Telco Customer Churn Analytics Report

Project Title :

Telecommunication: Customer Churn Prediction Dashboard

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Course :

BBA – IBM (Business Analytics)

1. Introduction

In Today's digital world, telecom companies work in a highly competitive market. Churn means when a customer stops using the services of a company and leaves due to various factors. This sectoral analytics project plays a crucial role in understanding tools and techniques for better interpretation of information and changes in the market. Predicting churn allows companies to understand why the customers leave and what can be done in order to retain them.

Telco Customer Churn Analytics involves using data-driven techniques to identify patterns, understand customer behavior and demands, and categorize which customer is at the brink of leaving. Advanced analytics help to reduce churn by offering various benefits like improved service quality and enhanced customer experience using data like service usage, payment method and contract type.

This project uses analytics tools to :

- Understand the factors influencing churn
- Create visual dashboards
- Analyze insights for better decision making

2. Objectives:

The main Objectives of this project are:

1. **To Identify Key Drivers of Customer Churn :**
   Analyze variables related to service, demography and billing methods in order to understand the factors leading to customer churn.

2. **To Perform Churn Segmentation :**
   Break down churn by using data like contract type, tenure, payment method and customer monthly charges with descriptive analytics.

3. **To Build Data Visualization for Better Understanding** :
   Create Dashboards for representing churn distribution, high risk segments/areas and customer categories.

4. **To support Decision Making for better Retention of Customers :**
   Convert and translate the interpretations from Dashboards for better customer retentions and recommendations.

3. Tools and Techniques used :

A structured, multi-step analytical approach that we used for creation of this report and analysis includes the use of following Tools:

1. **IBM COGNOS Analytics :**
   Used for Reporting, Creating interactive Dashboards with Visualization, summarizing the datasets and to form insights based on telecom churn data.

2. **Kaggle :**

Used as Primary platform for accessing the Telco Customer Churn dataset, exploring similar datasets , and industry level churn datasets.

3. **Microsoft Word and Excel :**

Used for documenting the entire project , compiling insights , structuring the report and presenting the final output in a professional manner.

Analytical Methodology:

1. **Data Cleaning and Preparation :**

   Data related to following factors was imported :

   - Churn Reason
   - CLTV
   - Tenure
   - Satisfaction
   - Revenue
   - Churn Score

2. **Descriptive analytics :**

   - Calculating Churn Rate
   - Identify correlation between churn and payment method
   - Segmenting Churn customers into various categories

3. **Visual Exploration :**

   Using IBM Cognos Analytics Dashboards for following purposes:

   - Providing an overview
   - Display Patterns among various factors related to churn
   - Categorizing churns to compare customer demands
   - Analyze Revenue

4. **Interference and Interpretation:**

Finding Insights from the comparisons, visualizations and statistical data for better operations. For Instance : Interpreting why customers with month-to-month contracts churn more.

4. *Data Description :*

The Telco Customer Churn includes data from various customers. Including the following fields:

1. **Customer Demographic Data**
   - Gender
   - Senior Citizen status
   - Partner/ Dependents'
   - Tenure

This helps to find which demographic groups are more likely to churn.

2. **Services Subscribed**
   - Phone Service
   - Internet Service
   - Tech Support

This helps to identify service combinations of the churn

3. **Account and Contract Data**
   - Contract Type
   - Payment Method
   - Churn Id

This helps to find influence of customer behavior for churn

4. **Billing Information**
   - Monthly Charges
   - Total Charges

Used to analyze pricing sensitivity of customers most likely to churn

5. **Revenue and Churn Label**

- Monthly Revenue
- Charges Lost

This is primary focus for all calculations and visualizations.

5. Insights and Findings

Based on Analysis of Telco Churn Dataset, following Insights were discovered:

1. **Churn Rate is High for Month-to Month Contracts**
   Customer with month-to-month contracts shows the highest churn rate.
   Those with one-year and two-year contracts are more stable and significantly less likely to leave.

2. **High monthly charges lead to Higher Churn**
   Customers paying higher monthly bills churn more frequently.
   This indicates customer price sensitivity and need for quality plans.

3. **Paperless Billing and Electronic Payment users Churn more**
   Churn is higher among these customers due to less engagement and inconvenience in digital billing and confusion.

4. **Short Tenure customers are most likely to Churn**
   Customers with Tenure of less than 6 months show Higher Churn.
   New customers tend to leave early if initial experience is poor.

