Project Report: Retail Customer Retention Analytics – WALMART

---

1. Project Title

Retail Customer Retention Analytics – WALMART

---

2. Project Overview

Walmart, one of the largest multinational retail corporations, operates across hypermarkets, discount department stores, and e-commerce platforms worldwide. With increasing competition from Amazon, Target, and other retailers, retaining customers has become a critical challenge. Walmart collects vast data on customer purchases, loyalty programs, and online interactions, but their current reporting lacks analytical depth to:Boost brand engagement

You are hired as a Power BI Analyst to design a Customer Retention Dashboard for Walmart that consolidates fragmented data and delivers real-time, actionable insights.Understand why customers are churning?

- Identify loyal vs. at-risk customers
- Measure the impact of loyalty tiers, promotions, and influencer-driven campaigns
- Guide region- and channel-specific retention strategies

---

3. Project Objective

Develop an interactive Customer Retention Analytics Dashboard in Power BI using Walmart data that will:

- Consolidate customer demographics, purchase history, store/e-commerce performance, and membership data.
- Enable dynamic segmentation of high-value, repeat, and churned customers.
- Provide actionable insights to improve retention, loyalty engagement, and regional strategies.

---

4. Dataset Description

a.Customer_Demographics.csv
Columns: Customer_ID, Age, Gender, Region, Income_Level, Membership_Since, Preferred_Channel (Store/Online) Engagement Summary Dataset

b .Customer_Transactions.csv
Columns: Transaction_ID, Customer_ID, Store_ID, Product_Category (Groceries, Electronics, Apparel, Home & Living), Transaction_Date, Amount, Promotion_Applied (Yes/No)

c. Store_Locations.csv
Columns: Store_ID, Store_Type (Supercenter, Neighborhood Market, Sam's Club, Online), Region, Opening_Year

d. . Loyalty_Program.csv

Columns: Customer_ID, Loyalty_Tier (Basic, Plus, Premium, Elite), Points_Earned, Points_Redeemed

e.Churn_Labelled_Customers.csv

Columns: Customer_ID, Last_Purchase_Date, Churn_Flag (0 = Active, 1 = Churned), Churn_Reason (Inactivity, Competitor, Low Engagement)

---

5. Task-wise Implementation

Task 1: Data Modeling & Cleaning

● Load and transform datasets in Power Query

● Handle duplicates, missing values, and ensure correct data types

● Create calculated columns:

  ○ Membership_Duration = Today – Membership_Since

  ○ Extract Transaction_Year, Transaction_Month

● Create a basic Data Model view ○ One-to-Many: Customer_Demographics → Transactions, Loyalty_Program, Churn_Labelled_Customers ○ Many-to-One: Transactions → Store_Locations

Soln: first 2 tasks is done using power query editor ,3 task is done creating calculated column in table view,and 4 task is done using model view

Task 2: Churn & Retention Metrics

● Create Churn Rate KPI = (Churned Customers / Total Customers) * 100

● Visualize churn rate by:

○ Region ○ Income Group ○ Channel (Store/Online)

○ Loyalty Tier

● Funnel Chart: Total Customers → Repeat Customers → Churned

Soln: 1task is done using creating Chrun rate KPI measure ,2 task is done visualiazing churn rate for that ,I use cards and slicers , 3 task is done visualiazing Total Customers Repeat Customers Churned by using funnel chart and measures for each .

Findings:

1. The churn Rate is significantly high (49.67) ,

This indicates a large portion of customers are leaving, which is a warning sign.

2.Retention (50.33) is only slightly higher than churn,

- Retention and churn seem almost balanced.
- The business is retaining 50% of customers

3. 83.7% of customers are repeat buyers (251/300). This is extremely positive — Walmart business has excellent customer loyalty overall.

4. Churned customers are 149 — almost half of total,

Task 3: Repeat Purchase Analysis

● Segment customers:

○ Low-Tier: 0–3 purchases

○ Mid-Tier: 4–8 purchases

○ High-Tier: 9+ purchases

● Compare avg. purchase frequency by Region, Age Group, Loyalty Tier

● Identify most purchased product categories by loyal customers

Soln: 1task is done using Power query editor need to create duplicate transaction and group by customer id and add conditional column ,2 task is done visualiazing avg. purchase frequency and for that first create measure and visuliaze using different chart. For 3 task for loyal customers create mesasure first and then visualize using bar chart.

Findings:

1.By Region:
North ,west customers purchase the most frequently(3.6), while the East has the lowest engagement (3.1)→ improvement strategy needed..

2. By Age_Groups: Customers aged 65+ have the highest purchase frequency(3.9), and 18-25 have the lowest (3.0).

3.plus-tier customers have the highest purchase frequency(26.02%), while Premium-tier customers have the lowest (24.29%) despite their higher status. Overall, purchase frequency is very similar across all tiers, indicating minimal impact of loyalty tier on buying behavior.

