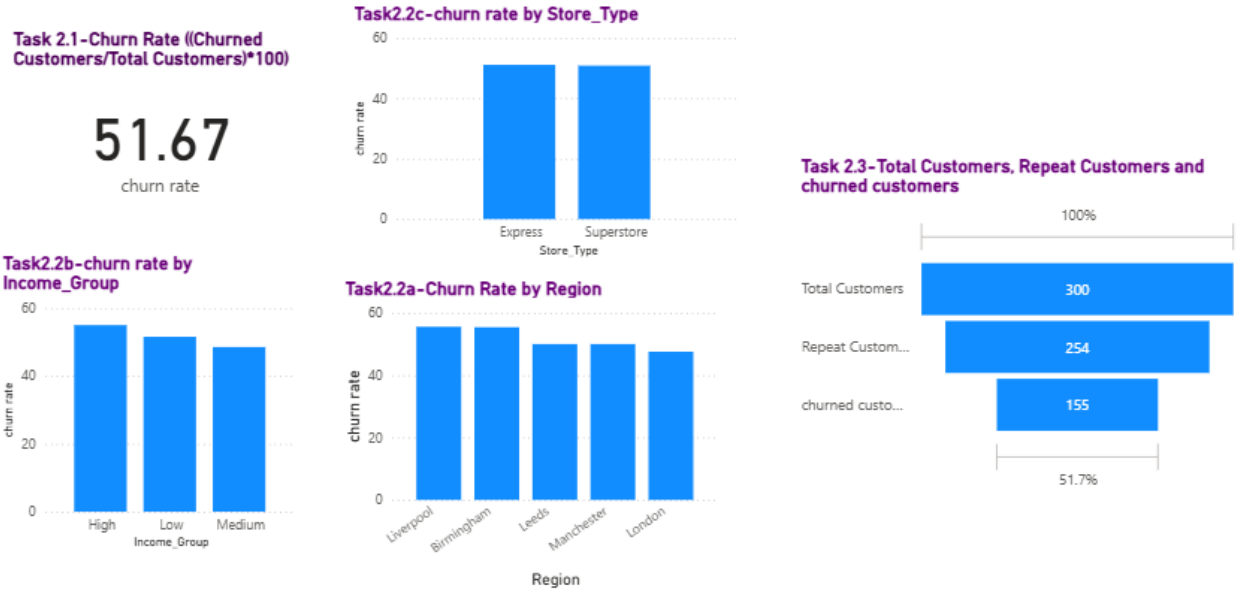
Retail Customer Retention Analytics- TESCO using Power BI

Task 1- Data Modelling and Cleaning

Transformed the data in Power Query Editor and made the following cleaning process

1. Removed blanks
2. Removed Duplicates and Errors
3. Checked for the data types of each column
4. Handled the missing values by replacing them
5. Created calculated Column using the formula: Membership Duration= Today-Membership since
6. Created a column for transaction year and month from transaction date
7. Created One to Many relationships with the Customer Demographics dataset and transactions dataset, Loyalty Program and Churn labelled Customers datasets
8. Created Many to one relationship with Transactions and store location data set

Task 2- Churn and Retention Metrics



Task 2.1 - Churn rate card is created, and it's found that churn rate is 51.67%

Task 2.2 a,b,c - Churn rate is observed for different regions, store types and income groups using stacked column chart

Task 2.3- Funnel chart is created visualizing Total Customers, Repeat Customers and Churned Customers and found that total customers = 300, Repeat Customers = 254, Churned Customers = 155.

