Agenda

01 Customer 360

02 Define RFM

03 Data separation

04 Classify SQL

05 Build RFM

06 Customer Analysis

07 References

Overview: Customer 360

Customer360 is a customer-based analytics strategy transaction data set ***(Transaction Data)***
Website interaction data or application ***(Interaction Data)***
Consumer behavior and customer needs ***(Behavioral Data)***
Data about customer age and demographics ***(Demographics Data)***

Benefits of Customer 360

1. Increased Sales:

- By tailoring products and services to match customer preferences, businesses can boost sales.

2. Loyal Customers:

- Personalized experiences make customers feel special, encouraging them to stay loyal and make repeat purchases.

3. Efficient Marketing:

- Targeted marketing efforts become more effective, reaching the right people with messages that resonate.

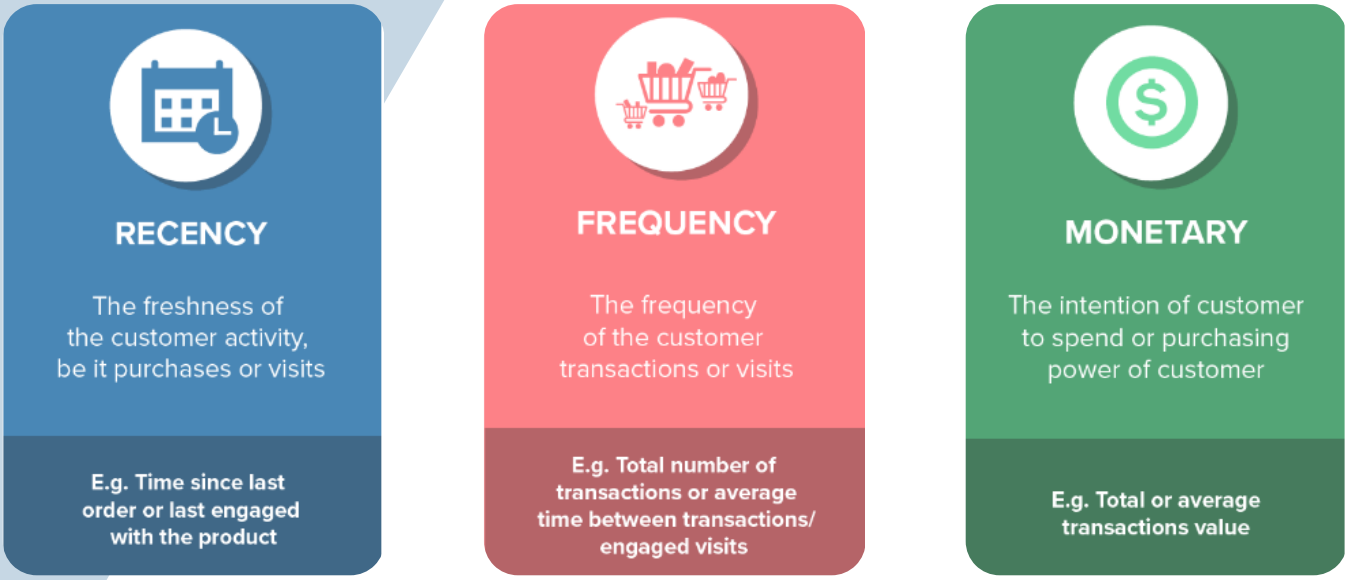
4. Improved Customer Service:

- A comprehensive view of each customer allows for quicker, more personalized support.

5. Competitive Advantage:

- Offering a uniquely personalized customer experience can set a business apart from its competitors, attracting more customers.

RFM Customer 360



- RFM **Customer 360** is a customer analysis method based on the RFM (**Recency - Frequency - Monetary**) model.
- This method helps businesses evaluate the value of each customer based on their level of interaction with the business and offer different approach strategies to optimize customer care

Benefits of the model

1. Identify Valuable Customers:
- It helps pinpoint who the most valuable customers are based on their purchase behavior, allowing businesses to focus their efforts and resources more effectively.

