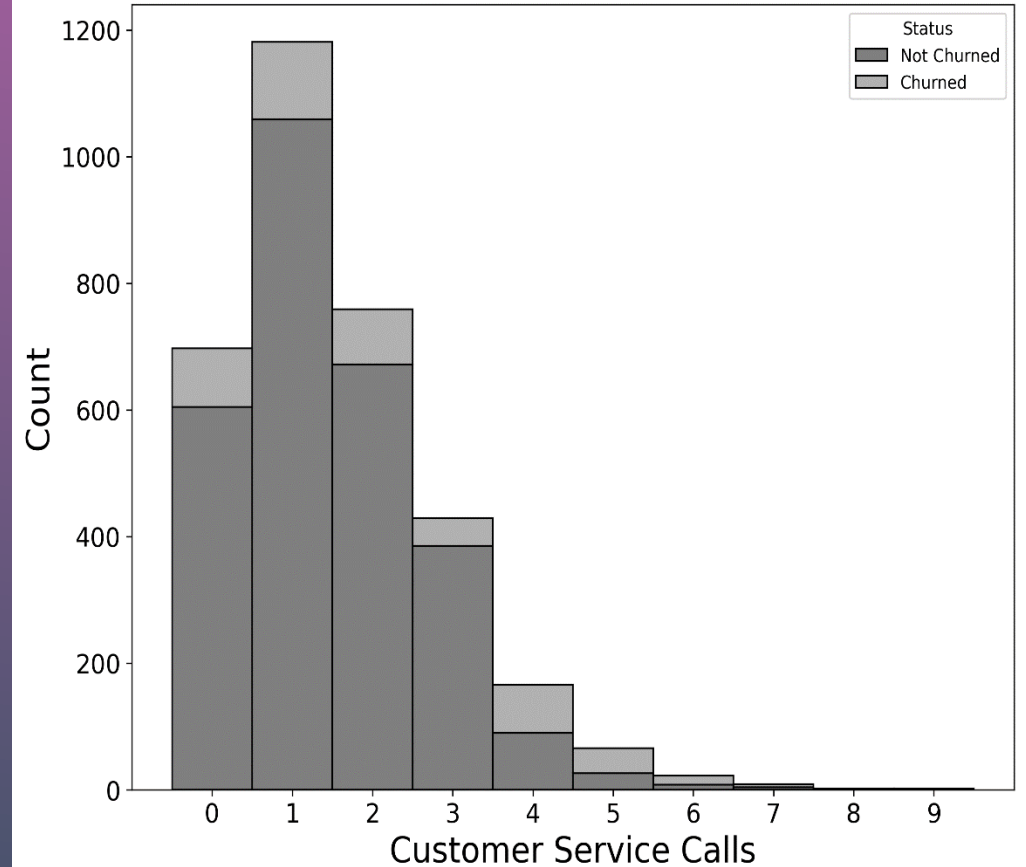
- ✓ Retaining customers is critical for profitability.
- ✓ We analyzed customer account details, service usage, monthly charges, service subscriptions, and interactions with customer support
- ✓ About 15% of customers have already left, showing the need for proactive retention strategies.



# Why Predict Churn?

- Goal: Predict which customers are at risk before they leave.
- Benefit: Allows targeted retention actions, such as personalized offers, improving loyalty and revenue.
- Think of it as a “risk score” for each customer.