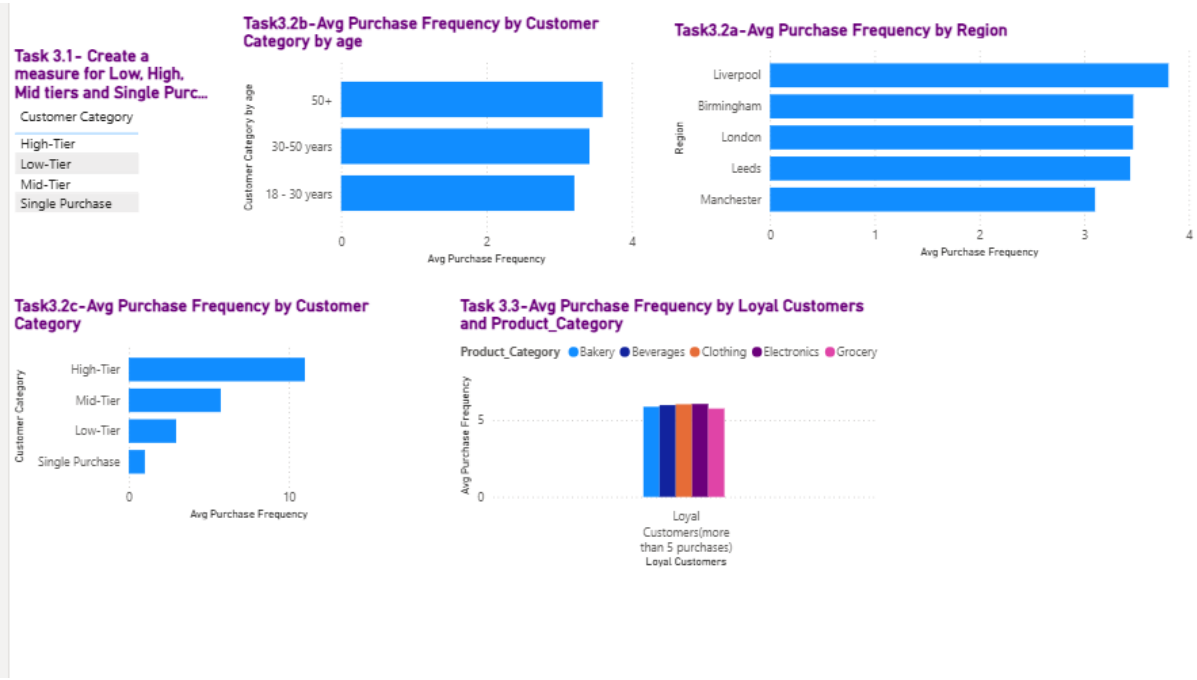
DAX Measures for this task:

1. *Churn rate = ([churned customers]/[Total Customers]) *100*
2. *Repeat Customers =*

```
VAR custTx =
    ADDCOLUMNS(
        SUMMARIZE('Customer_Transactions', 'Customer_Transactions'[Customer_ID]),
        "TxCount", CALCULATE(COUNTROWS('Customer_Transactions'))
    )
RETURN
    COUNTROWS(FILTER(custTx, [TxCount] > 1))
```

3. *Total Customers = COUNT(Customer_Demographics[Customer_ID])*

Task 3- Repeat Purchase Analysis



Task 3.1- Created DAX measure for Low Tier (2-4 purchases), Mid-Tier (5-10 purchases) and High Tier (11+ purchases) customers

Task 3.2 a,b,c – Visualized the average purchase frequency by region, age group and loyalty tier using clustered bar chart and found that 50+ years customers and Liverpool region have the highest average purchase frequency

Task 3.3 Visualized the product category that is frequently bought by loyal customers (Took for the customers who purchased more than 5 times) using clustered bar charts and applied filter for loyal customers with more than 5 purchases (mid-tier and high tier). Electronics product category has highest average purchase frequency comparatively.

DAX measure for this task: l

1. *Customer Category =*

```
IF(
   'Customer_Transactions'[Total Purchases per Customer] >= 11, "High-Tier",
   IF(
      'Customer_Transactions'[Total Purchases per Customer] >= 5, "Mid-Tier",
      IF(
         'Customer_Transactions'[Total Purchases per Customer] >= 2, "Low-Tier", "Single Purchase"
      )
   )
)
```

