Project Report: Telco Customer Retention Analysis

Analyst: Susendran K

Tools Used: Python (Pandas, Seaborn), Microsoft Excel, Power BI

Data Source: IBM Telco Customer Churn (Kaggle)

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1. Project Objective

The goal of this project was to analyse customer behaviour for a telecommunications company experiencing a **26.58% churn rate**. The analysis aims to identify the root causes of customer attrition and provide data-driven recommendations to stabilize Monthly Recurring Revenue (MRR).

2. Data Preprocessing (Python)

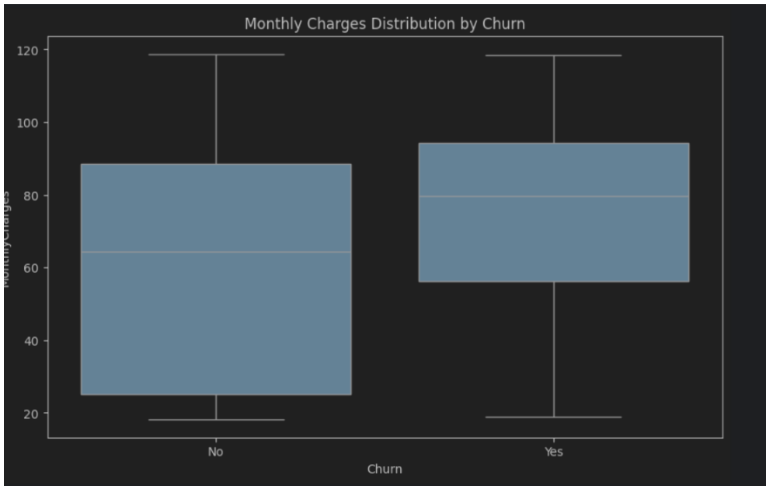
Before analysis, the data was "audited" for quality issues:

- **Data Cleaning:** Identified that the Total Charges column was stored as an object dtype due to empty spaces. Used pd.to_numeric () to convert it to float dtype.
- **Missing Values:** Removed 11 rows with null values in Total Charges to maintain data integrity.
- **Exploratory Stats:** Determined that churned customers paid a significantly higher average monthly fee (**$74.40**) compared to retained customers (**$61.30**).

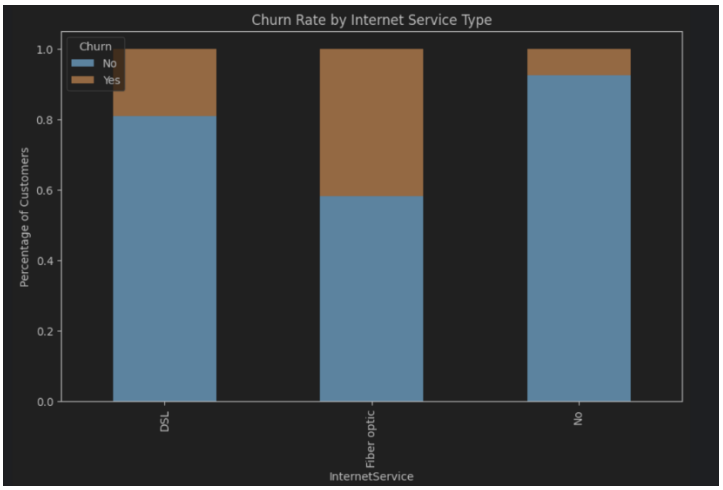
3. Key Findings & Insights

Through a combination of Excel Pivot Tables and Python visualizations, three major drivers of churn were identified:

- **High-Risk Contracts:** Customers on **Month-to-Month** contracts represent the highest risk, especially during their first 6 months of tenure.



- **The Fiber Optic Paradox:** While Fiber Optic is the fastest service, it has a churn rate of **41.89%**. This is significantly higher than DSL, likely due to the high price point (Median $80).



