Customer Churn Analysis

Project Resources

- **GitHub Repository:** https://github.com/bhushan-zade/Customer_Churn_Analysis

- **Dataset Source:** https://www.kaggle.com/datasets/blastchar/telco-customer-churn

Project Objective

The objective of this project is to analyze customer churn trends and factors influencing customer retention across multiple dimensions, including demographics, payment methods, service preferences, and regional variations. The insights help businesses improve customer retention strategies, optimize services, and maximize profitability.

Project Summary

The project uses a rich dataset of customer attributes, including gender, age, contract type, payment methods, services subscribed, tenure, and regional factors. Key insights are extracted through Power BI visualizations and detailed reporting, enabling clear identification of churn patterns.

CHURN ANALYSIS - SUMMARY

Churn Prediction

6,418	411	1,732	27.0%
Total Customers	New Joiners	Total Churn	Churn Rate

DEMOGRAPHIC

Total Churn by Gender

621 (35....)
1,1... (6...)

Gender
- ● Female
- ● Male
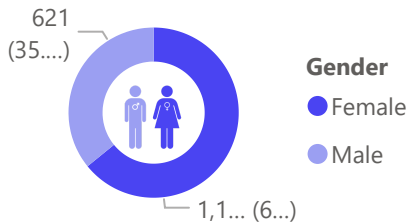
Total Customers and Churn Rate by Age Group

- ● Total Customers ● Churn Rate

40%
30%
20%

2.7K
1.8K   1.8K
0.1K

23.6%   23.7%   31.6%

<20   20-35   36-50   >50
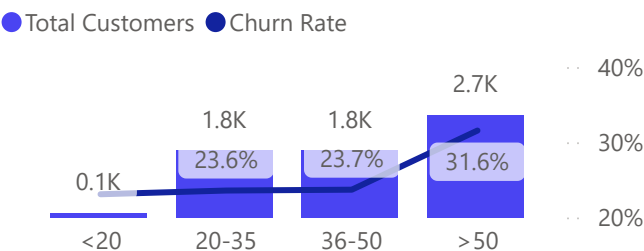
GEOGRAPHIC

Churn Rate by State (Top 5)

Jammu...	57.2%
Assam	38.1%
Jharkh...	34.5%
Chhatti...	30.5%
Delhi	29.9%
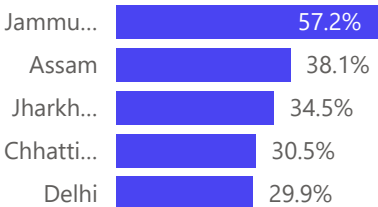
SERVICES USED

Churn Rate by Internet_Type

Fiber Optic	41.1%
Cable	25.7%
DSL	19.4%
None	7.8%

Churn by Services

Services	No	Yes
Unlimited_Data	19.9%	80.1%
Streaming_TV	56.8%	43.2%
Streaming_Music	61.1%	38.9%
Streaming_Movies	56.0%	44.0%
Premium_Support	83.5%	16.5%
Phone_Service	9.4%	90.6%
Paperless_Billing	25.4%	74.6%
Online_Security	84.6%	15.4%
Online_Backup	71.9%	28.1%
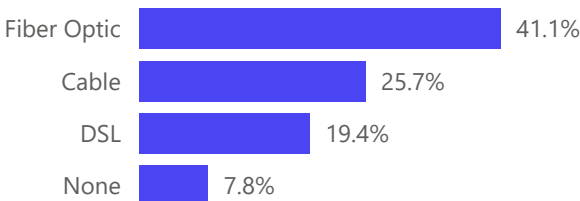
ACCOUNT INFO

Churn Rate by Payment_Method

Maile...	37.8%
Bank ...	34.4%
Credit...	14.8%
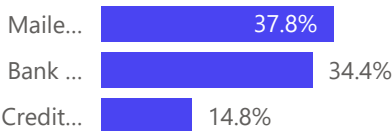
Churn Rate by Contract

Mont...	46.5%
One Y...	11.0%
Two Y...	2.7%
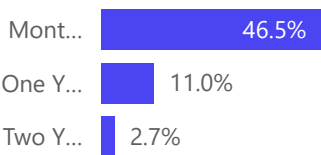
Total Customers and Churn Rate by Tenure Group

