Telecom Customer Churn Analysis

Project Overview

This project analyzes a dataset of **7,043 customers** to identify the key drivers of attrition. By using Python (Pandas, Matplotlib, and Seaborn), I've uncovered that while the overall churn rate is **26.5%**, specific high-risk segments reach churn rates as high as **42%**.

Deep Dive: The Data Insights

1. Contractual & Financial Drivers

- **The "Month-to-Month" Trap:** Customers on monthly contracts are the highest risk, with a **42.7% churn rate**, compared to just **2.8%** for those on two-year contracts.
- **Price Sensitivity:** Churn significantly increases once monthly charges exceed **$70**. Customers in the **$70–$100 range** represent the largest volume of lost revenue.
- **The "Critical Year":** Approximately **52.4%** of all churned customers leave within their **first 12 months**.

2. Service & Technology Impact

- **Fiber Optic vs. DSL:** Surprisingly, **Fiber Optic** users churn at a rate of **41.9%**, nearly double the **19.0%** rate of DSL users. This suggests a potential issue with Fiber pricing or service stability.
- **Payment Friction:** Customers using **Electronic Checks** account for **57.3%** of all churned users. Conversely, those on automated credit card or bank transfers are significantly more loyal.

3. Demographic Vulnerabilities

- **Family Structure:** Customers without dependents are at a higher risk, making up **82.6%** of the total churned population.
- **Senior Citizens:** While they are a smaller portion of the base, seniors have a much higher likelihood of leaving compared to younger demographics.
- **Gender:** Analysis shows a nearly **50/50** split in churn between genders, indicating that gender is not a primary driver of attrition.