ANALYZING B2B BUSINESS OPERATIONS FOR STRATEGIC DEVELOPMENT

I. INTRODUCTION

1. Situation:

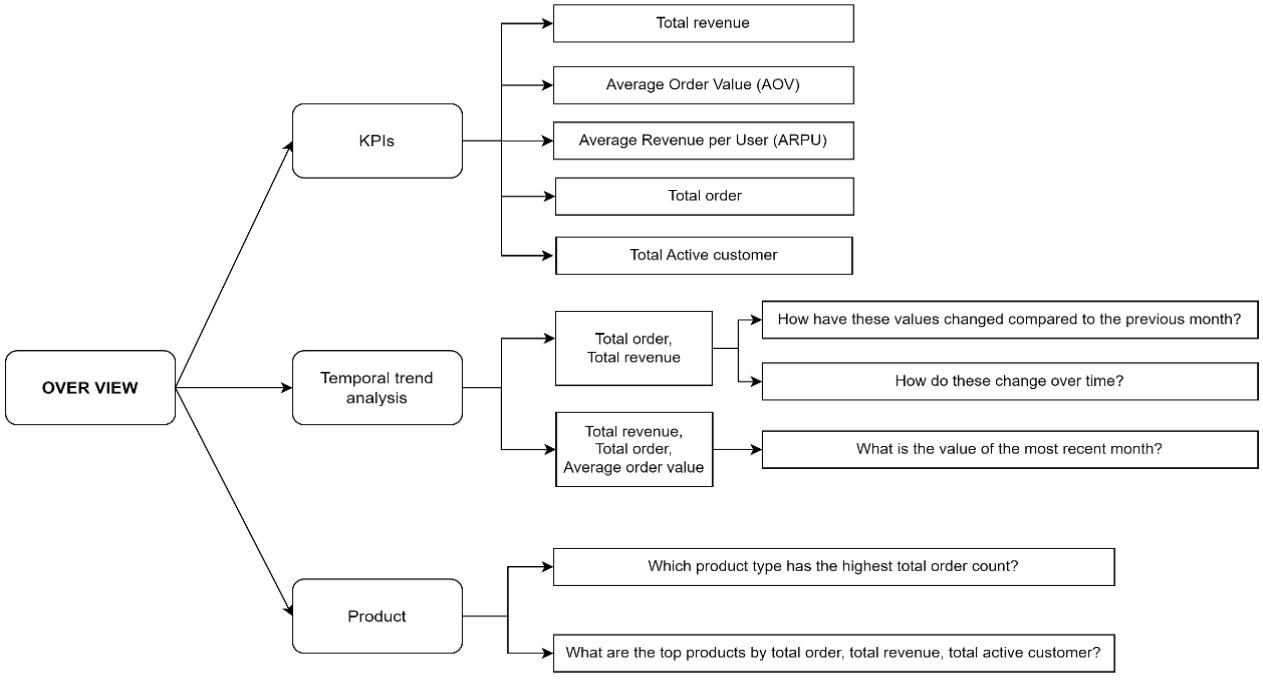
In response to the dynamic landscape of the B2B market, our project is propelled by specific business scenarios necessitating a comprehensive evaluation of our B2B product lines. Market fluctuations, changing customer demands, and evolving industry trends serve as driving factors. The project is geared towards evaluating the business performance of our B2B product lines, with a specific focus on providing insights into ongoing operations. Emphasis is placed on quantifying the pace and scale of our B2B product activities, allowing for a thorough assessment that aligns with the current state of our business. By addressing these dynamic scenarios, our goal is to derive actionable insights that enhance strategic decision-making and ensure the continued success of our B2B product initiatives in a rapidly changing business environment.