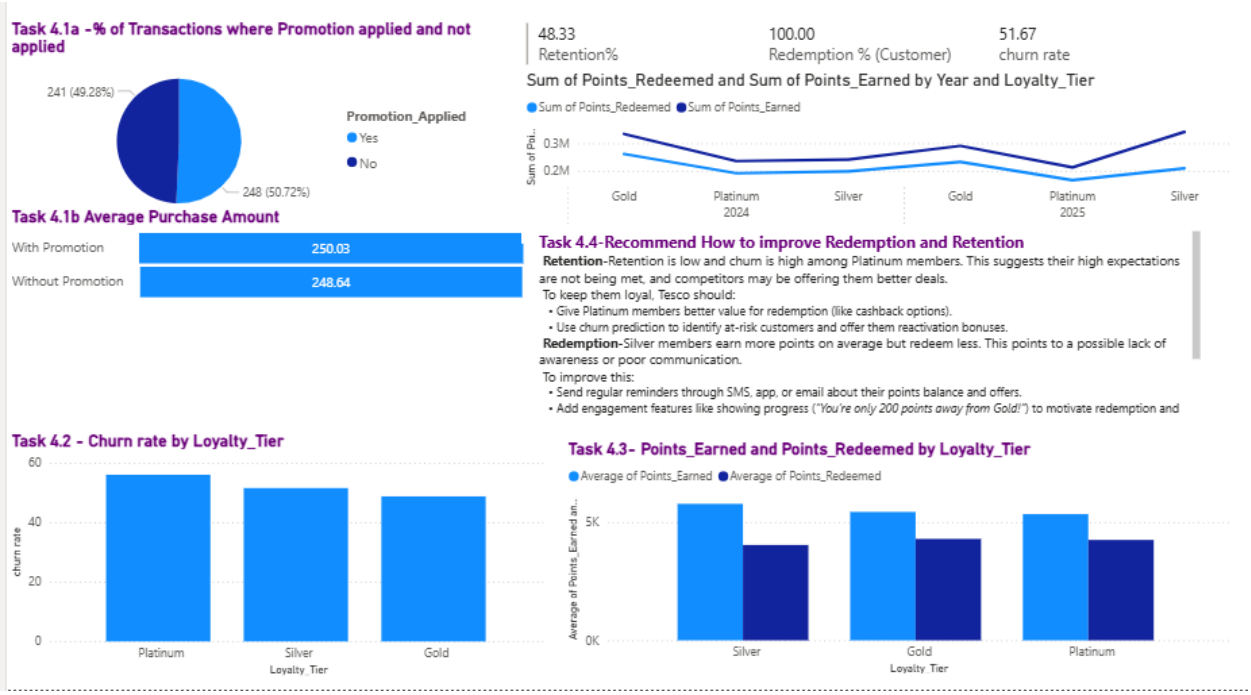
2. *Loyal Customers =*

```
   IF(
   'Customer_Transactions'[Customer Category]= "High-Tier", "Loyal Customers (more than 5 purchases)",
   IF(
      'Customer_Transactions'[Customer Category] = "Mid-Tier", "Loyal Customers (more than 5 purchases)",
      IF(
         'Customer_Transactions'[Customer Category] = "Low-Tier","Less than 5 purchases"
            )
         )
      )
```

3. *Avg Purchase Frequency =*

```
      AVERAGEX (
         VALUES('Customer_Transactions'[Customer_ID]),
         CALCULATE (
            COUNTROWS('Customer_Transactions'),
            ALLEXCEPT('Customer_Transactions', 'Customer_Transactions'[Customer_ID])
         )
      )
```

Task 4- Promotion and Loyalty Impact



Task 4.1a- Visualized % of transactions where promotion applied and not applied using Pie chart and is found to be 50.72%- Promotion applied and 49.28%-Promotion not applied.

Task 4.1b- Average Purchase amount with promotion and without promotion is observed using funnel chart and is found to be with promotion- 250.03 and without promotion – 248.04

Task 4.2- Visualized churned rate by loyalty tier using stacked column chart and found that Platinum has highest churn rate

Task 4.3- Visualized points earned vs points redeemed by loyalty tier using a clustered column chart and found that Silver earned more points but redeemed less. Gold redeemed more for the points earned when compared to Silver.

