CUSTOMER 360 & RFM METRICS

Customer Analysis Report

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1. Project Overview

Customer 360

Customer 360 is an advanced approach that businesses are adopting to maximize the impact of their customer data. It creates a comprehensive customer profile by collecting and integrating information from various sources. This profile encompasses a wide range of customer details, from basic information such as demographics and contact information, to more complex data like preferences, purchase history, and interactions with the business across different channels.

By creating a holistic picture of each customer, Customer 360 enables businesses to gain deep insights into how customers interact with them at every touchpoint, including the purchasing process, marketing channels, customer service, and social media. This solution eliminates the problem of fragmented data across different systems, establishing a unified, accurate, and comprehensive source of customer information.

2. Analysis Model

a. Customer 360

Customer 360 analytics is a comprehensive method for gaining deep insights into your customers. It involves collecting data from multiple interaction points and combining it into a single, cohesive profile. This integrated profile encompasses various data types, offering a complete picture of each customer's behavior, preferences, and interactions with your business.

Figure 1. Customer 360

- **Demographics data** forms the foundation of customer understanding. It includes basic information about customers such as their age, gender, location, occupation, income level, and other attributes.
- **Transaction data** captures the commercial interactions between customers and the business. It includes information about purchases, orders, payments, and usage history.
- **Behavioral data** provides insights into customer actions, preferences, and opinions. It encompasses needs, desires, preferences, and opinions expressed by customers.
- **Interaction data** records how customers engage with the business across various touchpoints. It includes email/chat communications, call center notes, web click streams, and in-person dialogues.

2. Analysis Model

b. RFM Metrics

RFM is an analytical approach that focuses on three key aspects of customer behavior: Recency, Frequency, and Monetary value. By analyzing these three metrics, businesses can gain deep insights into customer value and behavior, enabling them to make more effective business decisions and personalize their marketing approaches. This model helps companies understand who their best customers are, allowing for more targeted and efficient marketing efforts.

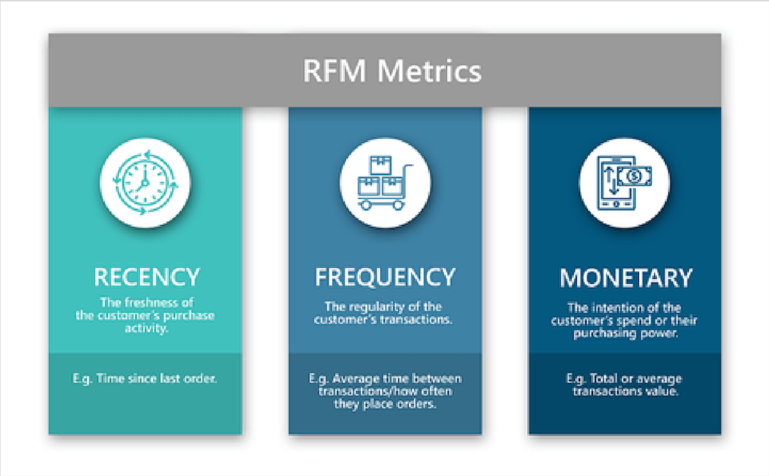


Figure 2. RFM metrics

R- Recency refers to how recently a customer made their last purchase.

Recency = Date of report – Date of most recent use.

F- Frequency measures how often a customer makes purchases over a given period.

Frequency = Count number of times using the service/Number of contract years.

M- Monetary value represents the total value of a customer's purchases.

Monetary = Sum(GMV)/ Number of years of contract.

3. Analysis Method

To assign RFM scores to customers, we employ the Interquartile Range (IQR) Method to organize data for Recency, Frequency, and Monetary value. The IQR Method is a statistical tool that measures data variability and identifies potential outliers. It focuses on the middle 50% of the data, providing a more robust measure that is less affected by extreme values compared to using the full data range.