- ● Total Customers ● Churn Rate

28%
27%
26%

2.1K
1.3K   1.0K   1.0K
1.1K

26.4%   27.2%   26.1%   27.2%   27.5%

<6 Months   6-12 Months   12-18 Months   18-24 Months   >=24 Months
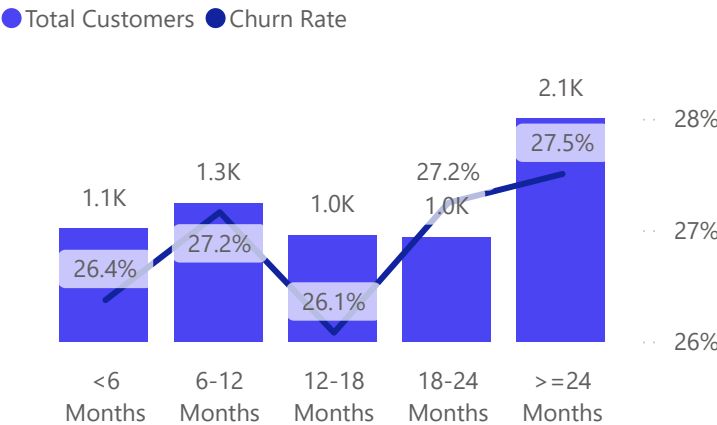
CHURN DISTRIBUTION

Total Churn by Churn_Category

Compe...	761
Attitude	301
Dissati...	300
Price	196
Other	174

CHURN ANALYSIS - PREDICTION

PREDICTED CHURNER PROFILE

250 Female | **133** Male
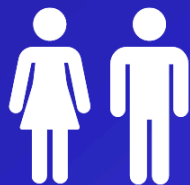
by Age Group
Age Group	#
<20	12
20-35	112
36-50	130
>50	129

by Marital Status
Status	#
No	192
Yes	191

by Tenure Group
Tenure Group	#
<6 Mo...	66
6-12 M...	90
12-18 ...	57
18-24 ...	62
>=24 ...	108

by Payment_Method
Payment Method	#
Credit Card	194
Bank Withdr...	152
Mailed Check	37

by State
State	#
Uttar Pra...	45
Maharash...	40
Tamil Nadu	37
Karnataka	30
Bihar	25
Andhra Pr...	24
Haryana	22
West Ben...	21
Gujarat	19
Telangana	19
Madhya P...	17
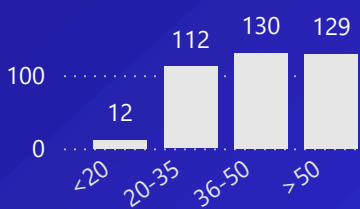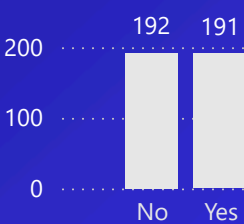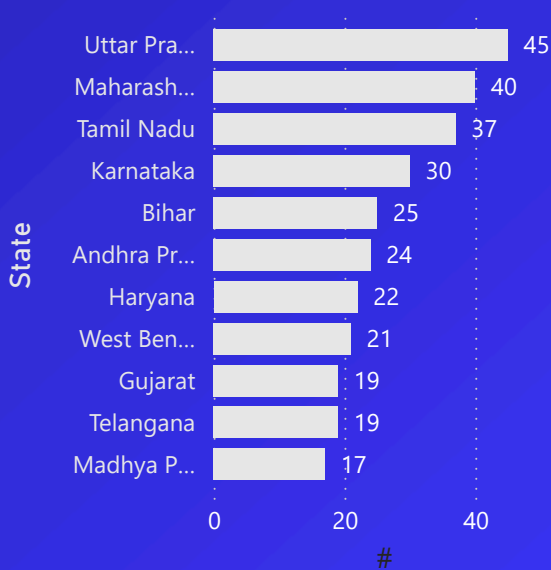
by Contract
| Contract	#
Month-to...	355
One Year	19
Two Year	9
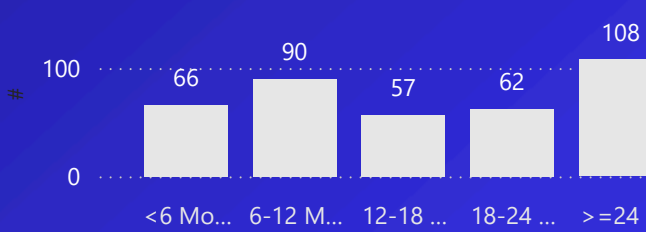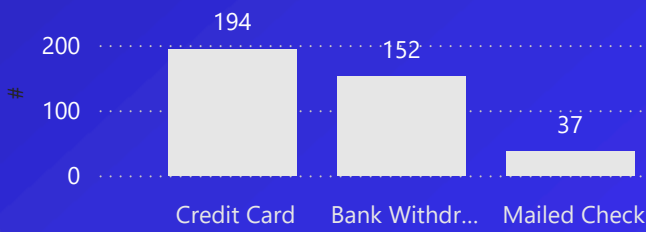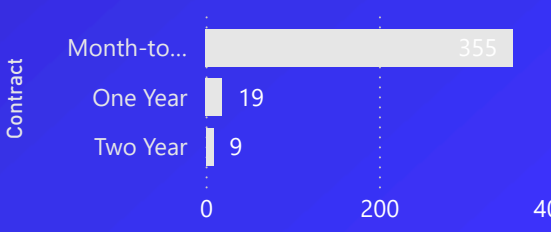
CUSTOMERS AT RISK