Task 4.4- Used text box to show recommendations for improving Redemption and Retention

These are the points to be considered:

Retention-Retention is low, and churn is high among Platinum members. This suggests their high expectations are not being met, and competitors may be offering them better deals. To keep them loyal, Tesco should:

- Give Platinum members better value for redemption (like cashback options).
- Use churn predictions to identify at-risk customers and offer them reactivation bonuses.

Redemption-Silver members earn more points on average but redeem less.

This points to a possible lack of awareness or poor communication. To improve this:

- Send regular reminders through SMS, apps, or email about their points of balance and offers.
- Add engagement features like showing progress (*"You're only 200 points away from Gold!"*) To motivate redemption and encourage tier upgrades.
-

DAX Measure used for this task:

1. *Distinct customers = DISTINCTCOUNT(Customer_Transactions[Customer_ID])*
2. *Avg points earned = AVERAGE(Loyalty_Program[Points_Earned])*
3. *Avg points redeemed = AVERAGE(Loyalty_Program[Points_Redeemed])*

Task 5- Store Performance vs Retention

Task 5.1 =Merged store id from transactions and with store locations using power query editor based on that the visualization of other subtasks of task 5 in this page is done

Task 5.2a-Visualized average transaction amount by store type using a Clustered column chart and found that Superstore has the highest average transaction amount.

Task 5.2c- Visualized retention% by opening year using scatter plot and found that retention% decreases

Task 5.2b- Visualized churn rate by store region using funnel chart and found that Leeds region has highest churn and Manchester has less churn compared.

Task 5.3- Used text box to suggest where to run store specific campaigns. Used two clustered column support charts for analysis and found that Express store has less retention and more churn.

Suggestion:

Express Stores (High Churn)

- Run **localized loyalty campaigns** → bonus points on essentials like milk, bread, snacks.
- "Buy today, get a coupon for your next visit" to encourage repeat visits.

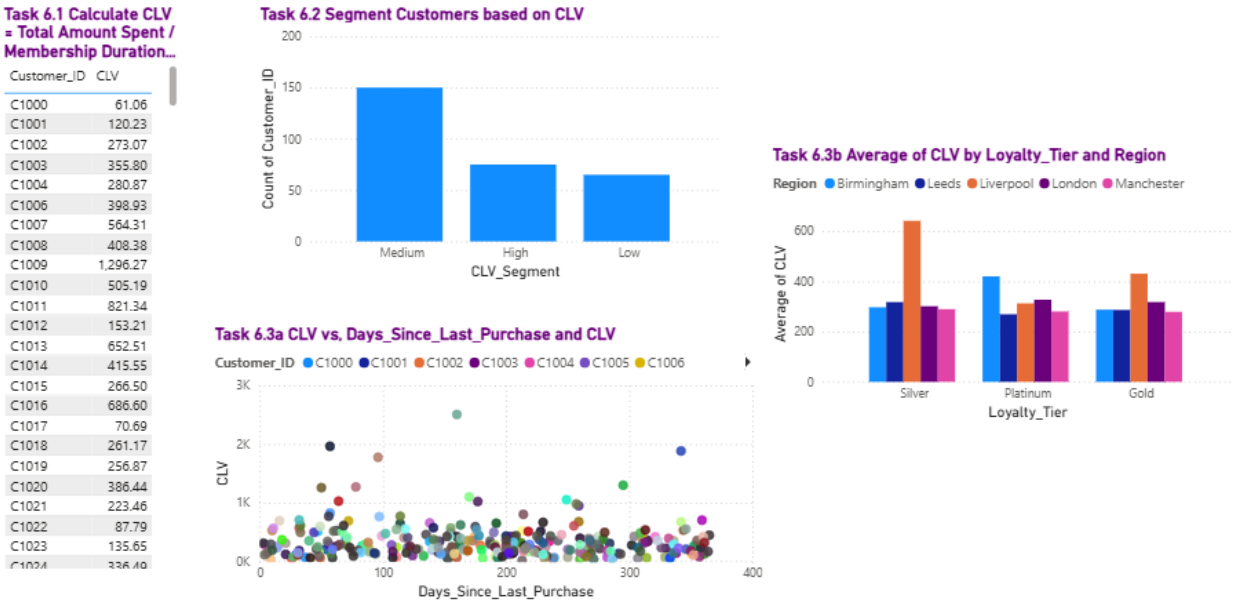
Regions with Lowest Retention %

- Double-points weekends to drive redemption.
- Regional promotions (e.g., tie-ups with local products).