IQR Method

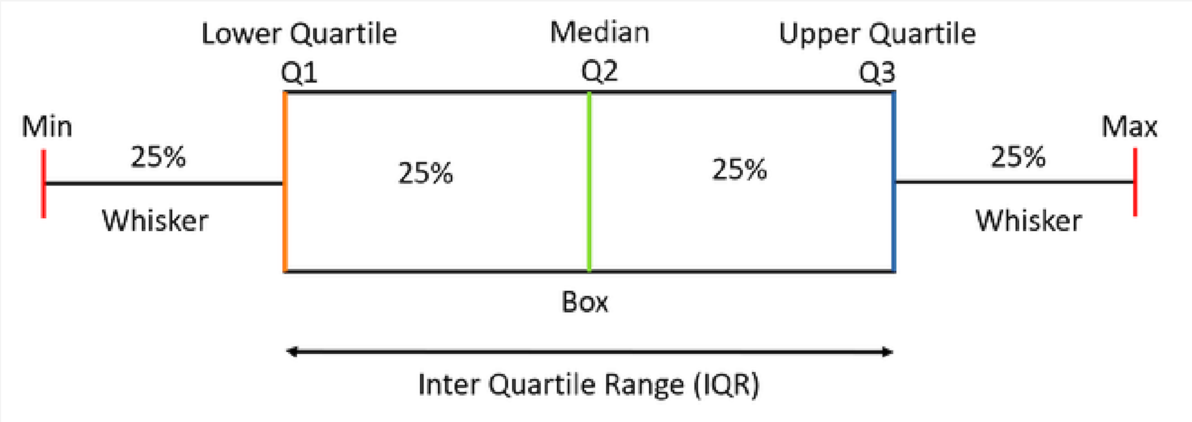


Figure 3. Interquartile Range

Calculating the Interquartile Range (IQR) for RFM Scoring:

1. **Data Ordering: Sort the dataset from lowest to highest value.**
2. **Identifying Quartiles:**
- **Q1 (1st quartile): The median of the lower half of the data, representing the 25th percentile.**
- **Q3 (3rd quartile): The median of the upper half of the data, representing the 75th percentile.**
3. **IQR Calculation: IQR = Q3 - Q1. This range encompasses the middle 50% of the data.**

After calculating the IQR, we proceed to assign RFM scores. The data for each RFM component is divided into four groups based on the IQR calculations. Each group is then assigned a score, typically ranging from 4 to 1, with 1 representing the best performance in that category. The result is a final three-digit RFM score for each customer (e.g., 4-4-3), where each digit represents the customer's standing in the respective RFM category.

Figure 4. BCG matrix

3. Analysis Method

BCG Matrix

The BCG Matrix is a strategic planning tool used to evaluate a company's product portfolio. It aids businesses in identifying growth opportunities and making informed decisions about future investments. While the BCG Matrix typically focuses on product analysis, it can be creatively combined with RFM (Recency, Frequency, Monetary) analysis to enhance customer segmentation. Despite operating at different levels of business analysis, integrating RFM principles into the BCG framework allows for a more nuanced categorization of customers within each BCG quadrant.

BCG quadrant	Recommended Description	Mapping Group	RFM Metrics
Stars	High-value customers with low recency, high frequency, and monetary value contribute significantly to business's revenue stream.	**Champions**	111, 211, 212, 221, 222
Cash Cows	Moderate to high-value customers because of their frequent purchases (high frequency), but also Can't-be-losing customers because of moderate or high recency.	**Loyalists**	322, 321, 312, 311, 422, 421, 412, 411
Question Marks	This group has low recency and but low frequency and random monetary value. They need to be nurtured to become high value customers (Champions or Loyalists) or else they will become Walk-in Customers.	**Potential**	134, 133, 132, 131, 144, 143, 142, 141, 244, 243, 242, 241, 234, 233, 232, 231
Dogs	Customers that have high recency and low frequency but random monetary value. They were one-time purchase customers who might be losing interested in the products/services.	**Walk-in Customers**	The rest

Table 1. BCG matrix

4. Data Description

These two tables includes: Customer_Register (containing the customer's registered contract information) and Customer_Transaction (containing the customer's transaction information). Report date is 2022-09-01.

