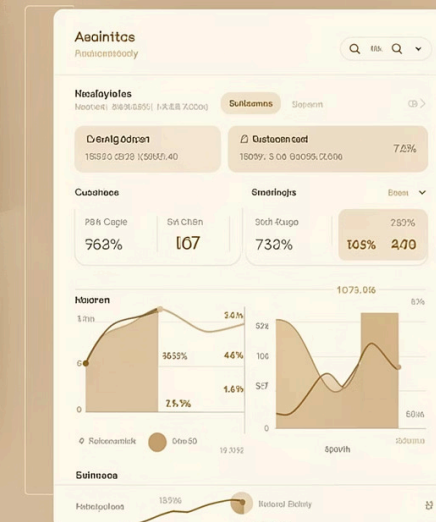# Customer Churn Analysis

Statistical & Business Analytics Project

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Understanding customer churn patterns and identifying key drivers using data analysis and statistical methods.

Problem Statement & Objectives

Problem Statement

- Customer churn leads to significant revenue loss

- Retaining existing customers is more cost-effective than acquiring new ones

- Businesses need early identification of churn-prone customers

Project Objectives

- Measure customer churn rate

- Identify key factors influencing churn

- Validate findings using statistical techniques

Dataset & Methodology

Dataset Overview

- Customer-level historical data
- Key features: tenure, monthly charges, total charges, churn status

Methodology

- Data cleaning and preprocessing
- Exploratory Data Analysis (EDA)
- Statistical hypothesis testing
- Insight generation

Exploratory Data Analysis (EDA)

Key EDA Activities

- Calculated overall churn rate

- Analyzed tenure distribution across churned and retained customers

- Examined correlations between numerical variables

Insights

- Higher churn observed among low-tenure customers
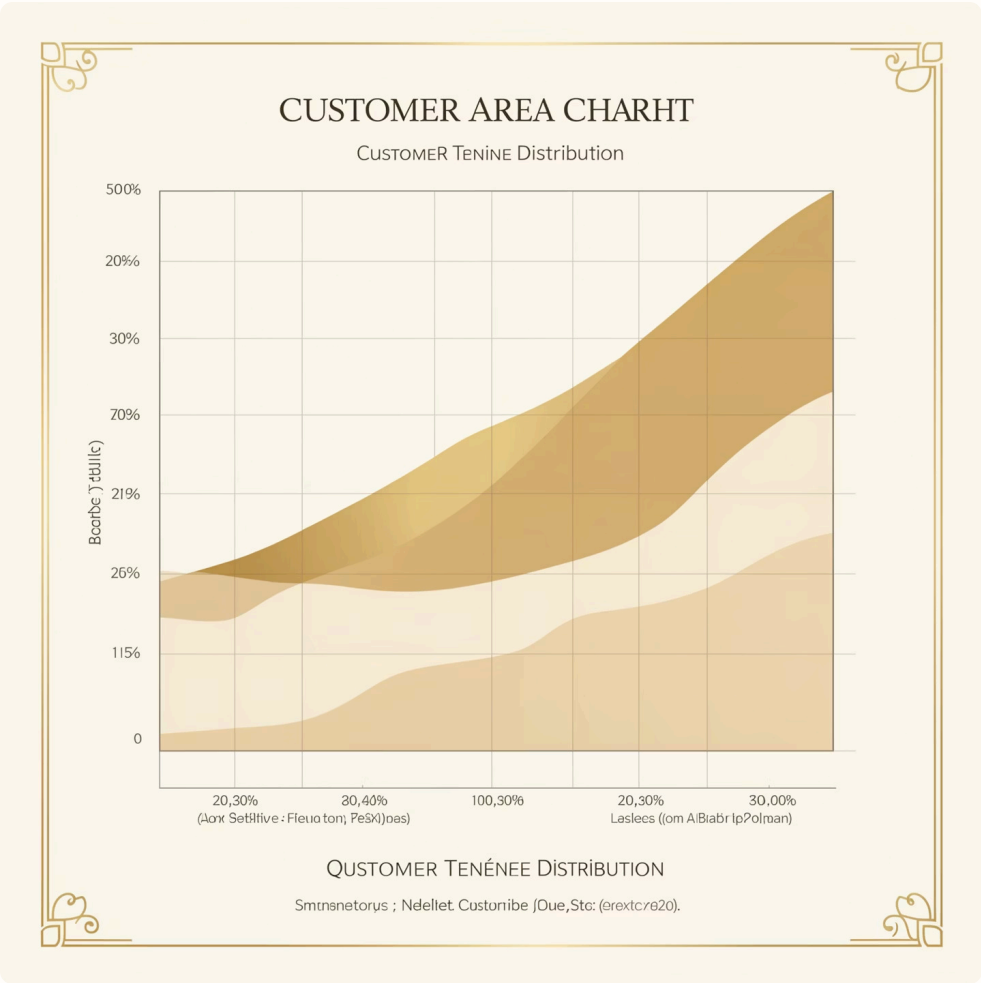
- Tenure shows strong influence on churn behavior

Statistical Analysis & Findings

Statistical Techniques Used

- Hypothesis testing (Independent t-test)
- Comparison between churned and non-churned customers

Key Findings

- Statistically significant difference in tenure
- Customers with shorter tenure are more likely to churn

Business Insights & Recommendations

Business Insights

- Churn risk is highest during early customer lifecycle

- Customer engagement in initial months is critical

Recommendations

- Improve onboarding experience

- Introduce early retention programs

- Monitor churn indicators proactively

Conclusion & Thank You

Conclusion

- Data-driven analysis identified key churn drivers

- Statistical validation strengthened decision-making

- Insights support effective retention strategies

Thank you for your attention!

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