

Customer Churn Analysis Report

Introduction

Customer churn, the rate at which customers stop doing business with a company, is a critical metric for businesses. Understanding the factors that contribute to churn can help companies take proactive measures to retain customers. This report analyzes the factors affecting customer churn using the Churn_Modelling dataset.

Data Exploration

Data Cleaning

- Irrelevant columns like RowNumber, CustomerId, and Surname were dropped.
- Missing values were handled appropriately.

Exploratory Data Analysis

- The distribution of key features was visualized using histograms and bar charts.
- Relationships between features and churn were analyzed using countplots and pairplots.

Model Building

Data Preprocessing

- Categorical features were one-hot encoded.
- Boolean features were converted to integers.
- The data was split into training and testing sets.
- Standardization was applied to the training and testing data.

Model Training and Evaluation

- A Decision Tree Classifier was trained on the training data.
- The model's performance was evaluated on the testing data using an accuracy score and confusion matrix.

Findings

1. **Age:** Customers in the age group of 30-40 are more likely to churn.

2. **Gender:** There is no significant difference in churn rates between genders.
3. **Geography:** Customers from Spain have a higher churn rate compared to those from France and Germany.
4. **Credit Card:** Customers with a credit card have a higher churn rate.
5. **Active Member:** Customers who are not active members have a higher churn rate.
6. **Balance:** Customers with lower balances have a higher churn rate.
7. **Salary:** Customers with higher salaries have a lower churn rate.

Conclusion

This study provides valuable insights into the factors influencing customer churn. Companies can use these insights to develop targeted strategies to reduce churn and improve customer retention. For example, focusing on retaining customers in the age group of 30-40 and implementing targeted campaigns for customers from Spain can help reduce churn.

Recommendations

1. Focus on retaining customers in the age group of 30-40.
2. Implement targeted campaigns for customers from Spain.
3. Encourage customers to use credit cards and become active members.
4. Offer incentives to customers with lower balances to increase their engagement.
5. Develop personalized offers and promotions based on customer profiles and behavior.