Customer Churn Analysis Using Power BI

Submitted by: P Dhatuvardhini

Course: Computer Science (Data Science)

Semester: 4th Semester

Institution: Bellary Institute of Technology and Management (BITM)

Project Objective:

To analyze customer behavior and identify patterns that lead to customer churn using data visualization and business insights.

Introduction

Customer churn refers to the situation where customers stop using a company's services or products. Understanding churn is important because acquiring new customers is more expensive than retaining existing ones.

The purpose of this project is to analyze customer data and identify factors influencing churn. By using Power BI, visual analysis helps in discovering patterns related to contract type, tenure, and customer behavior. These insights can help businesses improve customer retention strategies.

Dataset Overview

The dataset used in this project contains customer information related to subscription services. It includes demographic and service-related attributes that help understand customer behavior.

Important columns in the dataset include:

Customer ID

Contract Type

Tenure (Years)

Monthly Charges

Total Charges

Churn Status

The dataset consists of approximately 7,000 customer records, which provides sufficient data for meaningful analysis.

Data Cleaning & Preparation

Before analysis, the dataset was prepared to ensure accuracy and consistency.

The following steps were performed:

Checked for missing or null values.

Corrected data types for numerical and categorical columns.

Converted tenure values into appropriate format.

Created calculated measures such as Total Customers, Churn Customers, Churn Rate, and Average Tenure.

These steps ensured that the dataset was ready for visualization and analysis in Power BI.

Exploratory Data Analysis (EDA)

Different visualizations were created to understand customer churn patterns.
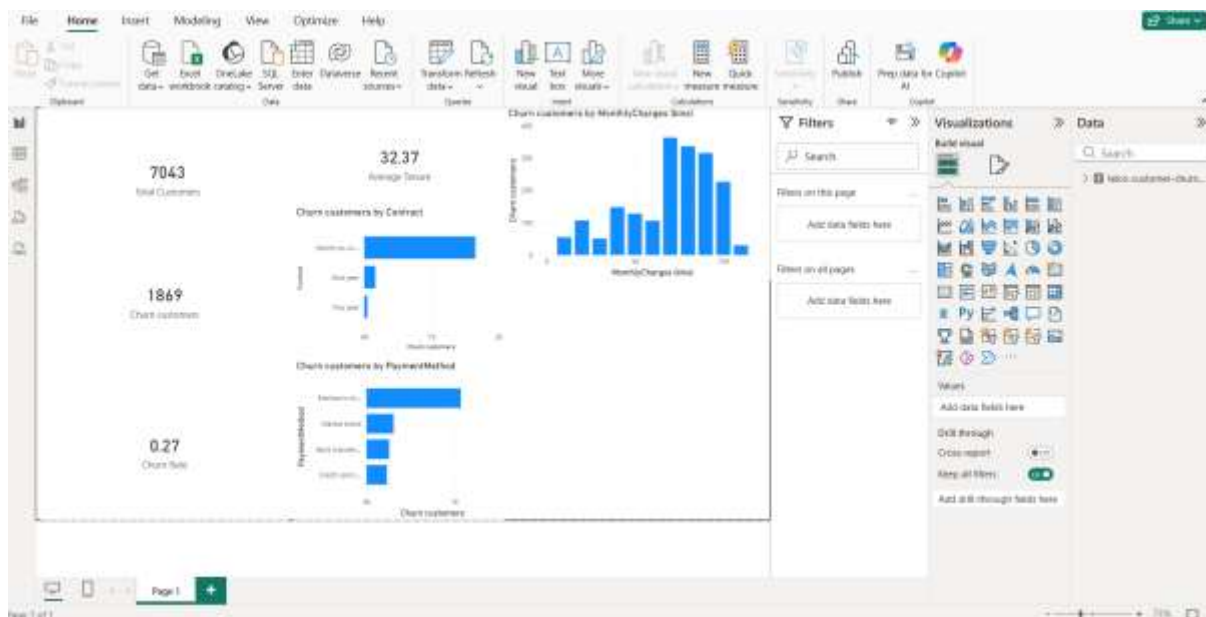
Key analyses performed:

Comparison of churn across different contract types.

Relationship between tenure and churn behavior.

Analysis of customer distribution.

Evaluation of churn percentage using KPI measures.

The visualizations helped identify trends and risk areas where customers are more likely to leave.

Key Findings

Based on the analysis, several important observations were made:

Customers with month-to-month contracts show the highest churn rate.

Customers with longer tenure are more likely to stay with the company.

Short-term customers are at higher risk of leaving.

Stable contract plans reduce customer loss significantly.

These findings highlight the importance of long-term engagement strategies.

Business Recommendations

To reduce customer churn, the following strategies are recommended:

Encourage customers to shift from monthly plans to longer-term contracts through discounts or benefits.

Provide loyalty rewards for customers with increasing tenure.

Improve customer engagement during the early subscription period.

Offer personalized retention offers to high-risk customers.

Monitor churn trends regularly using dashboards.

Implementing these strategies can help improve customer satisfaction and retention.

Conclusion

This project successfully analyzed customer churn using Power BI visualizations. The analysis revealed that contract type and customer tenure play a major role in customer retention.

By applying data-driven decision-making, businesses can identify churn risks early and take preventive actions. Continuous monitoring and strategic planning can significantly reduce customer loss and improve long-term growth.