**Customer Churn Analysis Using Excel**

**An In-Depth Analysis of Customer Behavior and Revenue Trends**

**Prepared by:  
Rejis Anto.M  
*Aspiring Data Analyst***

**Tools Used:  
Microsoft Excel**

**Introduction:**

**Dataset Description:**

The dataset, titled **Telco Customer Churn**, contains information about a telecommunications company's customers. It includes a variety of attributes describing customer demographics, services subscribed, account information, and churn status. Key features include:

* **Customer Demographics**: Gender, Senior Citizen status, Partner, Dependents.
* **Services Used**: Internet service, Streaming TV, Phone service, and more.
* **Account Information**: Tenure, Monthly Charges, Total Charges, Payment Method, and Contract Type.
* **Churn Indicators**: Churn Label, Churn Reason.

**Dataset Size:**

* **Number of Rows (Records)**: 7,043 customers.
* **Number of Columns (Features)**: 21 attributes.

**Purpose of the Dataset:**

The dataset is designed to facilitate **customer churn analysis** by identifying patterns and factors that contribute to customer retention or attrition. It enables data-driven decisions for improving customer satisfaction and reducing churn rates.

**Objective of the Project:**

The primary objective of this project is to:

* Analyze customer churn patterns and factors contributing to churn.
* Derive actionable insights to help the company improve customer retention strategies.
* Provide visualizations to summarize and communicate findings effectively.

**Personal Objective for the Project:**

As an aspiring data analyst, the goals for undertaking this project are:

* To enhance my data analysis skills using Excel, focusing on techniques like data cleaning, pivot tables, and visualizations.
* To demonstrate my ability to derive meaningful insights from data and make data-driven recommendations.
* To create a resume-worthy project that showcases my proficiency in Excel and sets a strong foundation for transitioning to more advanced tools like Power BI or Tableau.

**Scope of the Project:**

This project covers:

1. **Data Cleaning and Preparation**: Ensuring data quality by handling missing values, duplicates, and inconsistencies.
2. **Feature Engineering**: Creating additional features for better insights, such as tenure buckets and churn risk levels.
3. **Data Analysis**:
   * Identifying churn rates by demographics, services, and account types.
   * Analyzing revenue trends and customer lifetime value.
4. **Visualizations**: Creating charts and graphs for clear communication of findings.
5. **Actionable Recommendations**: Proposing strategies based on analysis to reduce churn.

**Pivot Table Sheets:**

1. **Churn Analysis**:
   * **Churn Rate by Demographics**: Gender, Senior Citizen, Partner status.
   * **Churn by Contract Type**: Month-to-month, one-year, and two-year contracts.
   * **Churn by Tenure Buckets**: Tenure groups and their churn rates.
   * **Churn by Internet Service**: DSL, Fiber Optic, and No Internet.
2. **Revenue and Charges Analysis**:
   * **Revenue by Contract**: Total revenue by contract type.
   * **Revenue by Region**: Revenue contribution by state or city.
   * **Average Monthly Charges by Contract Type**: Monthly charges grouped by contract type.
3. **Service Usage Analysis**:
   * **Service Adoption by Churn**: Adoption rates of internet and streaming services by churn status.
   * **Multiple Services and Churn**: Churn trends among customers with multiple services.
   * **Customer Lifetime Value by Gender and Contract**: CLTV segmented by gender and contract type.
4. **Tenure Analysis**:
   * **Average Tenure by Contract Type**: Tenure grouped by contract type.
   * **Tenure by Gender**: Average tenure of male and female customers.
5. **Churn Reason Analysis**:
   * **Churn Reasons**: Most common reasons for churn.
   * **Churn Reasons by Contract Type**: Segmented churn reasons by contract type.
6. **Payment Analysis**:
   * **Preferred Payment Method by Churn**: Payment methods preferred by churned vs. retained customers.
   * **Revenue by Payment Method**: Revenue contribution by each payment method.

**Visualizations:**

This project includes a variety of visualizations to explore customer churn patterns, revenue insights, and service usage trends. These visualizations are built using pivot tables and charts, offering actionable insights from the dataset.

* **Churn Rate by Demographics**: A stacked bar chart showing churn rates segmented by gender, senior citizen status, and partner status.
* **Churn by Contract Type**: A clustered bar chart comparing churn rates across contract types (month-to-month, one-year, and two-year).
* **Churn by Internet Service**: A pie chart visualizing churn proportions based on internet service types.
* **Churn by Tenure Buckets**: A pie chart illustrating churn distribution across tenure groups.
* **Revenue by Contract**: A column chart showing revenue contributions by contract type.
* **Revenue by Region**: A bar chart highlighting regional revenue distribution.
* **Average Monthly Charges by Contract Type**: A line chart comparing average monthly charges across different contract types.
* **Service Adoption by Churn**: A stacked column chart comparing service adoption (e.g., streaming TV, movies) among churned and retained customers.
* **Multiple Services and Churn**: A clustered bar chart analyzing churn rates among customers with multiple services.
* **Customer Lifetime Value (CLTV)**: Bar charts showcasing CLTV by gender and contract type.
* **Average Tenure by Contract Type**: A bar chart showing average tenure for different contract types.
* **Tenure by Gender**: A bar chart comparing tenure trends between male and female customers.
* **Churn Reasons**: A Pareto chart identifying the most common reasons for churn.
* **Churn Reasons by Contract Type**: A line chart analyzing churn reasons segmented by contract type.
* **Preferred Payment Method by Churn**: A pie chart showing the preferred payment methods for churned and retained customers.
* **Revenue by Payment Method**: A bar chart illustrating revenue contributions by payment method.

These visualizations offer a detailed understanding of customer behavior, service adoption trends, and revenue insights, while demonstrating proficiency in Excel-based data visualization techniques.

**Insights from teleco-churn dataset:**

|  |  |
| --- | --- |
| **Total no of customers:** | 7043 |
| **customers churned:** | 1869 |
| **churn rate:** | 26.54% |
| **Average tenure of churned customers:** | 18 |

|  |  |
| --- | --- |
| **Category** | **Insight** |
| **Demographics** | - Senior citizens have a higher churn rate than non-senior citizens. |
|  | - Customers without partners have a higher churn rate. |
|  | - Gender shows a minor variation in churn rates. |
| **Contract Type** | - Month-to-month contracts contribute most to churn. |
|  | - Customers with longer contracts (1 or 2 years) churn less frequently. |
| **Internet Service** | - Fiber optic service has the highest churn rate among internet options. |
| **Revenue Insights** | - Month-to-month contracts generate the most revenue but also account for most churned revenue. |
|  | - Electronic check users have a higher churn rate compared to other payment methods. |
| **Customer Lifetime Value (CLTV)** | - CLTV is highest for customers with two-year contracts and lowest for month-to-month contracts. |
| **Tenure Insights** | - Customers with tenure under 12 months churn more frequently. |
| **Churn Reasons** | - Specific churn reasons dominate, likely service quality and cost-related. |

|  |  |
| --- | --- |
| **Issue Identified** | **Recommendation** |
| High churn in month-to-month contracts | - Offer incentives or discounts to switch to long-term contracts. |
| High churn among senior citizens | - Provide tailored offers, better customer support, or senior-specific benefits. |
| High churn in Fiber optic internet service | - Address service quality issues, investigate common complaints, and offer flexible bundles. |
| High churn among electronic check users | - Simplify the electronic check process or encourage users to switch to more stable methods. |
| Low tenure customers churn more | - Enhance onboarding programs and ensure new customers receive proactive support in their first year. |

**Recommendations Section:**