DAX Measure used for this task:

1. *Average transaction amount = AVERAGE(Customer_Transactions[Amount])*
2. *Retention% (transactions) = 100- [Churn rate(Transactions)]*

Task 6- Customer Value Analysis (CLV)



Task 6.1 - Visualized the CLV for each customer using table visualization

Task 6.2 - Segmented customers based on CLV as medium (CLV<=75%), high (CLV>75%) and low (CLV<=25%). Visualized the count of customers based on CLV segment and found that majority of the customers come under Medium CLV

Task 6.3a- Visualized CLV vs Days since last purchase using scatter plot and found few customers are at risk as their CLV is high but their days since last purchase is more

Task 6.3b- Visualized average of CLV by Loyalty tier and Region using Clustered Column Chart and found that silver customers of Liverpool have highest CLV then comes the Platinum Customers of Brimingham and then gold customers of Liverpool

DAX measure used for this

1. *CLV =*

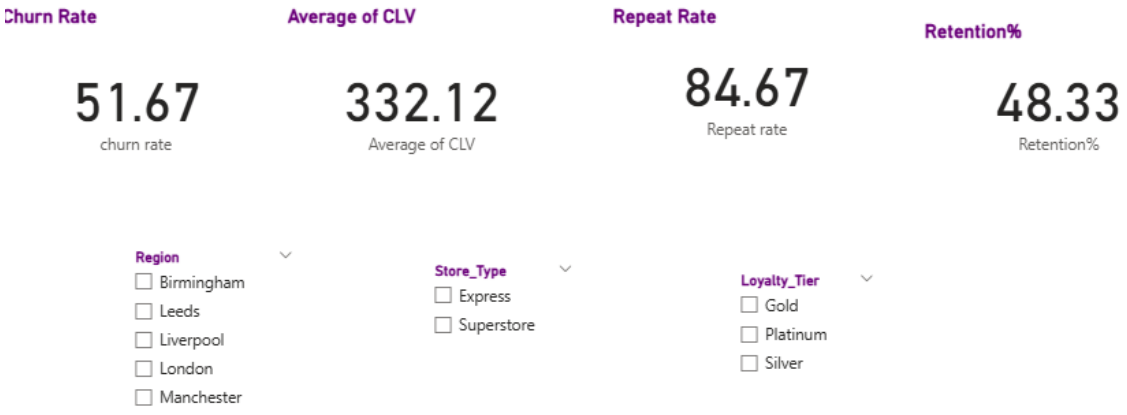
```
DIVIDE(
    CALCULATE(
        SUM('Customer_Transactions'[Amount]),
        ALLEXCEPT('Customer_Transactions', 'Customer_Transactions'[Customer_ID])
    ),
    'Customer_Transactions'[Mem Duration(years)],
    0
)
```

2. *CLV_Segment =*

```
VAR q1 =
    PERCENTILEX.INC (
```

```
        ALL ( Customer_Demographics ),
        Customer_Demographics[CLV],
        0.25
    )
VAR q3 =
    PERCENTILEX.INC (
        ALL ( Customer_Demographics ),
        Customer_Demographics[CLV],
        0.75
    )
VAR thisCLV = Customer_Demographics[CLV]
RETURN
SWITCH (
    TRUE(),
    ISBLANK ( thisCLV ), BLANK(),
    thisCLV <= q1, "Low",
    thisCLV <= q3, "Medium",
    "High"
)
```