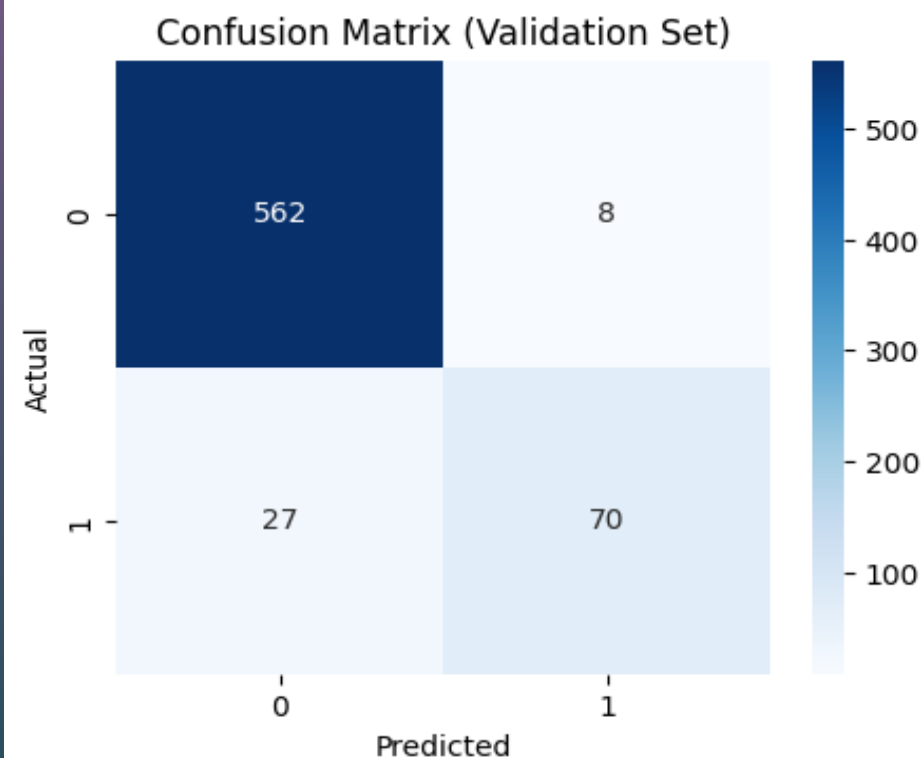
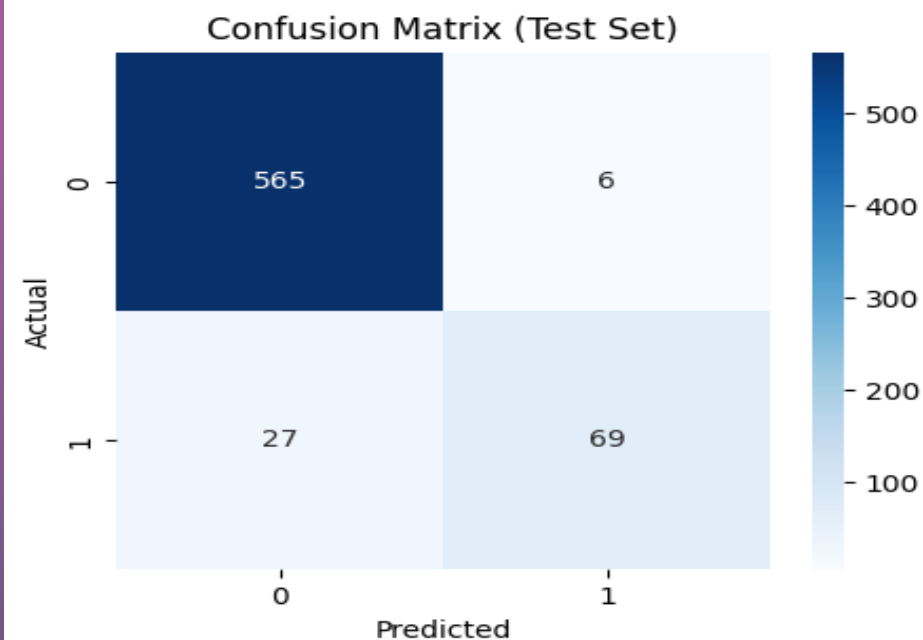
## Number of Customer Service Calls



