

# Customer Churn Risk Analysis Dashboard

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## Introduction

Customer churn is a major challenge for organizations, especially in subscription-based and service-oriented industries. When customers discontinue services, it results in revenue loss, higher customer acquisition costs, and reduced business stability. Identifying customers who are likely to churn at an early stage is crucial for improving retention and long-term profitability.

This project focuses on analyzing customer data to identify churn patterns and risk factors using data analytics. An interactive Power BI dashboard is developed to help organizations monitor churn trends, identify high-risk customer segments, and support data-driven decision-making to reduce customer churn.

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## Abstract

The Customer Churn Risk Analysis Dashboard analyzes historical customer data to uncover key factors contributing to churn. Attributes such as customer tenure, contract type, internet service, payment method, and churn status were examined to identify churn behavior.

The dashboard presents key metrics including total customers, churned customers, churn rate, churn trends across tenure, churn by contract type, and customer risk segmentation. A decomposition tree is used to drill down into major churn drivers. This interactive dashboard enables stakeholders to identify high-risk customers and design targeted retention strategies to improve customer satisfaction and reduce churn.

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## Tools Used

- **Power BI Desktop** – Data modeling, DAX calculations, and dashboard development
  - **CSV Dataset** – Customer churn data source
  - **DAX Measures** – Total Customers, Churned Customers, Churn Rate (%)
  - **Data Visualization Techniques** – KPI cards, area chart, stacked bar chart, column chart, decomposition tree, slicers
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## Steps Involved in Building the Project

### 1. Data Collection

- Imported the customer churn dataset (CSV file) into Power BI.

### 2. Data Cleaning & Preparation

- Verified missing and inconsistent values.
- Converted churn values into clear Yes/No categories.

- Ensured correct data types for numerical and categorical fields.

### 3. Data Modeling & Measures

- Created key DAX measures:
  - Total Customers
  - Churned Customers
  - Churn Rate (%)
- Validated calculations across all visuals.

### 4. Dashboard Design & Visualization

- Designed KPI cards for Total Customers, Churned Customers, and Churn Rate.
- Created an area chart to show churn trend across customer tenure.
- Used a stacked bar chart to analyze churn by contract type.
- Built a column chart for customer churn risk segmentation (Low, Medium, High).
- Implemented a decomposition tree to analyze churn drivers based on contract, internet service, payment method, and tenure.
- Added slicers for interactive filtering and deeper analysis.

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## Conclusion

The Customer Churn Risk Analysis Dashboard provides a clear and actionable view of customer churn patterns within the organization. The analysis shows that churn is higher among customers with shorter tenure, month-to-month contracts, fiber optic internet service, and electronic check payment methods.

By using this dashboard, organizations can proactively identify high-risk customers and implement targeted retention strategies such as personalized offers, contract optimization, and improved customer engagement. This project demonstrates how data analytics and visualization can transform raw customer data into meaningful business insights and support effective decision-making to reduce customer churn.