2. Enhance Personalization:
- Understanding the specific behaviors and preferences of different customer segments, businesses can tailor communications and offers, leading to higher engagement and satisfaction.

3. Optimize Marketing Campaigns:
- RFM analysis provides insights into which customer segments are most responsive, allowing for more targeted and cost-effective marketing strategies.

4. Improve Customer Retention:
- Recognizing and rewarding the most engaged customers, businesses can foster loyalty and reduce churn.

5. Increase Revenue:
- Through targeted promotions and personalized experiences, companies can encourage repeat purchases, increasing overall sales and profitability.

Data seperation

Description of data sheets

- In this case, we have two tables that need to be analyzed: **Customer_Transaction, Customer_Registered**

Table	Field	Description
Customer_Transactions	Customer_ID	Unique indentified for each customer
	Purchase_Date	Exact day a customer buys products or services
	GMV	Gross Merchandise Value
Customer_Registered	Contract	Identifier for a specific contract the customer has with the business.
	LocationID	Identifier for the location where the customer registered
	BranchCode	Code that identifies different branches of a company
	Status	Current status of the customer's account or contract
	Created_Date	The date when the customer's registration was created
	Stopdate	The customer's registration or contract was ended

Build RFM SCORE

Tool: SSMS

- Process **OLTP** data to **OLAP** from **Customer_Transaction table**
- Use **join** to join two tables **Customer_Registered** and **Customer_Transaction** to get information
- Use functions such as **SUM, DATEDIFF, WINDOWFUNCTION, CASE WHEN** to process

Step 1: Calculate Recency – Frequency – Monetary

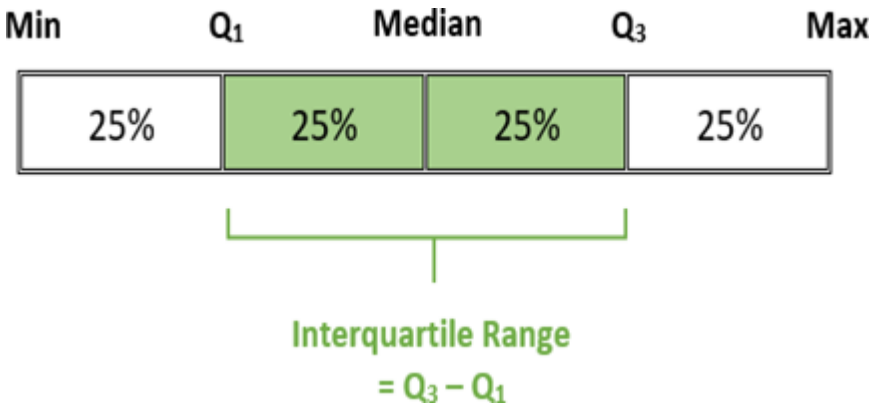
Convention for calculating Recency – Frequency – Monetary

- **RECENCY** Time period since the customer's last purchase (use September 1, 2022 to calculate)
- **FREQUENCY** Total number of days a customer purchases/Lifetime
- **MONETARY** Total amount a customer has purchased/Lifetime

	contract	monetary	frequency	recency
1	GLFD01115	38000	1.2	2
2	SGH576590	55000	1	15
3	NTFD38019	129545	1	15
4	DNFD89292	116363	1	26
5	DNFD75822	63000	1	31
6	DAFD61316	61833	1	31
7	SGH594021	105000	1	31
8	NTFD46332	137727	1	31
9	STFD07657	137727	1	31
10	CTFD27771	117727	1	31
11	SGH596096	81666	1	31

Step 2: RFM Analysis with Quantiles Method

- Split the **R-F-M (Recency, Frequency, Monetary)** data into four segments, also known as quartiles, and assign each one a number **from 1 to 4.** In this setup, the higher the number, the more positive the assessment ***(with 4 being the highest)***. It's important to note that when it comes to **Recency**, a **higher number actually indicates a less favorable outcome**, as it means a customer hasn't made a recent purchase.



