**📊 Telecom Customer Churn Analysis – A Business Intelligence Case Study**

**🔍 Project Objective**

This project aims to uncover key factors contributing to customer churn in the telecom industry and quantify the revenue impact. Through visual analysis, the goal is to identify behavioral patterns of customers likely to churn and propose actionable insights for retention.

**📁 Dataset Overview**

* **Source**: Kaggle - Telco Customer Churn Dataset
* **Records**: 7,043 customers
* **Attributes**: Demographics (gender, senior citizen, tenure), services (Internet, OnlineSecurity, etc.), charges, and churn status.

**🔧 Tools Used**

* **Power BI**: For data transformation and interactive visualization
* **DAX**: For calculating churn rate and revenue metrics
* **Excel**: For initial data cleanup
* **GitHub**: For project versioning and portfolio hosting

**📌 Key Insights from Dashboard**

**🧾 Overall Metrics**

* 💸 **Total Revenue Lost**: ₹139.13K
* 🙍 **Total Customers Churned**: 1,869  
  These figures highlight significant financial impact due to customer churn.

**📈 Churn Rate by Tenure**

* Customers with **tenure between 0–20 months** exhibit the **highest churn rates**, peaking at above **60%** in the earliest tenure months.
* Churn gradually declines as customer tenure increases, indicating that **retention improves over time**.

**🔄 Service-Level Churn Drivers**

* **Fiber Optic + Month-to-Month Contracts** show the **highest churn rate**, especially without **online security, backup**, or **device protection**.
* Customers lacking these value-added services are more likely to switch providers.

**🧾 Billing & Contract Influence**

* **Paperless billing customers** show high churn with **month-to-month** contracts, possibly due to low commitment and ease of exit.
* Longer-term contracts (**1–2 years**) significantly reduce churn.

**🧑‍🤝‍🧑 Segmentation Analysis**

* A slicer for **gender** shows **no strong impact** on churn behavior.
* More meaningful segmentation includes:
  + **Senior citizens**
  + **Internet service type**
  + **Multiple lines**
  + **Tenure groups (e.g., 0–12, 13–24, 25+)**

**🛠️ DAX Calculations Used**

DAX

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Churn Rate (%) =

DIVIDE(

CALCULATE(COUNTROWS(ChurnData), ChurnData[Churn] = "Yes"),

COUNTROWS(ChurnData)

)

Total Revenue Lost =

CALCULATE(SUM(ChurnData[MonthlyCharges]), ChurnData[Churn] = "Yes")

Total Churned Customers =

CALCULATE(COUNTROWS(ChurnData), ChurnData[Churn] = "Yes")

Avg Monthly Charges (Churned) =

CALCULATE(AVERAGE(ChurnData[MonthlyCharges]), ChurnData[Churn] = "Yes")

Avg Monthly Charges (Retained) =

CALCULATE(AVERAGE(ChurnData[MonthlyCharges]), ChurnData[Churn] = "No")

**📌 Recommendations**

1. **Targeted Retention Campaigns**:
   * Focus on customers with **tenure below 20 months**.
   * Promote long-term contracts and bundled services.
2. **Behavioral Segmentation**:
   * Use **cluster analysis** to identify hidden customer segments.
   * Monitor **usage frequency** of online services.
3. **Enrich the Dashboard**:
   * Add **Monthly Revenue Trend**
   * Highlight **top churned regions/states**
   * Include a KPI card for **Churn Rate by Gender or Senior Citizen**

**🧠 Conclusion**

This dashboard effectively demonstrates the impact of churn and the associated risk to revenue. As a Business Analyst, you have successfully visualized problem areas and laid the foundation for customer retention strategy through meaningful insights.