   \# **Fiber Internet users show Higher Churn (as an Example)**

   Fiber internet customers show higher churn rate due to
   - Network Issues
   - Service dissatisfaction
   - Higher Prices

6. Dashboard and Visualization

These Project Includes professional Visualizations created using IBM Cognos Analytics. They help to identify churn patterns among Customers.
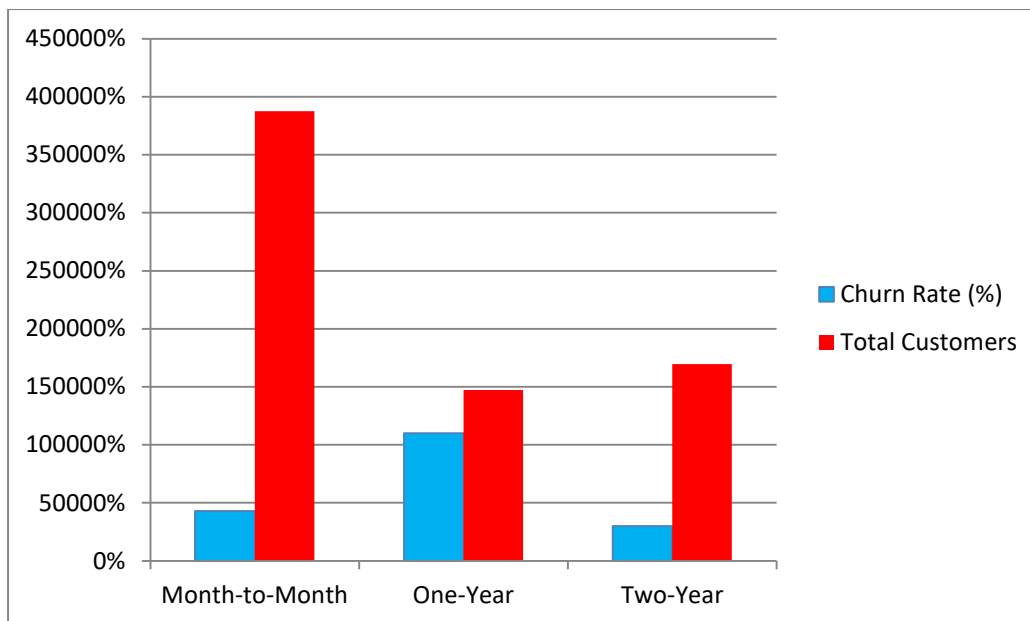
- Pie chart – For Churn Overview data