The output after calculating the R-F-M

	contract	monetary	frequency	recency	M	F	R
1	GLFD01115	38000	1.2	2	1	1	4
2	SGH576590	55000	1	15	1	1	4
3	NTFD38019	129545	1	15	1	1	4
4	DNFD89292	116363	1	26	1	1	4
5	DNFD75822	63000	1	31	1	1	4
6	DAFD61316	61833	1	31	1	1	4

Step 3:Classify customer groups based on RFM in SQL

Segmentation
About To Sleep
At Risk
Can't Lose Them
Champion
Customers Needing Attention
Hibernating
Loyal Customers
New Customers
Potential Loyalist
Promising
Recent Customers

Step 4 : Customer Definition

Customer	RFM score groups	Characteristic
Champions	444	Completed a recent purchase. They buy frequently and spend the most.
Loyal Custome	344	They buy frequently and spend a lot of money on the site. Sensitive to offers.
Potential Loyalist	442, 441, 431, 433, 432, 423, 342, 341, 333, 323	They recently spent a fair amount of money on the site more than once.
Recent Customers	422, 421, 412, 411, 311	Completed a recent purchase, but doesn't order often.
Promising	424, 413, 414, 415, 314, 313	Completed a recent purchase, but didn't spend a lot.
Need Attention	443, 434, 343, 334, 324	Above average in recency, frequency and monetary value, but no recent purchases.
About To Sleep	331, 321, 312, 221, 213	Below average in recency, frequency and monetary value. At risk of losing them if you don't reactivate.
At Risk	243, 242, 234, 224, 143, 142, 134, 133, 124	Completed big, frequent purchases long ago. You need to bring them back!
Can't Lose Them	144, 214, 114, 113	Completed huge, frequent purchases long ago but haven't come back since then.
Hibernating	332, 322, 231, 241, 233, 232, 223, 222, 132, 123, 122, 212, 211	Their last purchase was long ago. The number of orders was small and the amounts spent low.
Lost	111, 112, 121, 131, 141	Lowest scores in recency, frequency and monetary value.

