

PROJECT TITLE :

Customer Churn Analysis & Retention
Strategy in Telecom Industry

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Telecom Data Analytics Internship

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EXECUTIVE SUMMARY :

The telecom industry faces significant challenges due to high customer churn, which directly impacts revenue and profitability. Retaining existing customers is more cost-effective than acquiring new ones, making churn reduction a critical business goal.

This project aims to identify patterns and factors influencing customer churn using the **Telco Customer Churn dataset from Kaggle**. The analysis leverages **Excel** for data cleaning and preliminary summaries, **SQL** for detailed querying, and **Power BI** for interactive dashboard creation.

Key findings reveal that **Fiber optic internet users, month-to-month contract holders**, and customers using **electronic checks** as a payment method are at the highest risk of leaving. Based on these insights, the project proposes targeted retention strategies, including offering incentives for long-term contracts, improving service quality for high-churn segments, and enhancing onboarding experiences for new customers.

TABLE OF CONTENTS :

1. **Executive Summary**
2. **Table of Contents**
3. **Introduction**
4. **Project Objectives**
5. **Dataset Overview**
6. **Methodology**
7. **Analysis & Insights**
8. **Customer Segmentation**
9. **Business Recommendations**
10. **Conclusion**

INTRODUCTION :

Customer churn, or the rate at which customers stop doing business with a company, is a major concern for the telecom industry. High churn rates can significantly reduce profitability and hinder long-term growth. Since acquiring new customers is often more expensive than retaining existing ones, telecom providers must focus on understanding why customers leave and take proactive steps to retain them. Data-driven churn analysis allows companies to identify patterns, segment customers by risk, and implement targeted retention strategies. By examining customer demographics, service usage patterns, and billing behaviors, businesses can address the root causes of churn and improve customer satisfaction, ultimately leading to higher loyalty and revenue stability.

PROJECT OBJECTIVES :

- Analyze churn rate based on customer demographics and service usage patterns.
- Identify key churn factors, such as contract type, payment method, and tenure.
- Segment customers into three groups: Loyal, At-Risk, and New.
- Develop interactive dashboards in Power BI for management to monitor churn trends and KPIs.
- Propose actionable retention strategies to reduce churn and improve customer loyalty.

DATASET OVERVIEW :

Source: Kaggle – Telco Customer Churn Dataset

Size: Approximately 7,000 customer records with 21 columns

Key Features:

- **Demographics:** Gender, Senior Citizen, Partner, Dependents
- **Services:** Phone Service, Internet Service, Streaming TV, Streaming Movies, Tech Support, Online Security, Online Backup, Device Protection
- **Account Information:** Contract type, Payment method, Monthly charges, Tenure
- **Target Variable:** Churn (Yes/No)

Data Cleaning Steps:

- Removed null and blank values
- Corrected data types (e.g., tenure as integer, charges as float)
- Standardized categorical labels for consistency

METHODOLOGY :

1. Data Preparation (Excel & Python)

- Imported the dataset and cleaned it by removing missing values, fixing data types, and standardizing labels.

2. Exploratory Data Analysis (Excel)

- Created pivot tables and charts to examine churn distribution across demographics, services, and contracts.

3. SQL Analysis

- Wrote queries to calculate churn rates by service type, contract type, and payment method.
- Segmented customers into Loyal, At-Risk, and New based on tenure and charges.

4. Power BI Dashboard Development

- Built interactive dashboards with KPIs, filters, and visual trends of churn over time.

5. Insight Extraction

- Identified high-risk customer groups and summarized patterns for business recommendations.

ANALYSIS & INSIGHTS :

Overall Churn Rate:

- 26.58% of customers in the dataset have churned.

Churn by Internet Service:

Internet Service	Total Customers	Churned Customers	Churn Rate (%)
DSL	2,416	459	19.00%
Fiber optic	3,096	1,297	41.89%
No Internet	1,520	113	7.43%

Churn by Contract Type:

Contract Type	Total Customers	Churned Customers	Churn Rate (%)
Month-to-month	3,875	1,655	42.71%
One year	1,472	166	11.28%
Two year	1,685	48	2.85%

Other Factors:

- Senior citizens churn at a higher rate compared to non-seniors.
- Customers paying via **electronic check** have the highest churn percentage.

- Customers without additional services like Tech Support or Online Security are more likely to churn.

CUSTOMER SEGMENTATION :

- Loyal Customers: Tenure > 24 months, consistent payments, low churn risk.
- At-Risk Customers: Tenure < 6 months, high monthly charges (> ₹70), often month-to-month contracts.
- New Customers: Tenure < 2 months, behavior not yet established.

BUSINESS RECOMMENDATIONS :

- **Promote Long-Term Contracts:** Offer discounts or perks for 1–2 year commitments.
- **Improve Service for Fiber Optic Customers:** Address complaints and provide incentives for retention.
- **Special Retention Offers:** Target at-risk month-to-month customers with tailored offers.
- **Enhance Onboarding:** Focus on first 90 days with personalized support and engagement.

- **Alternative Payment Options:** Encourage more secure and reliable payment methods to replace high-churn methods like electronic checks.

CONCLUSION :

This churn analysis highlights the most vulnerable customer groups and key factors driving customer loss. By targeting high-risk segments with tailored strategies—especially Fiber optic users, month-to-month contracts, and electronic check payers—telecom companies can significantly reduce churn, improve customer satisfaction, and stabilize revenue. Continuous monitoring and proactive retention campaigns will ensure long-term success.