**Customer Churn Analysis**

Project Overview

**Objective**

This report analyzes customer churn trends to identify factors influencing customer retention and attrition. The dataset explores customer demographics, contract types, service usage, and payment methods. Visualizations and statistical insights are used to uncover patterns in churn behavior.

**Tools and Technologies**

* Data Manipulation - Pandas, Numpy
* Data Visualization – Matplotlib, Seaborn

### **Approach**

* **Data Preprocessing**: Preprocessed the data by handling missing values and duplicate values
* **Exploratory Data Analysis (EDA)**: Created bar plots and pie charts to understand customer churn.

**Key Findings and Insights**

● Senior citizens (age 65+) have a churn rate of approximately 42% which is significantly higher than the other customers. This suggests that Senior citizens might require better engagement strategies or customized service plans.

● Customers who have been with the company for less than 6 months exhibit a churn rate of over 60%. In contrast, customers with a tenure of more than 2 years have a churn rate below 15%.The trend indicates that the first few months of service are critical for customer retention.

● Month-to-month contract holders are most likely to churn (over 55%), while those with 1-year (11%) and 2-year contracts (5%) have much lower churn rates.Encouraging customers to opt for long-term contracts could significantly reduce churn.

● Customers using Phone Service, DSL Internet and Online Security have higher retention rates (over 80%). Customers who do not subscribe to Online Backup, Tech Support, or Streaming TV show a churn rate of 45% - 50%. This indicates that customers who use more services are more likely to stay.

● Customers using electronic checks have a churn rate of over 50%, significantly higher than those using credit cards (20%) or bank transfers (22%). This suggests that customers paying via electronic checks might face more billing issues or lack automation, leading to dissatisfaction.

**Recommendations**

* Increased Customer Engagement in the First 6 Months --> Offer personalized onboarding, discounts, or loyalty programs to improve retention rates.
* Promote Long-Term Contracts ---> Provide better incentives for 1-year and 2-year contracts to reduce month-to-month churn.
* Bundle Key Services --> Encourage customers to subscribe to Online Backup, Tech Support, and Streaming TV, as these services improve retention.
* Improve Billing Options --> Promote credit card or bank transfer payments instead of electronic checks to reduce churn due to billing-related dissatisfaction.

### **Further Steps:**

* **Feature Engineering**: Creating new features or transforming existing features to improve model performance.
* **Model Building**: Training predictive models to predict customer churn.