Column Name	Data Type	Meaning
ID	Int	Customer ID
Contract	Varchar(50)	ID for a specific contract the customer
LocationID	Int	ID for the location
BranchCode	Int	Branch code
Status	Int	Current status of the customer's account or contract
created_date	Date	The date when customer's registration was created
stopdate	Date	The customer's registration was ended

Table 2 Customer_Register

Column Name	Data Type	Meaning
Transaction_id	Int	ID for the transaction
CustomerID	Int	Customer ID
Purchase_Date	Date	Exact day a customer buys products
GMV	Int	Gross Merchandise Value

Table 3. Customer_Transaction

4. Data Description

These two tables includes: Customer_Register (containing the customer's registered contract information) and Customer_Transaction (containing the customer's transaction information). Report date is 2022-09-01.

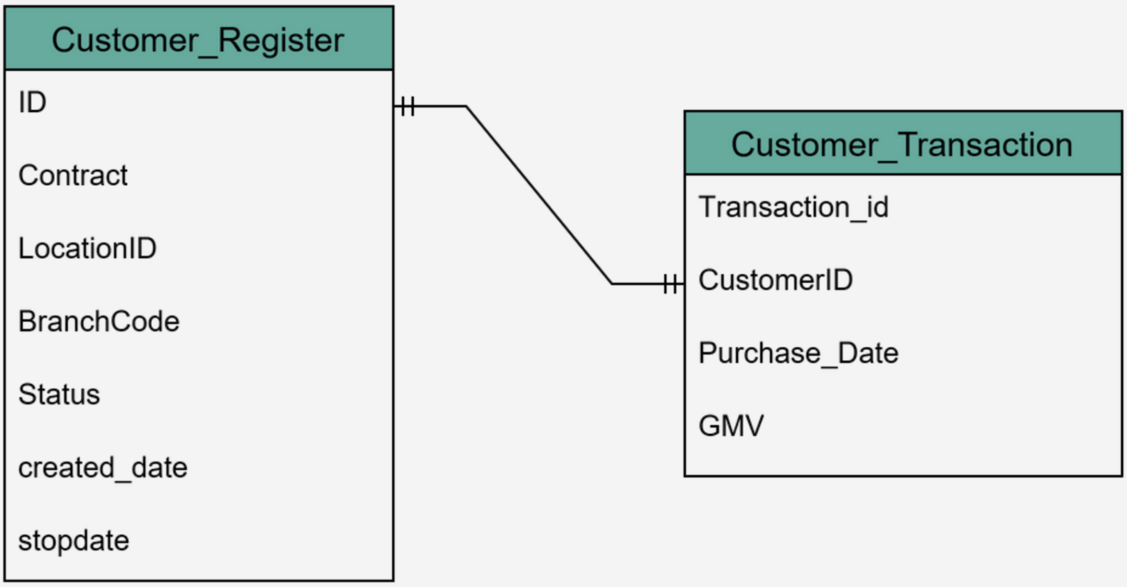


Figure 5. Data model

5. RFM Score

- **Process OLTP data to OLAP from join two tables Customer_Register and Customer_Transaction. Filter active customers (Stopdate = NULL and customerID != 0)**
- **Calculate contract years: (reporting date – contract creation date) / 365.25. Contract years will help avoid bias among customers when calculating Frequency and Monetary. For example, a customer who buys 10 times in 10 years will not have the same evaluation as a customer who buys 10 times in 1 year.**
- **Recency = Date of report – Date of most recent use**
- **Frequency = Number of service uses / Contract years**
- **Monetary = Total GMV / Contract years**
- **Calculate the Interquartile Range (IQR) and the quartiles, then create R, F, M columns with indexes from 1 to 4. After that, create a Segmentation column that combines the R, F, M values.**