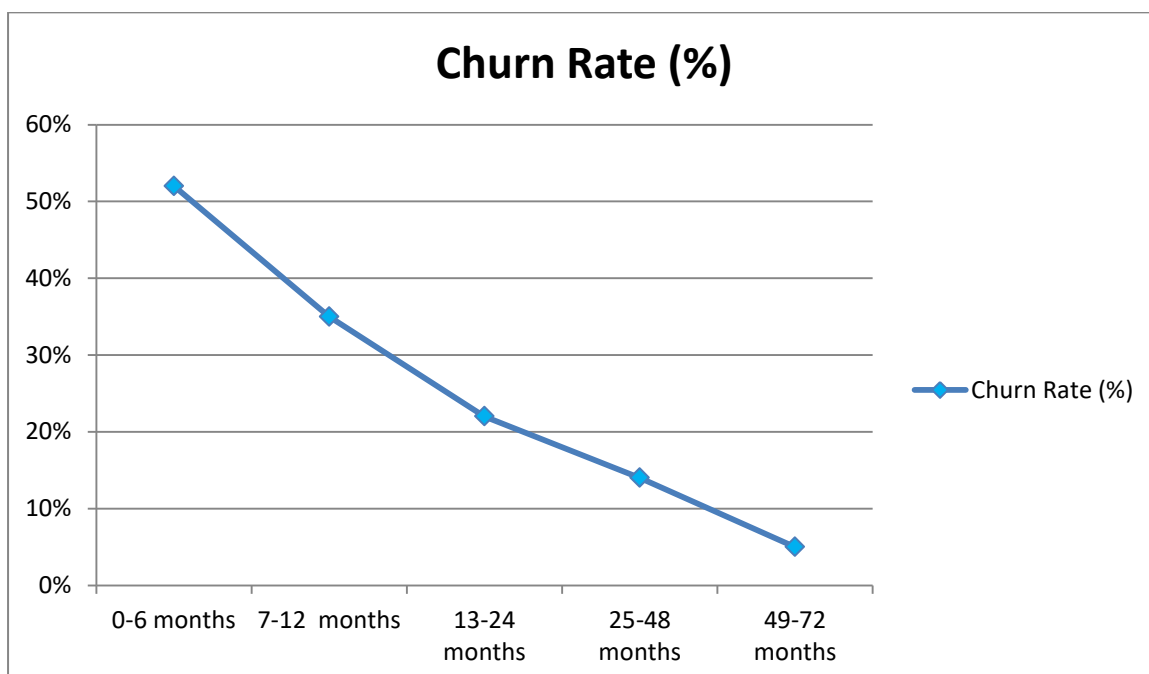Shows the percentage of customers who churned versus those who stayed.
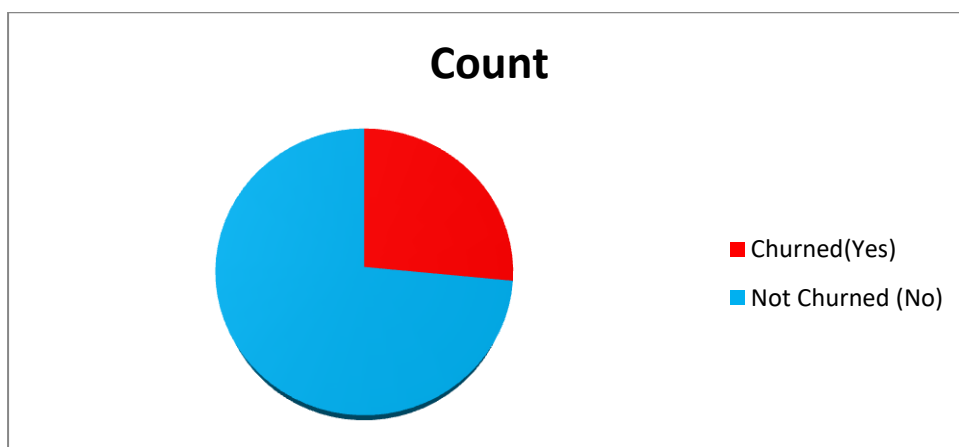
• Bar Chart – Churn by Contract Type

Highlights the significant difference between plan categories.
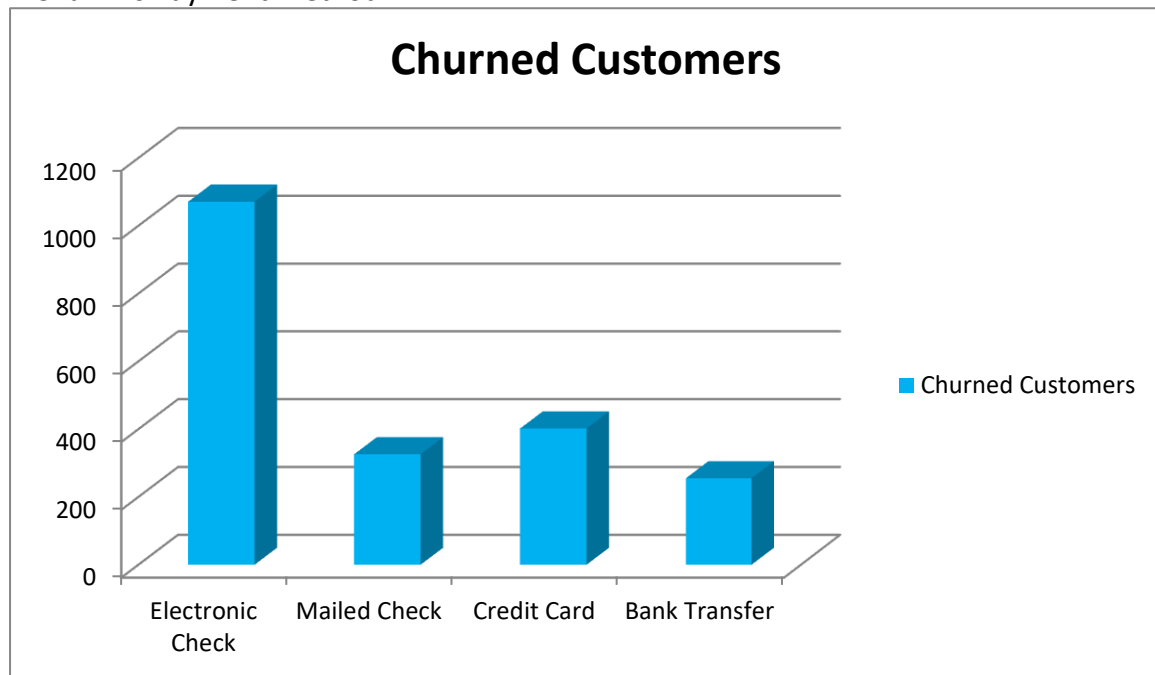
• Line Chart – Churn by Tenure Group

Shows the drop in churn probability as customer tenure increases.