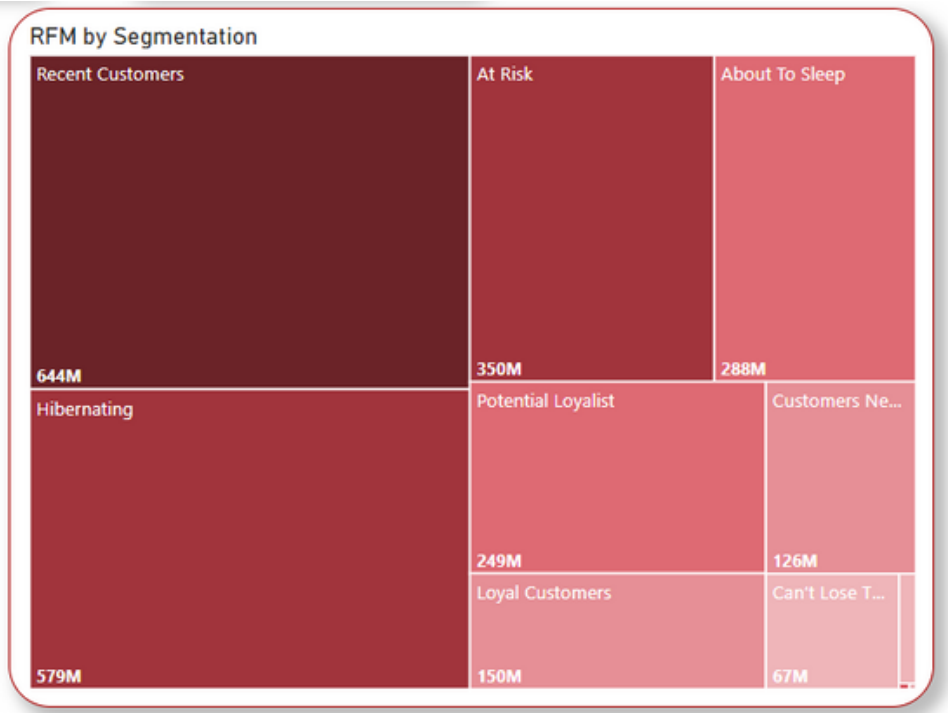
Overview of Customer Segmentation

- The store's total revenue reached 2.46 billion VND with a customer base of 112.66 (thousand) people.

112.65K
Total Customer

2bn
Revenue

0.25
Average of frequency



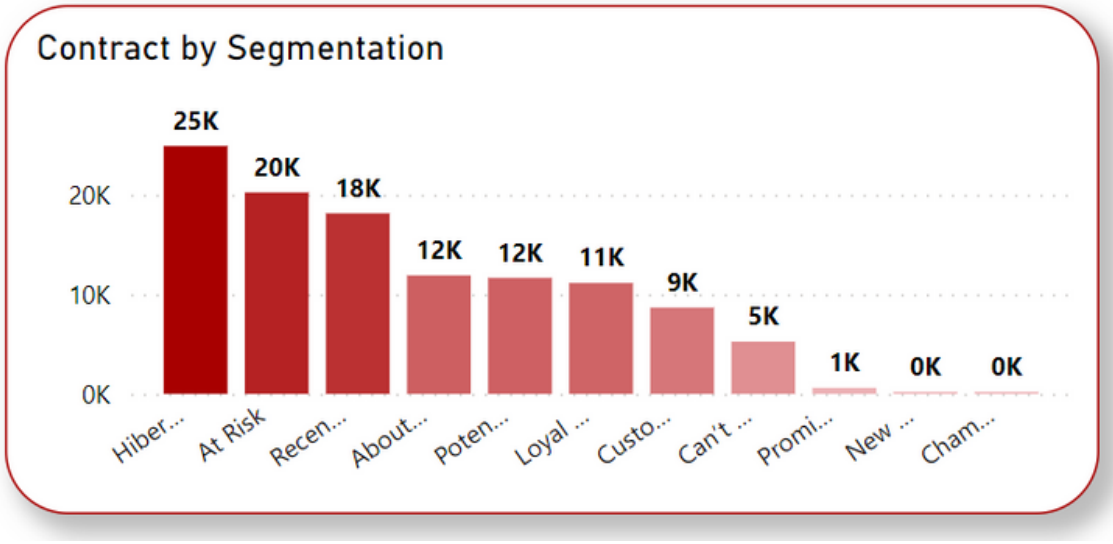
- The treemap representation illustrates the revenue distribution across different customer segments over the past three months. The top five revenue-generating groups include **Recent Customer, Hibernating, Potential Loyalist, At Risk, and About to Sleep.**