Score	Recency	Frequency	Monetary
1	Less than 31 days	More than 0.25	More than 184.232
2	31-62 days	0.2-025	120.803-184.231
3	62-92 days	0.14-0.2	62.096-120.803
4	More than 92 days	Less than 0.14	Less than 62.093

Table 4. RFM score

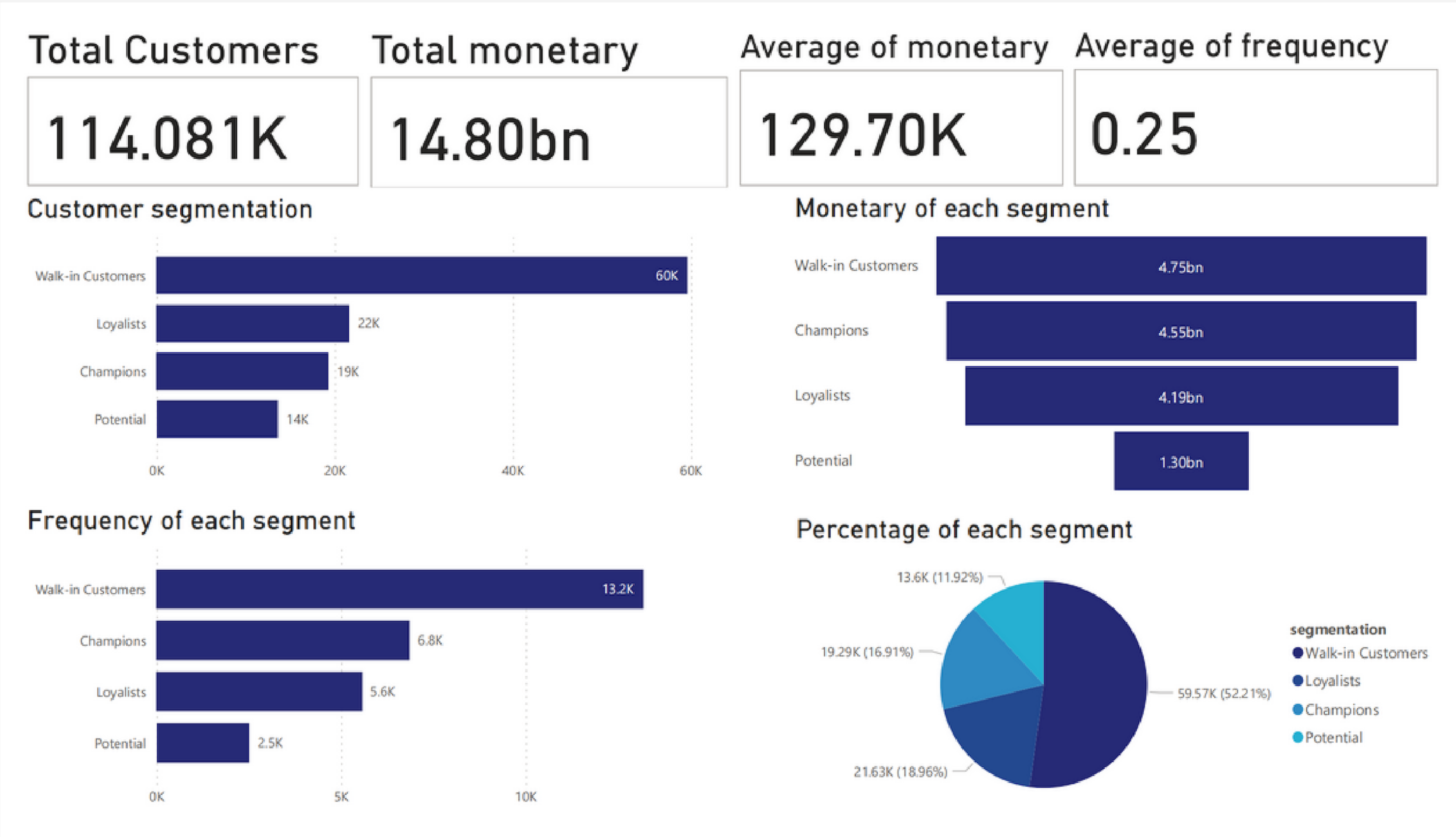
6. Segmentation

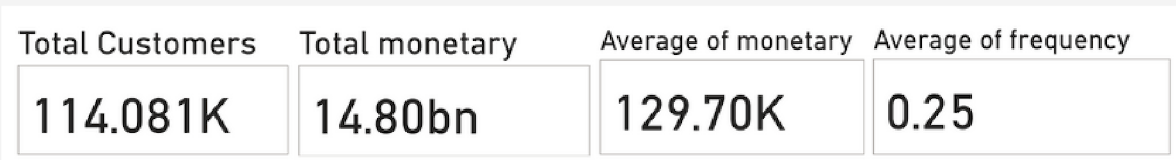
After merging the RFM metrics, we determine the customer count for each consolidated segment as follows.

Segmentation	RFM Metrics	Total Customers	Total GMV