4.
Loyal customers purchase Groceries the most (134k) , while Apparel is the least purchased category(123k).

Task 4: Promotion & Loyalty Impact

● % of transactions with promotion applied

● Compare avg. purchase amount with vs without promotions

● Churn rate across loyalty tiers

● Points Earned vs Redeemed by Tier (clustered column chart)

● Recommendations to improve redemption & retention

Soln: 1task is done using Creating measure and used card to visulalize, and group by customer id ,2 task is done using Creating measure and visuliaze using Donut chart. For 3 task Visulize using bar chart , For 4 created using measur and Visulize using clusterd column chart ,

Findings:

1.
Around 49% of all transactions have a promotion applied, indicating moderate promo code usage among customers.

2.Since both averages are exactly 50% in the donut chart, we can conclude:

- Customers purchase similar quantity/value regardless of discounts.
- Promotions may be attracting customers, but not increasing their spend.

3.

1. Basic tier has the highest churn (216) — loyalty benefits may not be compelling enough.

2.Elite churn is slightly lower (199) but still Medium, indicating retention issues in upper tiers.

3.Premium tier performs moderately (194), showing better retention than Basic and Elite.

4.Plus tier has the lowest churn (189) — better retention than all above tier

4.
Top Tiers (Premium, Plus, basic) are Highly Engaged: Members in these tiers are actively earning and redeeming points at high rates , suggesting their rewards are attractive and the program is effectively driving loyalty in these high-value segments. Opportunity in the Elite Tier: The lower redemption rate in the Basic Tier indicates an opportunity to increase engagement.

Recommendations:

1 Retention:

- Send win-back offers to inactive customers (30/60/90 days).
- Introduce loyalty tiers (Silver/Gold/Platinum).
- Send personalized product recommendations after each purchase.

2 Redemption:

- Add low-point rewards to make redemption easy.
- Send points-expiry reminders to boost usage.
- Run monthly “double value” redemption events.

Task 5: Store & Channel Performance vs Retention

● Merge store data with transactions

● Visualize:

  ○ Avg. transaction amount by Store Type

  ○ Churn rate by store type

  ○ Correlation between store opening year & retention

Soln: Merge store data with transactions using power query editor.for 2 tasks create

Measure and visualize using different charts.

Findings:

1.Sam's Club records the highest average transaction amount at 534, closely followed by Neighborho od Markets (531).Supercenters have the lowest average transaction amount at 488, indicating the sm allest average basket size among all store types.

2.All four store types — Neighborhood Market, Online, Sam’s Club, and Supercenter — show the same churn value: 49.66% (25% share each).

This means no store type is performing better or worse in terms of churn rate.

3..Positive Trend: As the variable on the Y-axis (Store Opening Year) increases (moving upwards toward more recent years), the maximum obs erved values of the X-axis variable (Retention Rate) also generally increase (moving rightwards toward higher retention).

Task 6: Customer Lifetime Value (CLV) Analysis

● CLV = Total Amount Spent / Membership Duration (Years)

● Segment customers into Low, High CLV

- Above Average CLV as High
- Below Average CLV value- Low

● Visualize:

- CLV vs Days Since Last Purchase
- CLV by Loyalty Tier & Region

Soln: Create measure for clv and clv segment, and visualize clv using different charts.

Task 7: Final Dashboard & Executive Summary

● Multi-page Power BI Report:

- Page 1: KPIs (Churn, CLV, Repeat Rate)
- Page 2: Loyalty & Promotion Impact
- Page 3: Store/Channel Insights
- Page 4: Segmentation (Churned, Repeat, High-Value)

● Slicers: Region, Channel, Income, Loyalty Tier

● Top 3 recommendations for Walmart :

- Which customers to prioritize for retention?

1.High-Spend Customers who stopped purchasing in last 60–90 days

→ They have high lifetime value; losing them hurts the most.

2.Customers with high points balance but low recent activity

→ They are close to churning but can be pulled back through rewards.

3.Frequent shoppers shifting to fewer visits

→ Decline in visit frequency is an early churn signal.

- Which channels are underperforming?

1. Push store shoppers to online by giving app-only discounts.
2. Improve store experience with in-store exclusive deals and faster checkout.
3. Promote loyalty program at billing counters so store customers earn & redeem more.

- How to strengthen loyalty program engagement

1. Create clear upgrade benefits to push customers from Basic → Plus → Premium → Elite.
2. Offer tier-specific rewards (bigger perks for Premium & Elite to increase engagement).
3. Send alerts when customers are close to upgrading or dropping a tier to boost retention.

8. Conclusion

This project provides Interactive Customer Retention Analytics Dashboard in Power BI using Walmart data that will:

● Consolidate customer demographics, purchase history, store/e-commerce performance, and membership data.

● Enable dynamic segmentation of high-value, repeat, and churned customers.

● Provide actionable insights to improve retention, loyalty engagement, and regional strategies.

---

9. Tools & Techniques Used

- **Microsoft Power bi (Power Query, Measure ,calculated column, Charts)**
- **Data Cleaning & Transformation**
- **Visualization (Line Charts, Bar Charts, Scatter Plots)**
- **Loyalty & Promotion Impact Analysis**
- **Store/Channel Insights Analysis**
- **Customer Lifetime Value (CLV) Analysis**

---

10. References

- Retail Customer Retention Analytics – WALMART
- Marketing Analytics Frameworks (Chrun rate kpi ,retention rate)
- Studies Trends and technologies