# Model Results

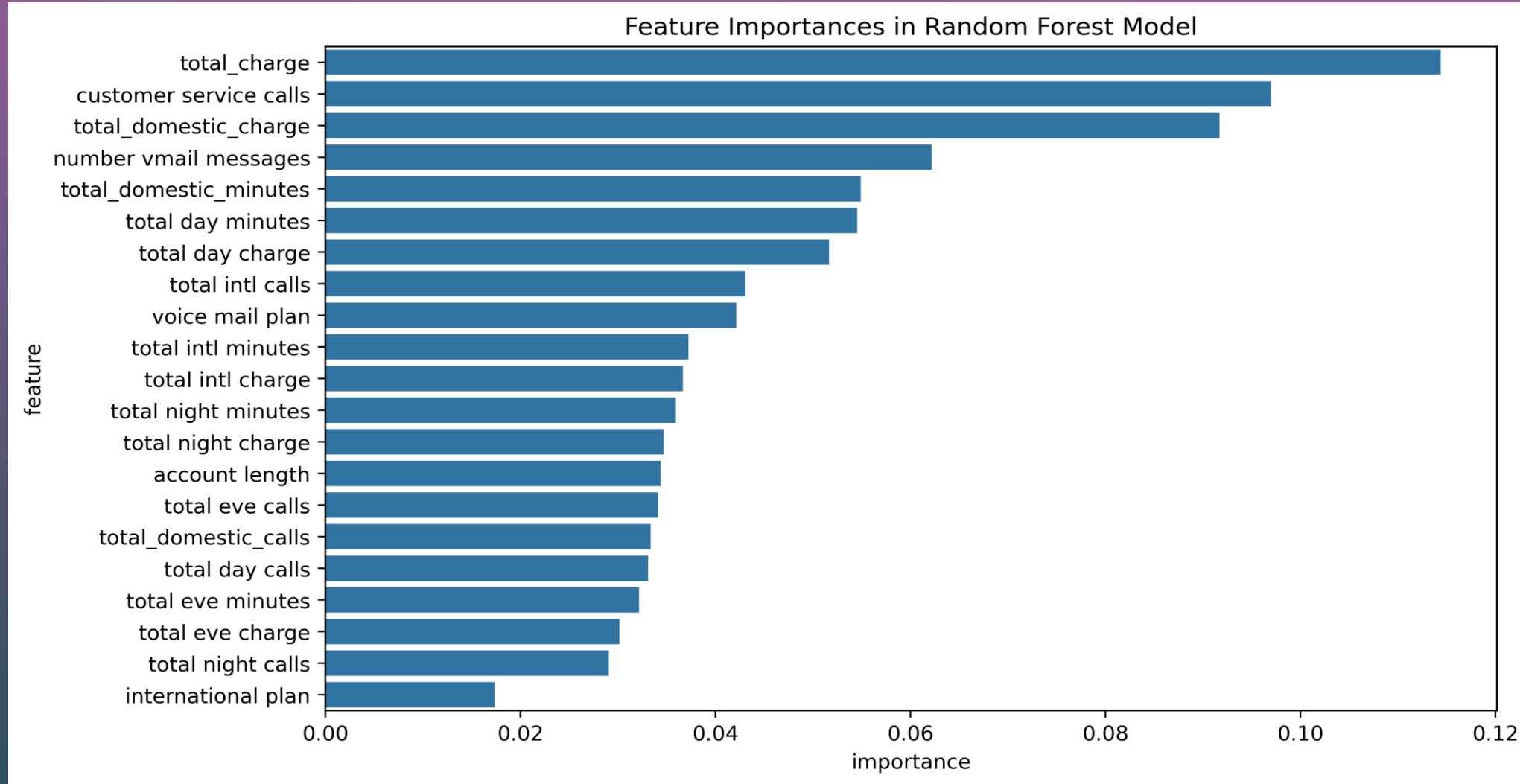
Model	Ability to Identify At-Risk Customers
Logistic Regression	<b>5 out of 10</b> churners correctly identified
Decision Tree	<b>8 out of 10</b> churners correctly identified
Random Forest	<b>8–9 out of 10</b> churners correctly identified

✓ Random Forest Is our best model which identifies **most customers likely to leave**, helping the company act early.



# Key Drivers of Churn

- **High total charges**
- **Frequent calls to customer service**
- **Service usage**



# Business Recommendations

✓ **Focus on high-spending customers and frequent support callers**

Offer personalized retention deals



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✓ **Encourage value-added services**  
Promote voicemail or international plans to strengthen loyalty



✓ **Improve customer support**  
Proactively resolve issues for at-risk customers



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# Next Steps

✓ Integrate risk prediction into customer management systems.

1

✓ Run targeted campaigns for customers identified as high risk

3



2

✓ Monitor and update the model regularly with new data

4

✓ Explore additional approaches to improve the F1-score for churners



# Thank You

## Contact

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Github: <https://github.com/Micka-Louis/ds-project-phase-3.git>