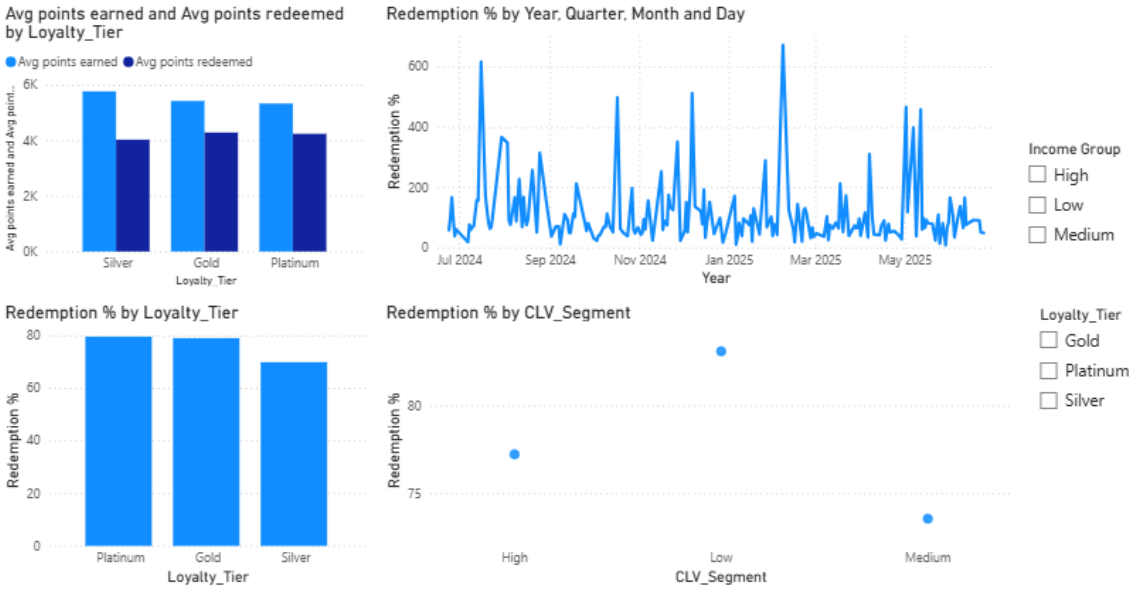
Task 7 Page 1



Created Overview KPIs with Churn rate, Average of CLV, repeat rate and Retention% using row card.

Slicers – Region, Store type and Loyalty Tier

Task 7 Page 2



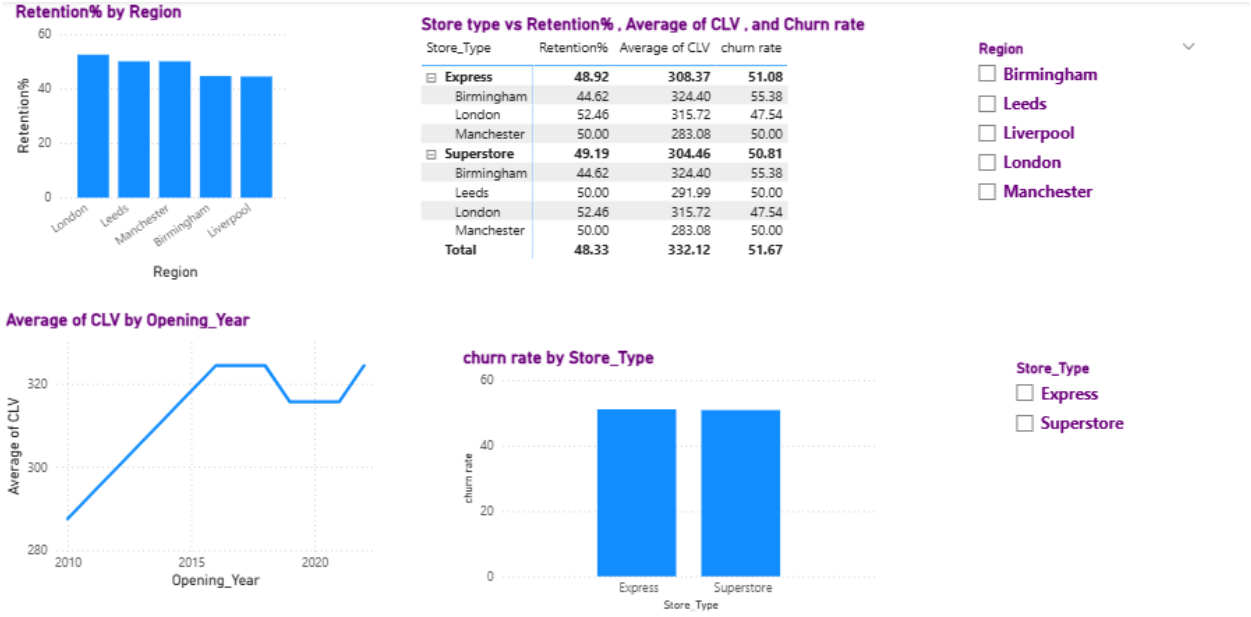
Created few insights for loyalty and promotion impact such as Average points earned and redeemed by loyalty tiers using stacked column chart, Redemption% by loyalty tier using Clustered Column Chart, Redemption% by year, month and date using line chart, Redemption% by CLV segment using scatter plot.

