

Customer Churn Analysis

Abstract

This project focuses on analyzing customer churn for a telecom company. Churn indicates when a customer stops using the service. The primary goal is to understand patterns and reasons why customers leave, enabling the company to improve retention. Through data cleaning, visualization, and correlation analysis, various factors contributing to churn are identified.

Tools Used

- **Python**
- **Pandas:** For data manipulation and preprocessing
- **NumPy:** For numerical operations
- **Matplotlib & Seaborn:** For data visualization
- **Jupyter Notebook:** For interactive development
- **SQL**

Steps Involved in Building the Project

1. **Data Cleaning and Preprocessing:**
 - Missing values in the **TotalCharges** column were replaced with 0.
 - The **SeniorCitizen** column (0 or 1) was converted to "No" and "Yes" for clarity.
2. **Exploratory Data Analysis (EDA):**
 - A pie chart shows that **26.54%** of customers have churned.
 - High churn rates were found among senior citizens.
 - Customers with shorter tenures (1-2 months) showed higher churn probability.
 - Customers using **electronic check** as a payment method were more likely to churn.

3. **Service-Based Analysis:**

- Customers who retained services like **PhoneService**, **DSL Internet**, and **OnlineSecurity** had lower churn.
- Lack of services such as **TechSupport**, **OnlineBackup**, and **StreamingTV** correlated with higher churn.

Conclusion

From the analysis, it's evident that several factors influence customer churn. Senior citizens, new users (low tenure), and users with minimal service subscriptions are more likely to leave. Payment method also plays a role, with electronic checks correlating to higher churn. These insights can guide the telecom company to focus on at-risk customer groups and offer targeted retention strategies.