Customer Churn Prediction

A Business-Oriented Machine Learning Analysis

Presented to: Business Stakeholders

Overview

This project aims to predict customer churn using machine learning. By identifying key factors driving churn, we provide actionable insights to improve customer retention strategies.

Business and Data Understanding

Business Goal: Predict whether a customer will churn (leave the company). Understanding churn drivers helps improve customer retention.

Dataset: Includes customer features such as service usage, billing, and support interactions.

Modeling

We tested multiple models, including Logistic Regression and Random Forest, to predict customer churn. The data was preprocessed by handling missing values, converting categorical variables, and scaling numerical features.

Evaluation

Key evaluation metrics:

- Accuracy: Measures overall correctness.

- AUC-ROC: Measures the model's ability to distinguish churn vs. non-churn.

- Confusion Matrix: Highlights correct and incorrect predictions.

Random Forest performed best with the highest AUC score.

Recommendations

1. Identify high-risk customers and offer targeted incentives.

2. Improve customer service to reduce churn.

3. Leverage predictive insights to refine marketing strategies.

4. Monitor model performance and update it as customer behaviors evolve.

Next Steps

1. Deploy the model into the business workflow.

2. Continuously collect data and retrain the model.

3. Expand predictive analytics to other business areas.

4. Use model insights to guide future retention policies.

Thank You!

Questions?