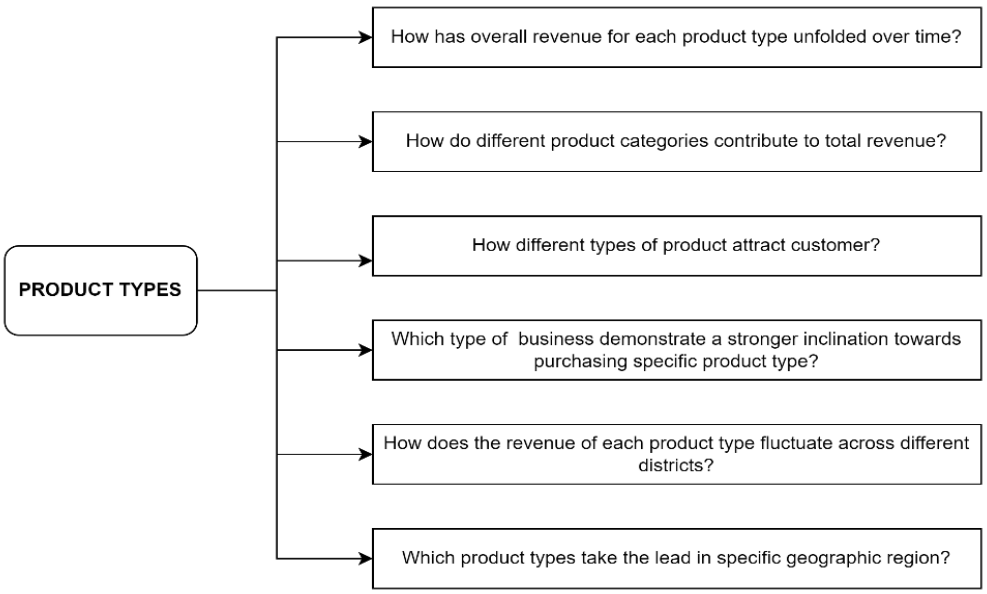
2. Necessary Systems:

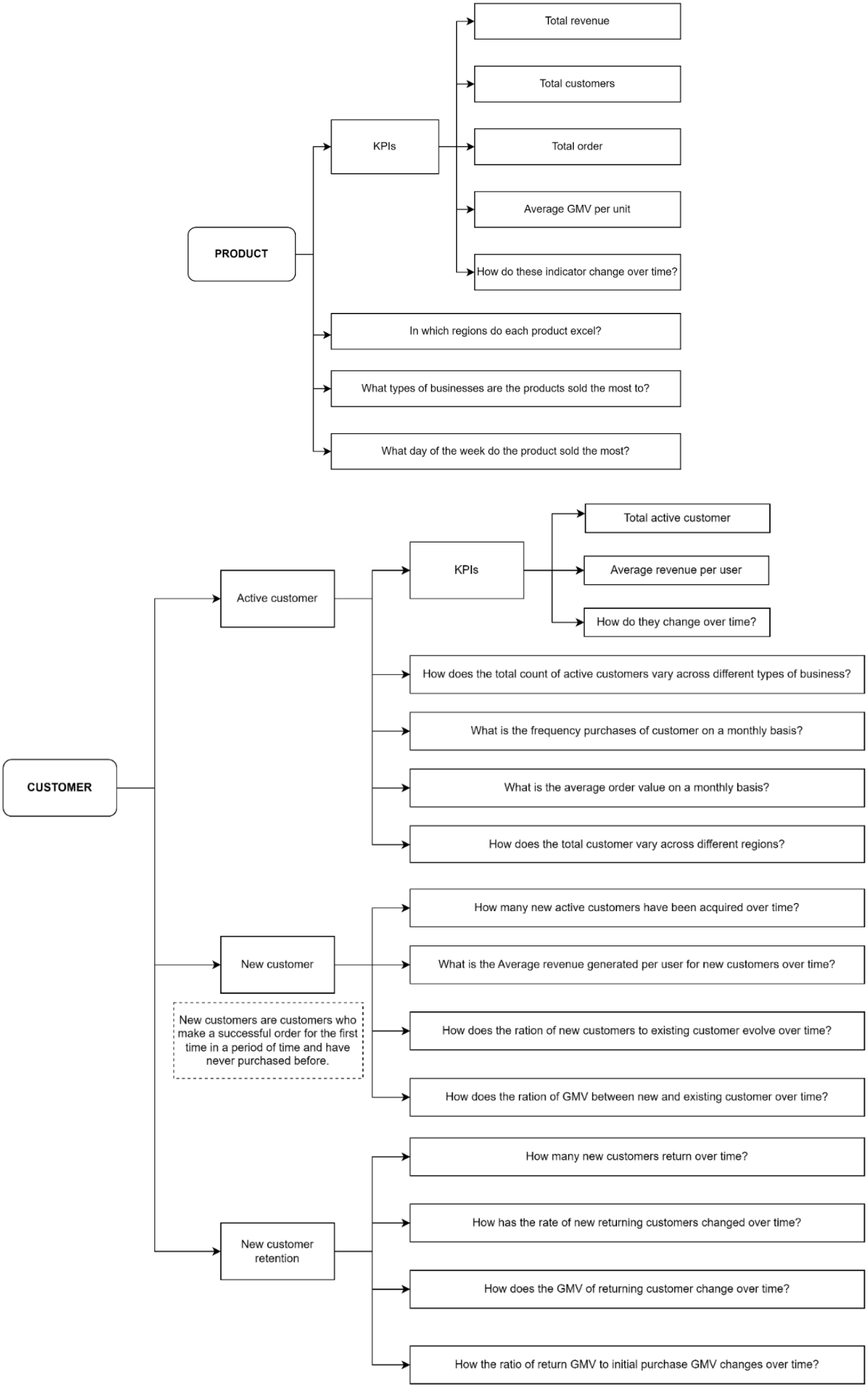
- PostgreSQL: store database
- Power BI: visualization data