Champions	111, 211, 212, 221, 222	19.291	4.549.143.702
Loyalists	322, 321, 312, 311, 422,421, 412, 411	21.628	4.191.949.028
Potential	134, 133, 132, 131, 144,143, 142, 141, 244, 243,242, 241, 234, 233, 232,231	13.597	1.303.294.094
Walk-in Customers	The rest	59.565	4.751.663.410
		114.081	**14.796.050.236**

Table 5. Segmentation

7. Visualization





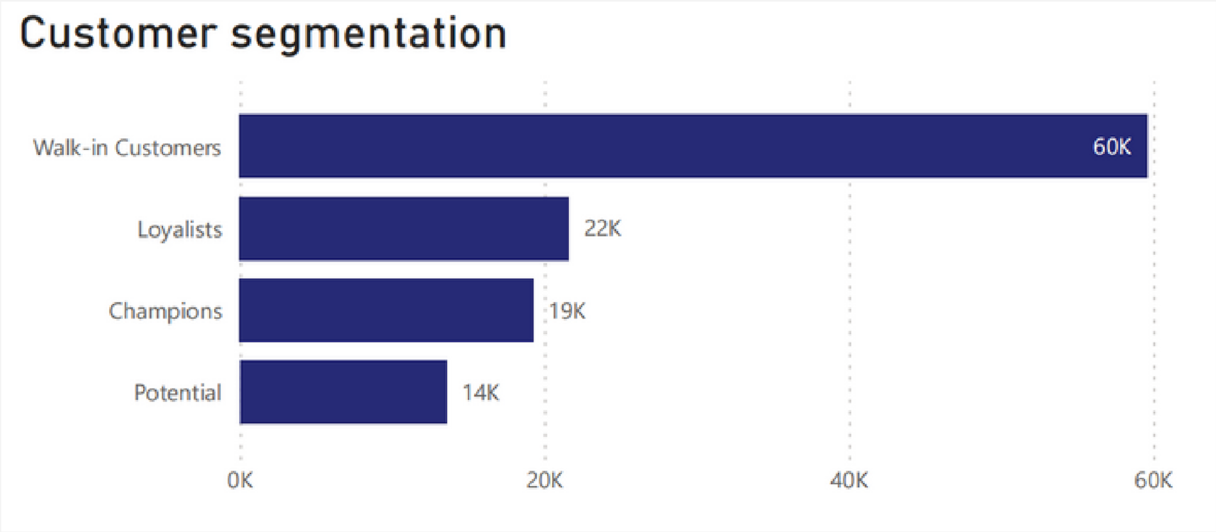
Total Customers: This is the total number of customers, there are 114,081 customers.