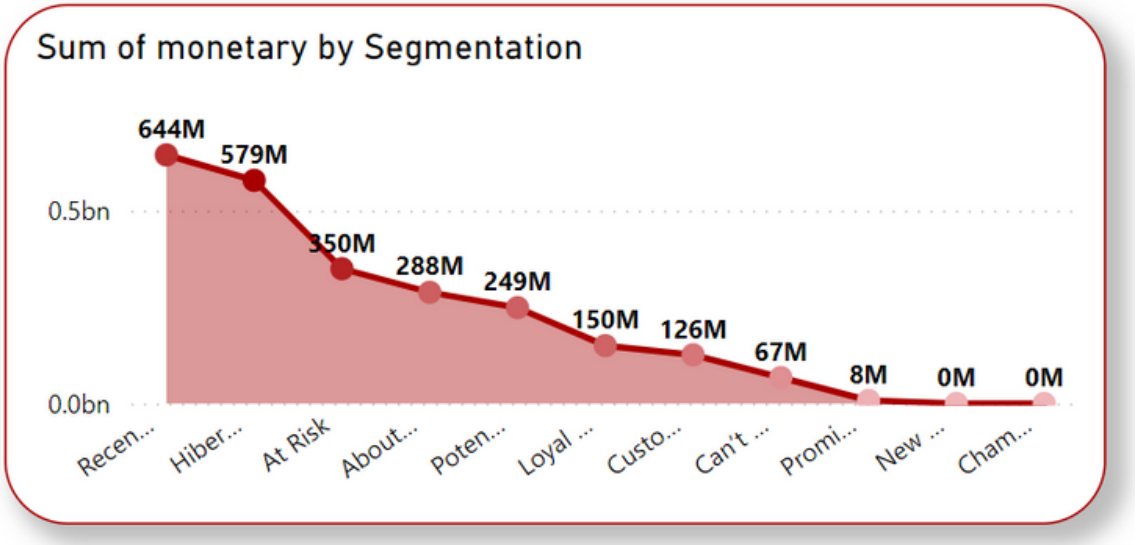
- Given the significant contribution to revenue by the **"At Risk"** group, it's crucial to implement a campaign aimed at retaining them, as they are at high risk of switching to competitors.

- Moreover, while new customer groups demonstrate a high purchasing frequency, the revenue falls short of expectations. Therefore, there's a need to focus on retaining these customers through incentive programs and converting them into potential loyalists.

- In light of these findings, strategies should be devised to increase the purchasing frequency of the Hibernating group and transition them into the Champion or Loyal Customers group.

Customer Behavior





- "Hibernating" customers are the largest group with 25k contracts, which might indicate customers who haven't engaged recently or for a long period.
- "At Risk" customers come next with 20k contracts. These customers may be those who are in danger of churning or have not made recent purchases.
- The number of contracts decreases as we move towards the "New" and "Champion" categories, with "New" having 1k and "Champion" having none. This could imply that there are no new highly engaged customers or the criteria for "Champion" are not met by any customers.

- "Recent" customers have the highest monetary value at 644M, suggesting they contribute significantly to revenue.
- "Hibernating" customers, despite their large number, contribute less monetary value than "Recent" customers at 579M.
- There's a notable drop after "At Risk" customers to "Potential Loyalist" and then a more gradual decline.
- "Champion" customers, again, show no monetary value, which aligns with the absence of contracts in this category from the first graph.

Insights

- There may be a large base of inactive or minimally active customers (Hibernating and At Risk) that could be targeted for re-engagement campaigns.
- A significant portion of revenue comes from recently acquired customers, which suggests successful acquisition strategies or high spending from these customers.
- There appears to be a gap in converting new customers into highly engaged "Champion" customers.
- The company might need to review their customer retention strategies and consider how to move customers from "Hibernating" or "At Risk" to more engaged segments.