II. ACTION

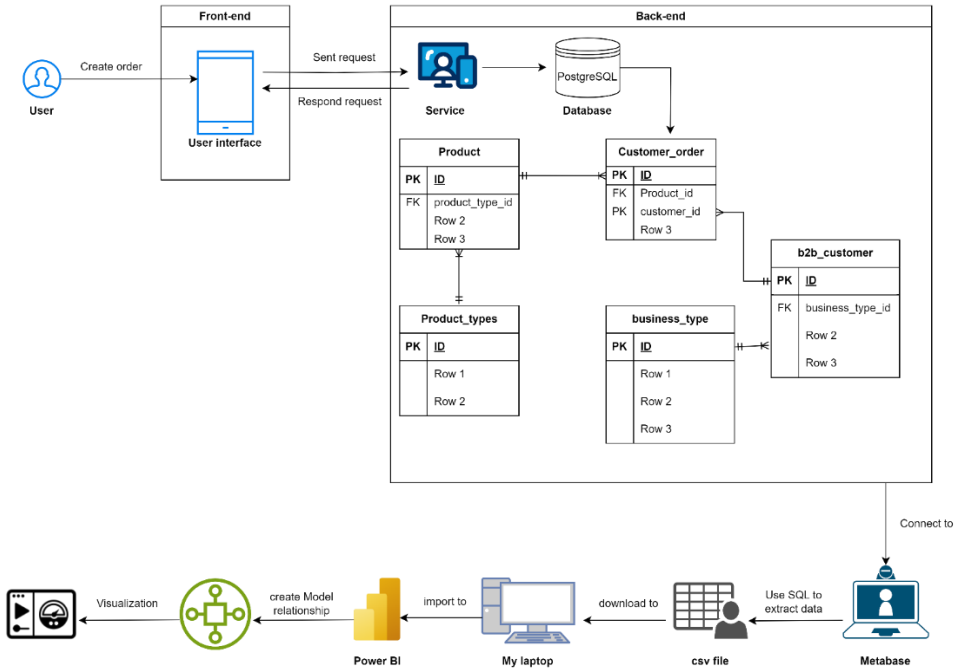
1. Key Metrics and Insights






PRODUCT
KPIs
Total revenue
Total customers
Total order
Average GMV per unit
How do these indicator change over time?
In which regions do each product excel?
What types of businesses are the products sold the most to?
What day of the week do the product sold the most?
CUSTOMER
Active customer
KPIs
Total active customer
Average revenue per user
How do they change over time?
How does the total count of active customers vary across different types of business?
What is the frequency purchases of customer on a monthly basis?
What is the average order value on a monthly basis?
How does the total customer vary across different regions?
New customer
New customers are customers who make a successful order for the first time in a period of time and have never purchased before.
How many new active customers have been acquired over time?
What is the Average revenue generated per user for new customers over time?
How does the ration of new customers to existing customer evolve over time?
How does the ration of GMV between new and existing customer over time?
New customer retention
How many new customers return over time?
How has the rate of new returning customers changed over time?
How does the GMV of returning customer change over time?
How the ratio of return GMV to initial purchase GMV changes over time?

2. Extract, Transform, Load Data



2. 1 SQL code I used to extract, transform and aggregate the data

I use SQL to extract data because my data is stored in PostgreSQL. Data were extracted from the following tables:

- Customer_order
- Product
- Product_type
- Location_ward
- Location_district
- Location_province
- Business_type

Main table is Customer_order because this table contains raw data about order of B2B customers. Another table provides additional information supporting for analyst.

Conditions to filter data:

- Customer order belong to B2B customers
- The status of order is not cancelled
- The order place before 2023-12-31

Fact sales table: Through careful analysis of important metrics and insights, I created a sales fact table containing essential information: order creation date, order code, customer code, product code, quantity purchased, gross merchandise value (GMV), and ward code. This Fact sales table is derived from the customer_order table, which stores all order data, and serves as the primary data source for connecting to dimension tables when building models in Power BI.