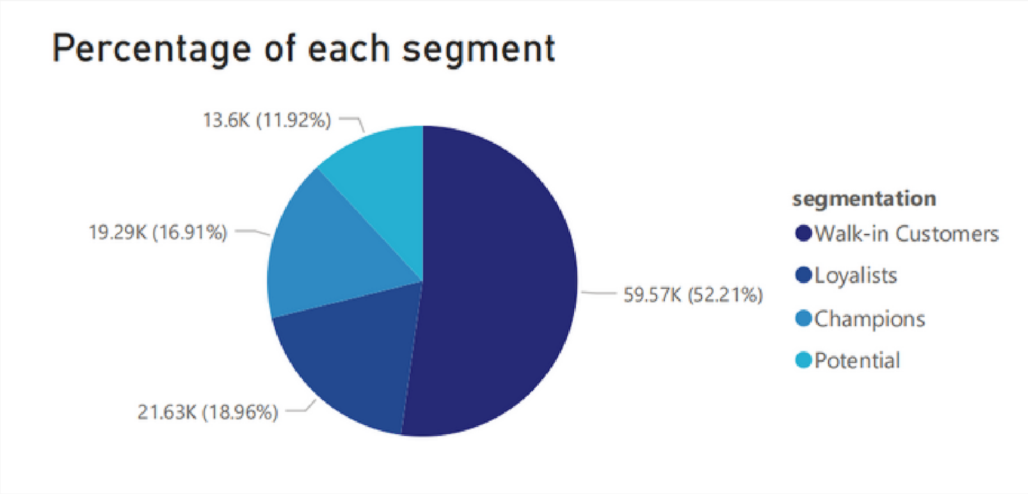
Total monetary: This is the total monetary value, likely representing total sales or revenue, which is 14.8 billion.

Average of monetary: This is the average amount each customer spends, which is 129,700.

Average of frequency: This is the average number of purchases per customer over a specific time period.