SQL References

```
SELECT
Contract,
   (DATEDIFF(day, MAX(CAST(purchase_date AS DATE)), '2022-09-01'))  AS
recency,
    ROUND (cast(COUNT(distinct(cast(purchase_date AS DATE))) AS FLOAT) /
cast((DATEDIFF(year,cast(created_date AS DATE), '2022-09-01')) AS FLOAT),2)
AS frequency,
    sum(gmv)  / (DATEDIFF(year,cast(created_date AS DATE), '2022-09-01')) AS
monetary,
    DATEDIFF(year,cast(created_date AS DATE), '2022-09-01') AS customer_age,
 row_number() over ( order by( sum(gmv)  / (DATEDIFF(year,cast(created_date AS
DATE), '2022-09-01')) ) desc ) as rn_monetary,
 row_number() over (order by( DATEDIFF(day, MAX(CAST(purchase_date AS
DATE)), '2022-09-01'))  ) as rn_recency,
 ROW_NUMBER() over (order by( ROUND
(cast(COUNT(distinct(cast(purchase_date AS DATE))) AS FLOAT) /
cast((DATEDIFF(year,cast(created_date AS DATE), '2022-09-01')) AS FLOAT),2))
desc) as rn_frequency
into customer_rfm
FROM [dbo].Customer_Transaction ct
join [dbo].[Customer_Registered]  cr ON ct.CustomerID = cr.ID
where cr.stopdate is null
group by contract, created_date;

SELECT
     contract, monetary, frequency, recency,
case when rn_monetary >= (select min(rn_monetary) from customer_rfm ) and
rn_monetary <  ( select count(rn_monetary) * 0.25 from customer_rfm) then 1
 when rn_monetary >= ( select count(rn_monetary) * 0.25 from customer_rfm) and
rn_monetary <  ( select count(rn_monetary) * 0.5 from customer_rfm) then 2
 when rn_monetary >= ( select count(rn_monetary) * 0.5 from customer_rfm) and
rn_monetary <  ( select count(rn_monetary) * 0.75 from customer_rfm) then 3
 else 4 end as M,
case when rn_frequency >= (select min(rn_frequency) from customer_rfm ) and
rn_frequency <  ( select count(rn_frequency) * 0.25 from customer_rfm) then 1
```

```
 when rn_frequency >= ( select count(rn_frequency) * 0.25 from customer_rfm) and
rn_frequency <  ( select count(rn_frequency) * 0.5 from customer_rfm) then 2
 when rn_frequency >= ( select count(rn_frequency) * 0.5 from customer_rfm) and
rn_frequency <  ( select count(rn_frequency) * 0.75 from customer_rfm) then 3
 else 4 end as F,
case when rn_recency >= (select min(rn_recency) from customer_rfm ) and rn_recency <  (
select count(rn_recency) * 0.25 from customer_rfm) then 4
 when rn_recency >= ( select count(rn_recency) * 0.25 from customer_rfm) and rn_recency
<  ( select count(rn_recency) * 0.5 from customer_rfm) then 3
 when rn_recency >= ( select count(rn_recency) * 0.5 from customer_rfm) and rn_recency
<  ( select count(rn_recency) * 0.75 from customer_rfm) then 2
 else 1 end as R
into #result
from customer_rfm

--Concat R_F_M
Select *, concat(R,F,M) as RFM
into customer_segmentation
from #result;

--Mapping
SELECT *,
CASE
 WHEN RFM IN ('111', '112', '121', '131', '141') THEN 'Lost'
 WHEN RFM IN ('332', '322', '231', '241', '233', '232', '223', '222', '132', '123', '122', '212',
'211') THEN 'Hibernating'
 WHEN RFM IN ('144', '214', '215', '115', '114', '113') THEN 'Can't Lose Them'
 WHEN RFM IN ('243', '242', '234', '224', '143', '142', '134', '133', '124') THEN 'At Risk'
 WHEN RFM IN ('331', '321', '312', '221', '213') THEN 'About To Sleep'
 WHEN RFM IN ('443', '434', '343', '334', '324') THEN 'Customers Needing Attention'
 WHEN RFM IN ('424', '413', '414', '415', '314', '313') THEN 'Promising'
 WHEN RFM IN ('422', '421', '412', '411', '311') THEN 'Recent Customers'
 WHEN RFM IN ('442', '441', '431', '433', '432', '423', '342', '341', '333', '323') THEN
'Potential Loyalist'
 WHEN RFM = '344' THEN 'Loyal Customers'
 WHEN RFM = '444' THEN 'Champion'
 ELSE 'New Customers'
END AS SEGMENTATION
FROM customer_segmentation
```