The insights for loyalty and promotion impact are below:

1. Silver earn more but redeem less
2. Platinum has more redemption%
3. Redemption% is more between Jan 2025 and March 2025
4. Redemption% of low CLV customers is high

Slicers- Income Group and Loyalty Tier

Task 7 Page 3



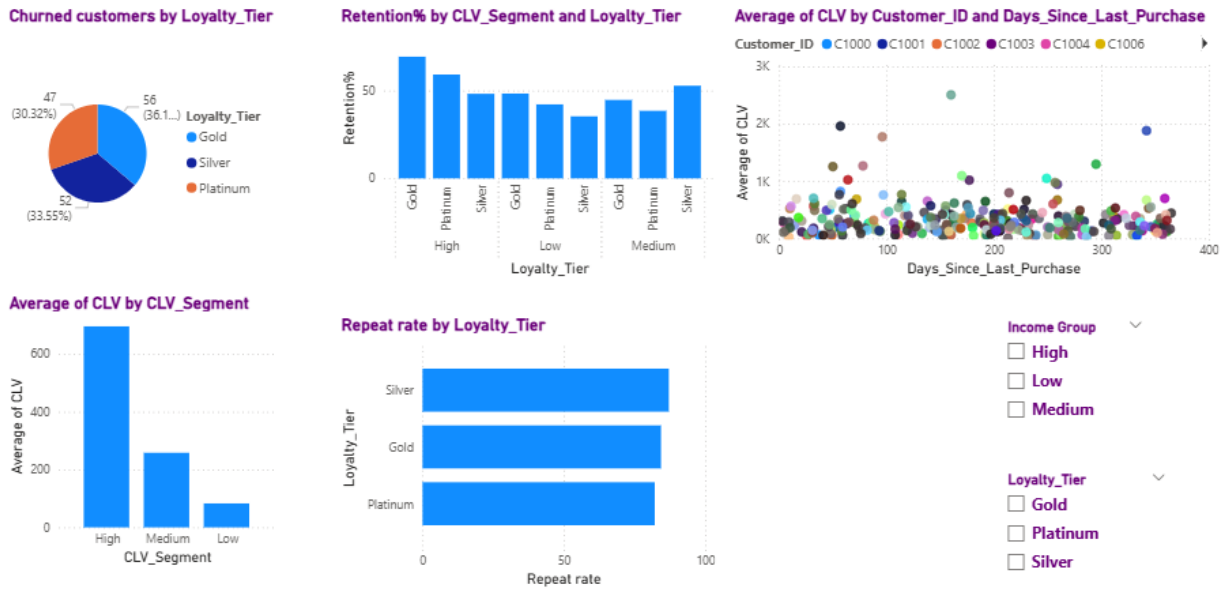
Created few insights for Store and Region such as Retention% by region using Clustered Column Chart, Average of CLV by Opening year using Line Chart, Churn rate by store type using Clustered Column Chart, Store type vs Retention%, Table that compares Retention%, Average of CLV and Churn rate for each store type and region

The insights for Store and Region are below:

1. Retention% is more in London, Leeds and Manchester region
2. CLV has improved by the opening year 2020
3. The Express store has good value customers, but their churn rate is slightly high when compared with superstores.