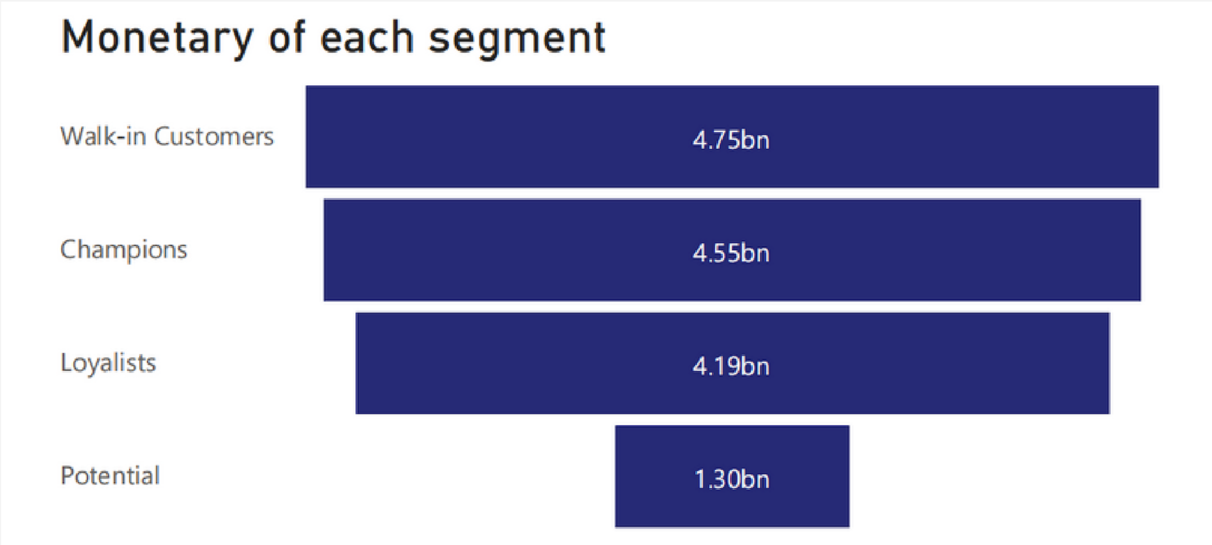
8. Interpretation





These two charts illustrate the customer segmentation of a business. The first is a horizontal bar chart showing the number of customers in each segment: Walk-in Customers (60K), Loyalists (22K), Champions (19K), and Potential (14K). The second is a pie chart displaying the percentage of each segment: Walk-in Customers (52.21%), Loyalists (18.96%), Champions (16.91%), and Potential (11.92%). Walk-in Customers form the largest group, indicating a broad base of new or infrequent customers. Loyalists and Champions together make up about 36%, representing valuable, loyal customers. The Potential segment is the smallest at 11.92%, offering room for growth. Strategies could focus on converting Walk-in Customers to loyal customers, retaining and increasing the value of Loyalists and Champions, and developing the Potential group. This structure suggests the business has a wide customer base but needs to work on building customer loyalty.

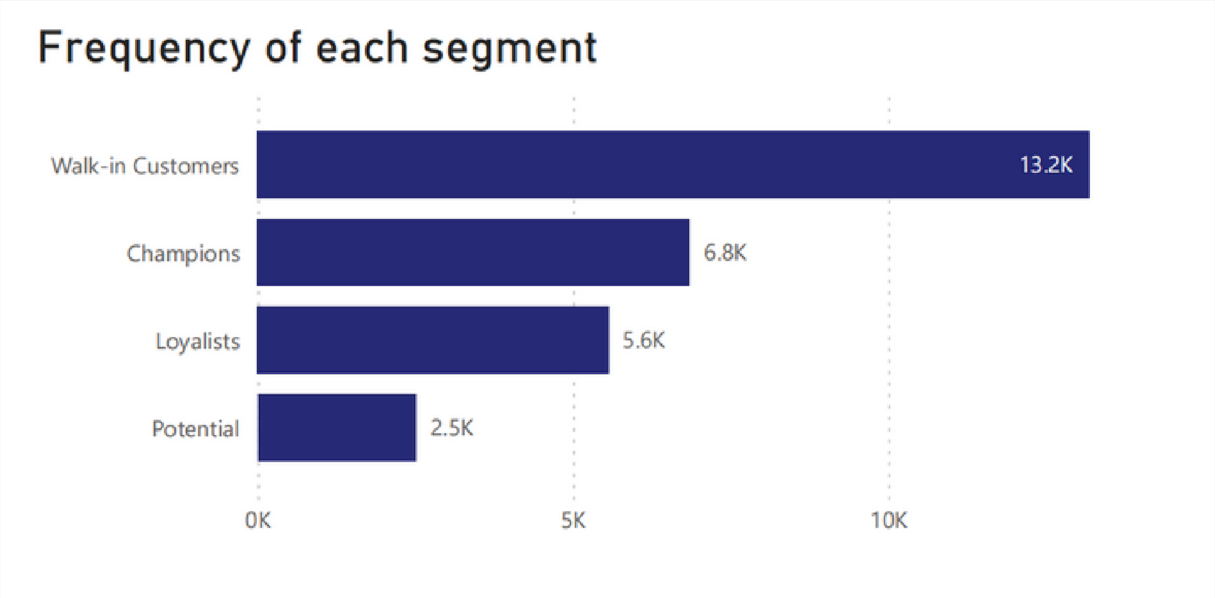
8. Interpretation



Walk-in Customers are the largest group with 60K individuals, contributing the highest monetary value of 4.75bn. This highlights the importance of attracting and retaining this group to ensure revenue stability. Despite having only 22K customers, Loyalists contribute 4.19bn, indicating they are highly valuable and loyal customers. Efforts should continue to build loyalty and increase value from this group. The Champions group, with 19K customers, contributes the second-highest monetary value of 4.55bn. This makes them extremely valuable customers who need to be prioritized for retention and growth. On the other hand, the Potential group has the fewest customers at 14K and the lowest monetary value at 1.30bn. However, they represent a potential growth opportunity to increase value in the future.