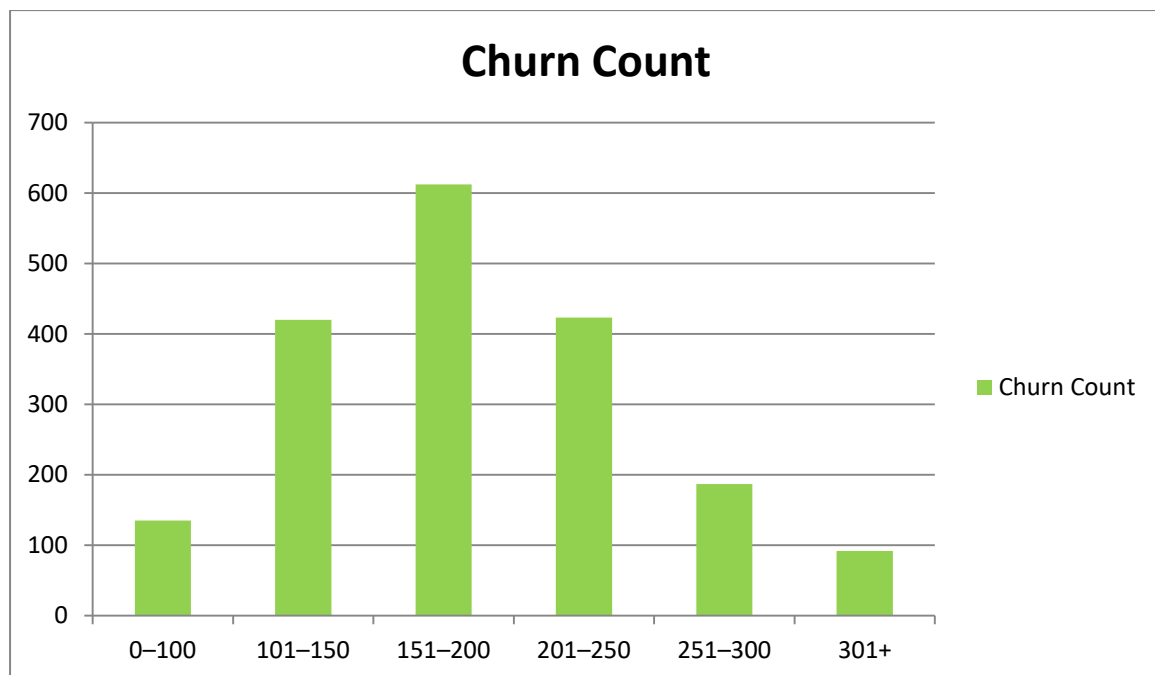

• Bar/Column Charts – Churn by Service Subscription

For example:

• Churn vs Payment Method

Churned Customers

Bar chart showing Churned Customers by payment method: Electronic Check (~1100), Mailed Check (~330), Credit Card (~420), Bank Transfer (~260).

• Histogram – Monthly Charges Distribution

Shows that churn is more common in higher billing ranges.

Churn Count

Histogram showing Churn Count by billing range: 0–100 (~135), 101–150 (~420), 151–200 (~610), 201–250 (~420), 251–300 (~185), 301+ (~90).

These visuals provide clear patterns to guide retention strategies.

7. Conclusion

This Project shows c=how Business analytics can be used to solve real life business problems in the Telecom Sector. By examining Telco Customer Churn Dataset, we were able to pinpoint the main causes of customer churining ,such as contract type , monthly fees, tenure ,and problems with Service quality.

Some important Insights that were discovered were as follows :

• Design personalized retention plans
• Improve customer experience
• Introduce flexible pricing
• Enhance service reliability
• Target high-risk customers early

Effective churn management can dramatically improve customer satisfaction and long-term profitability, making analytics an essential part of telecom operations.

8. References

- Dataset : Telco Customer Churn (IBM Sample Dataset)
- Analysis Tools : IBM COGNOS Analytics , Kaggle and Microsoft Excel
- Report drafted : Microsoft Word
- Visualizations Created in IBM Cognos
- Industry Insights based on Telecom Churn Trends