

Exploratory Data Analysis (EDA) - Customer Churn Analysis.

The goal of this project is to perform **Exploratory Data Analysis (EDA)** on a telecom customer dataset to uncover patterns, trends, and insights about customer behavior and service usage. The dataset contains multiple features related to customer demographics, service subscriptions, and billing information, as well as a target variable **Churn**, indicating whether a customer has left the service.

Key Features of the Dataset:

The dataset includes the following columns:

1. **Customer Demographics:**
 - **customerID**: Unique identifier for each customer.
 - **gender, SeniorCitizen, Partner, Dependents**: These columns describe customer demographics such as gender, age group, and family status.
2. **Customer Tenure and Service Usage:**
 - **tenure**: The number of months the customer has been with the company.
 - Columns like **PhoneService, MultipleLines, InternetService, OnlineSecurity, TechSupport, StreamingTV, and StreamingMovies** indicate whether a customer subscribes to specific telecom services.
3. **Billing Information:**
 - **MonthlyCharges, TotalCharges**: Reflects the ongoing and total amount charged to the customer.
 - **PaymentMethod**: Type of payment method chosen by the customer.
 - **Contract, PaperlessBilling**: Describes contract type and billing preferences.
4. **Churn Information:**
 - **Churn**: The target variable indicating if the customer has left the service (1 = Churned, 0 = Retained).

Strategic Recommendations Based on Insights:

1. **Focus on New Customers:**
 - **Customer Retention Programs**: Create special offers for **new customers** within their first few months to increase their loyalty and reduce churn. For instance, provide **onboarding discounts**, exclusive **service bundles**, or personalized support.
2. **Promote Long-Term Contracts:**
 - Encourage customers to **sign up for 1- or 2-year contracts** to lock in retention. This can be incentivized with **discounts, free services, or upgraded features**.

3. **Offer Bundled Services:**
 - Develop and promote **service bundles** (e.g., phone, internet, tech support, and streaming) to customers. Offering comprehensive packages can help customers become more **engaged** and reduce churn.
4. **Improve Customer Support for Seniors:**
 - Since **senior citizens** exhibit higher churn, provide them with **tailored support**, easy-to-understand services, or specific plans that meet their needs. Senior-friendly customer service could be a key factor in retaining this segment.
5. **Optimize Pricing Models:**
 - **Price-sensitive customers** (those with higher churn at higher monthly charges) could be targeted with **customized, affordable plans**. Implementing **loyalty discounts** for long-term customers could help retain high-value clients.
6. **Promote Paperless Billing:**
 - Continue promoting **paperless billing** as a customer convenience option, possibly offering discounts or loyalty points for **digital billing** to improve customer retention.
7. **Leverage Automatic Payments:**
 - **Encourage automatic payments** by offering small incentives (e.g., discounts) to customers who switch to **automatic payments**. This could reduce churn due to billing friction.
8. **Invest in Customer Support and Tech Services:**
 - Since **tech support** correlates with lower churn, invest in improving **customer support** infrastructure and providing additional **premium services** like **24/7 tech support**.
9. **Improve Fiber Optic Availability:**
 - Since customers with **fiber-optic internet** tend to stay longer, consider expanding the availability of **fiber-optic internet** services and offer existing customers the option to upgrade.

The **EDA** provides a comprehensive understanding of the dataset, highlighting key patterns and relationships that can guide business strategies for customer retention. By analyzing service usage, billing preferences, and demographic factors, the project uncovers actionable insights to reduce churn and improve customer satisfaction.