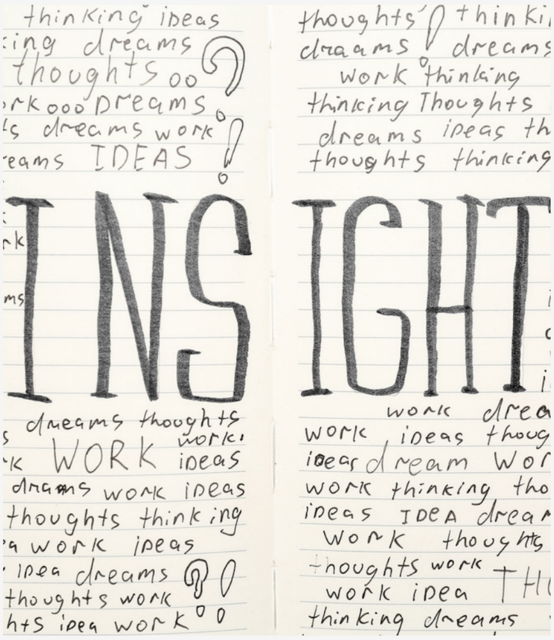
To optimize business strategy, the company should focus on maintaining Walk-in Customers by implementing appropriate marketing and customer service strategies to retain them. Additionally, it should develop Loyalists and Champions with special incentive programs and excellent customer care to maintain and increase their value. Finally, the Potential group should be targeted with strategies and promotions to convert them into loyal and high-value customers.

8. Interpretation



Walk-in Customers are the largest group with 60K individuals, contributing the highest frequency of visits at 13.2K. This indicates that, although they form the largest group, their visit frequency is relatively high, suggesting a significant impact on overall foot traffic and potential sales. Champions, with 19K customers, have a frequency of 6.8K visits. Despite being fewer than Loyalists, their higher visit frequency indicates strong engagement and loyalty. This group is crucial for repeat business and consistent revenue. Loyalists consist of 22K customers with a visit frequency of 5.6K. Although they have a slightly lower visit frequency than Champions, their larger number makes them a vital group for sustained business growth. They demonstrate steady engagement with the brand. The Potential group, with 14K customers, has the lowest frequency of visits at 2.5K. This suggests that while they represent future growth opportunities, current engagement is low. Strategic initiatives should focus on increasing their visit frequency to convert them into more loyal and frequent customers.

Conclusion



Walk-in Customers represent the largest segment by number and contribute the highest monetary value, with a high frequency of visits indicating strong engagement. This makes them crucial for maintaining overall revenue stability. Strategies should focus on converting these customers into more loyal segments through enhanced loyalty programs, personalized offers, and retention tactics.

Champions, although fewer in number, contribute significantly to revenue and have high visit frequency, reflecting strong customer loyalty and engagement. This group should be prioritized with exclusive rewards and personalized services to maintain their high value and encourage even greater loyalty. Additionally, referral programs can be implemented to leverage their influence and attract new customers.

Loyalists show steady engagement and financial contributions, indicating a solid relationship with the brand. Efforts should be made to further strengthen this bond through consistent communication, enhanced loyalty programs, and regular feedback mechanisms to address any issues and improve service.

Potential customers, while currently contributing the least in terms of monetary value and visit frequency, represent an opportunity for future growth. Targeted marketing campaigns, promotional offers, and engagement initiatives should be designed to increase their visit frequency and convert them into higher-value segments.

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