Slicers- Region and Store Type

Task 7 Page 4



Created few insights for CLV segments by Churn rate and repeat rate

Visualised Churned customers by Loyalty tier using Pie Chart, Retention% by CLV segment and Loyalty Tier using Clustered Column Chart, Average of CLV by Customer ID and Days since last purchase using scatter plot, Average of CLV by CLV segment using Clustered Column Chart, repeat rate by Loyalty Tier using Funnel Chart.

The insights are given below:

1. No of Customers who are churned more are in gold segment
2. Silver customers have slightly higher repeat rate compared to Gold
3. Found few high value customers with more days since last purchase and marked them as "High risk of losing "

Slicers- Income group and Loyalty Tier

DAX measure used-

1. *churned customers = COUNTROWS (FILTER (Churn_Labelled_Customers,Churn_Labelled_Customers[Churned (Yes/No)] ="Yes"))*
2. *Repeat rate = ([Repeat Customers]/ [Total Customers]) *100*

Summary

Observations:

1. We have half of the customers churned **task 2.3**

2. Purchase frequency of age 18 -30 years less **task 3.2b**
3. Purchase frequency of Manchester city is also less **task 3.2a.**
4. Manchester city has comparatively more number of 18 to 30 years **support fig 1 of task 3**
5. Liverpool has less customers comparatively but their purchase frequency is more **support fig 1 of task 3**
6. Customers who purchase grocery has less purchase frequency their loyalty is less **task 3.3**
7. Retention is low and churn is high among platinum **task 4.2**
8. Silver earn more points and redeem less **task 4.3**
9. Customers of express store show high churn **task 5.3**
10. Medium clv customers are more **task 6.2**
11. Manchester and Leeds of all the loyalty tiers have less clv **task 6.3b**
12. Gold and platinum loyalty tier customers have less clv comparatively **task 6.3b**
13. Customers at the top right of the scatter plot (**Task 7- Page 4**) between clv and days since last purchase are at high risk

Top 3 Recommendations:

1. Protect High-Value Customers (Platinum & High CLV at risk)

- Platinum loyalty tier shows **high churn & low retention**, plus the scatter plot highlights high CLV customers who haven't purchased recently.
- **Action:** Launch **exclusive offers** (cashbacks, reactivation bonuses, personalized deals) and proactive engagement (calls, app notifications) to win them back.

2. Improve Engagement of Younger & Silver Customers

- Customers **aged 18–30** and those in **Silver tier** show lower purchase frequency and poor redemption despite earning more points.
- **Action:** Run **gamified campaigns** ("200 points away from Gold"), targeted SMS/app/email reminders, and student/young professional discounts to push repeat purchases and redemptions.

3. Focus Campaigns on Weak-Performing Cities & Store Types

- **Manchester & Leeds**: More young customers, lower CLV, lower purchase frequency.
- **Express stores**: Higher churn.
- **Action:** Run **city-specific promotions** in Manchester & Leeds (bundle offers, local events) and **Express-store loyalty campaigns** to boost repeat visits.

Short Summary of what TESCO should do Next:

1. Retain high value Platinum customers with exclusive rewards & reactivation bonuses.

2. Engage younger (18-30) and silver customers via gamification & better redemption offers.

3. Run city- and store-specific campaigns in Manchester, Leeds, and Express stores to improve CLV and reduce churn

Task 8 Finding and Actionable Insights

Video Link: https://www.loom.com/share/b2ceaf3b415749079aa0711379569f93?sid=33dfe41c-8678-41bf-9d7f-6ff0526d436e