COUNT OF PREDICTED CHURNER : 383

Customer_ID	Monthly_Charge	Total_Revenue	Total_Refunds	Number_of_Referrals
11751-TAM	24.30	38.45	0.00	5
12056-WES	90.40	362.89	0.00	2
12136-RAJ	19.90	31.73	0.00	2
12257-ASS	19.55	29.75	0.00	9
12340-DEL	62.80	104.99	0.00	0
12469-AND	55.30	91.99	0.00	11
12490-TEL	74.75	236.76	38.84	9
13058-MAD	46.10	138.13	0.00	13
13123-BIH	100.20	253.62	0.00	13
13666-UTT	95.40	344.18	0.00	15
13744-AND	19.65	33.50	0.00	8
13823-TEL	24.50	46.40	0.00	1
13946-HAR	19.65	43.32	0.00	1
14567-TAM	20.35	64.44	0.00	1
15349-UTT	50.15	90.02	0.00	9
15591-KAR	20.40	66.31	0.00	3
15803-UTT	19.15	41.52	0.00	6
16032-AND	46.60	91.64	0.00	8
16068-BIH	25.25	35.25	0.00	4
16244-UTT	19.55	24.65	0.00	5

Key Insights

1. **Churn Overview:**

   o **Total Customers:** 6,418.

   o **New Joiners:** 411.

   o **Total Churn:** 1,732 customers, equating to a churn rate of 27%.

2. **Demographic Insights:**

   o **Gender Breakdown:**

   - Female: 1,111.

   - Male: 621.

   o **Age Group Churn Rates:**

   - Below 20: Lowest churn.

   - 20-35 and 36-50: Highest churn percentages.

3. **Payment Method Impact:**

   o **Credit Card:** 14.8% churn.

   o **Bank Withdrawal:** 34.4% churn.

   o **Mailed Check:** Highest churn at 37.8%.

4. **Contract Duration Impact:**

   o **Monthly Contracts:** Highest churn rate at 46.5%.

   o **One-Year Contracts:** Moderate churn at 11%.

   o **Two-Year Contracts:** Lowest churn at 2.7%.

5. **Regional Churn Trends:**

   o **States with High Churn Rates:** Jammu & Kashmir (57.2%), Assam (38.1%), Jharkhand (34.5%).

6. **Service Preferences:**

   o Customers with **Streaming Services** (TV, Movies, Music) show higher churn rates.

   o Lack of **Online Security** correlates with higher churn.

7. **Internet Usage:**

   o Customers with **Fiber Optic** connections exhibit the highest churn at 41.1%, likely due to competition.

Report Highlights

1. **Customer Demographics:**
   Detailed visualizations of gender, age, and marital status distributions.

2. **Contract and Payment Analysis:**
   Churn heavily influenced by contract types and payment preferences.

3. **Service Analysis:**
   Trends in data usage, streaming services, and additional support subscriptions reveal actionable insights for retention.

4. **Geographical Analysis:**
   Regional churn trends identified using heatmaps and bar charts.

5. **Predictive Analysis:**
   Power BI visualizations used to predict potential churners and provide actionable recommendations.

Business Recommendations

1. **Promote Longer-Term Contracts:**
   Incentivize customers to choose annual or biennial contracts to reduce churn.

2. **Enhance Payment Flexibility:**
   Focus on improving the churn experience for mailed checks and introducing automated payment options.

3. **Targeted Customer Retention Campaigns:**
   Develop region-specific campaigns in high-churn states such as Jammu & Kashmir, Assam, and Jharkhand.

4. **Improve Service Quality:**
   Address dissatisfaction in streaming services and provide value-added benefits for online security and backup options.

Technical Overview

1. **Data Preparation:**

   o Data loaded and cleaned in Power BI.

   o Standardized customer IDs and corrected missing values.

2. **Visualization Techniques:**

   o Multi-layer dashboards for demographics, contracts, and services.

   o Predictive analytics with customer churn likelihood visualization.

3. **Statistical Metrics Used:**

   o Churn rate calculations.

   o Customer segmentation based on services and tenure.

Conclusion

The Churn Analysis project offers a comprehensive view of customer behaviour and churn trends. The actionable insights provided can help businesses develop better retention strategies, optimize service offerings, and improve customer satisfaction. With advanced Power BI visualizations and data-driven metrics, this project provides a robust foundation for informed business decision-making.

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