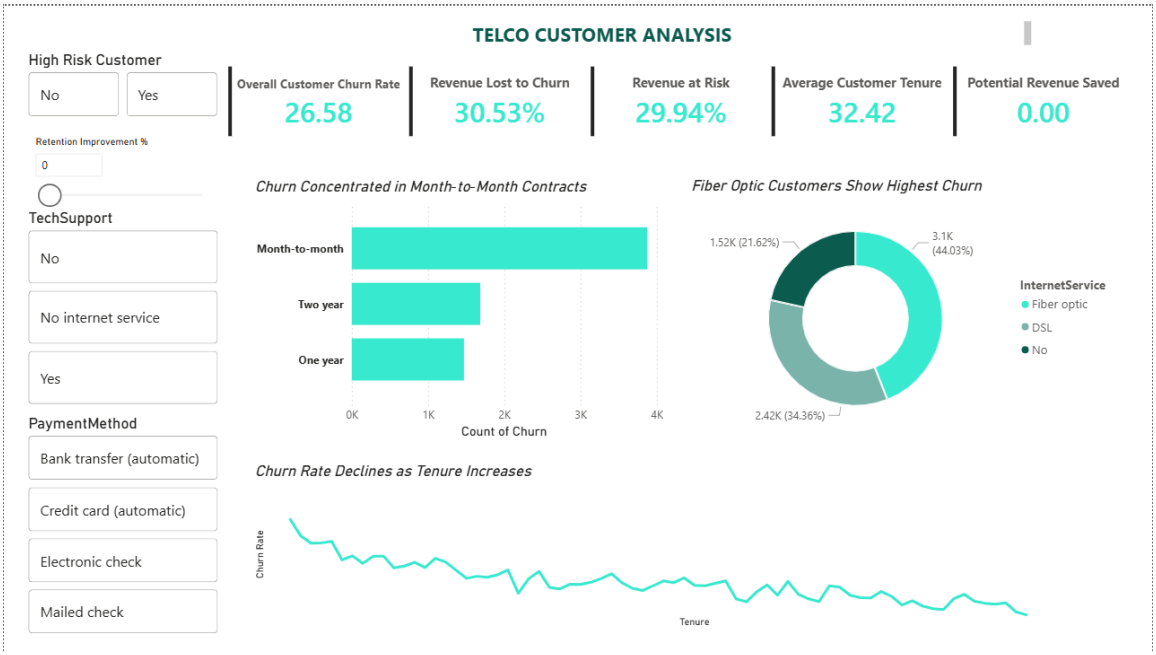
- **The Tech Support Gap:** A critical finding was that **63% of internet users** did not have Technical Support. There is a direct correlation between the absence of support and the decision to churn.

Count of Churn	TechSupport			
InternetService	No	No internet service	Yes	Grand Total
DSL	1242		1174	2416
Fiber optic	2230		866	3096
No		1520		1520
Grand Total	**3472**	**1520**	**2040**	**7032**

4. Dashboard Overview (Power BI)

I developed an interactive dashboard to allow stakeholders to drill down into customer segments.

- **KPIs:** Displays Churn Rate, Revenue lost to churn, Revenue at risk, Average Customer tenure, and Potential revenue saved.
- **Service Analysis:** Visualizes the impact of Internet Service types and Contract terms on retention.
- **Segment Filtering:** Includes slicers for Payment Method and Tech Support to identify specific "at-risk" groups.



5. Final Recommendations

Based on the data, the following strategic actions are recommended:

1. **Contract Migration:** Launch a marketing campaign to transition Month-to-Month customers to 1-year contracts using a small monthly discount.
2. **Support Bundling:** Include "**Premium Tech Support**" as a standard feature for Fiber Optic plans to increase perceived value.
3. **The "6-Month Milestone":** Implement a proactive customer success outreach for new users reaching their 3rd and 6th months, as these are peak churn windows.

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6. Conclusion

This project demonstrates that churn is not just a pricing issue but a combination of contract flexibility and service support. By focusing on the "High-Risk" segment identified in the dashboard, the company can prioritize retention efforts where they will have the highest financial impact.