Example of SQL query:

```sql
SELECT
    co.created_at :: DATE as created_at
    , co.id AS order_id
    , co.customer_id AS customer_id
    , jcart.value ->> 'id' AS product_id
    , ((jcart.value->>'qty')::FLOAT) AS total_qty_
    , ((jcart.value->>'unitPrice')::float * ((jcart.value->>'qty')::float))  AS gmv
    , co.status
    , co.shipment->'delivery_address_json'->>'ward_id' AS Ship_ward_id
FROM
    customer_order co
LEFT JOIN
    jsonb_each (co.cart) jcart ON TRUE
WHERE
    co.provider = 'b2b'
    AND co.created_at::DATE BETWEEN '2022-01-01' AND '2023-12-31';
```

2. 2 Data model

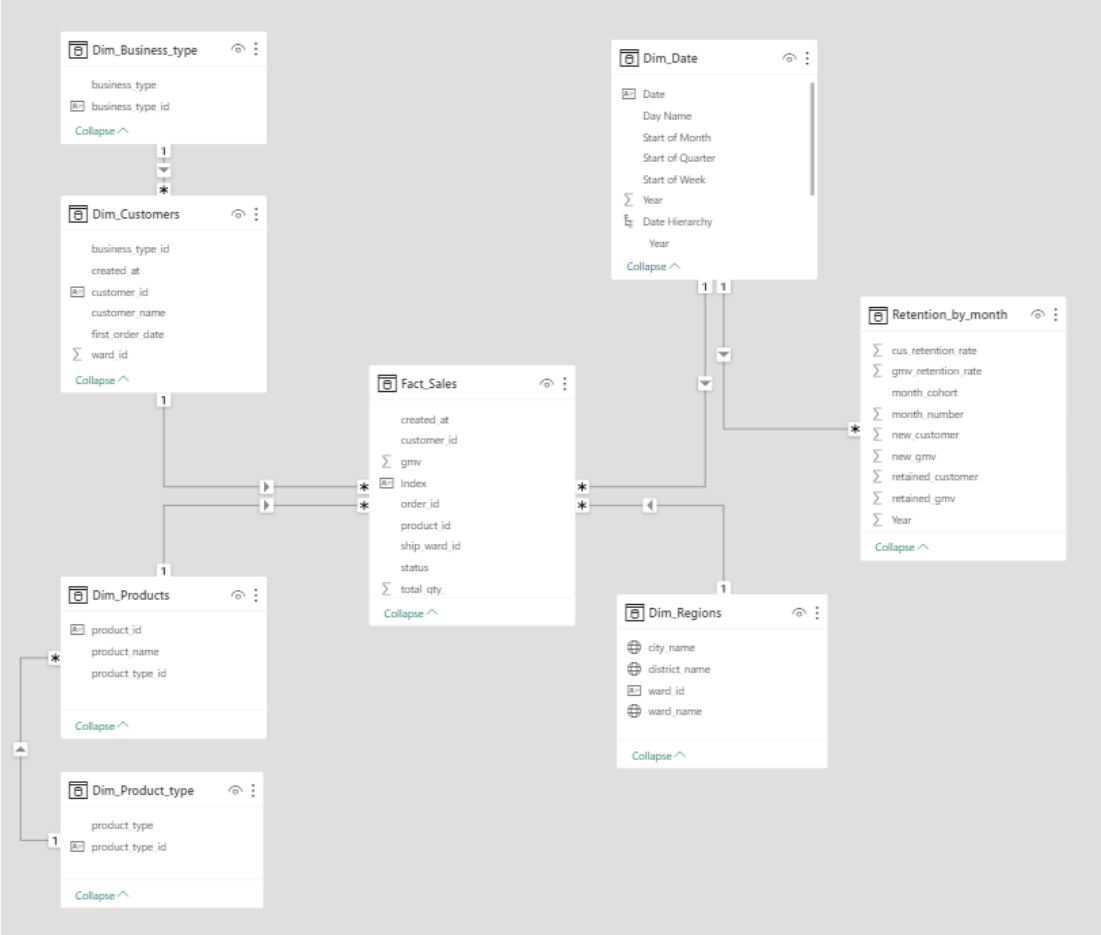
I build snowflake schema with:

Fact_Sales table: many-to-one relationship with another dimension table including Dim_Customers, Dim_Date, Dim_Regions, Dim_Products

Dim_Customers table: many-to-one relationship with Dim_Business_type. Connect by business_type_id

Dim_Products: many-to-one relationship with Dim_product_type. Connect by product_type_id

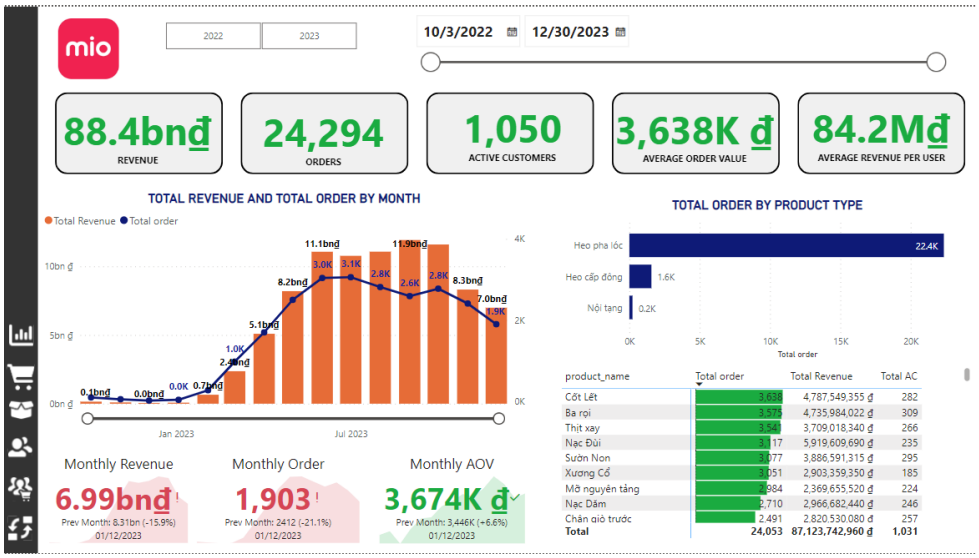
Dim_Date: one-to-many relationship with Retention_by_month. Connect by Date and Start of month



2. 3 Visualization

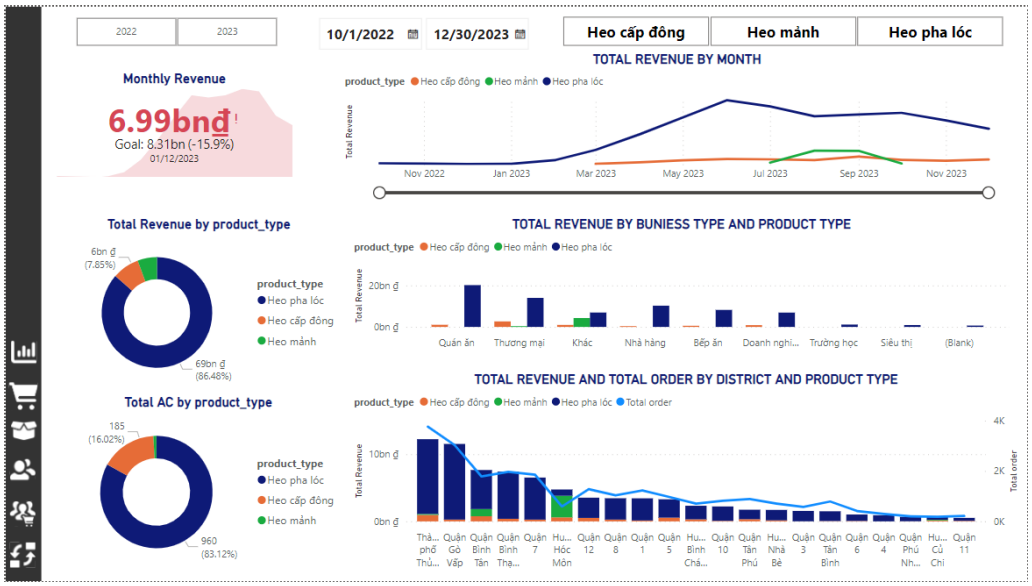
It's just only fake data based on real thing because of sensitive data and some restrict policy

Executive dashboard



The trend analysis indicates steady growth in revenue and orders, with a significant surge from March 2023. However, there was a slight revenue decline in November-December 2023. The top-selling items are mixed pork, frozen pork, and offal, with mixed pork being the most popular due to its variety. Understanding customer preferences is key to effective marketing and inventory management.

Product type

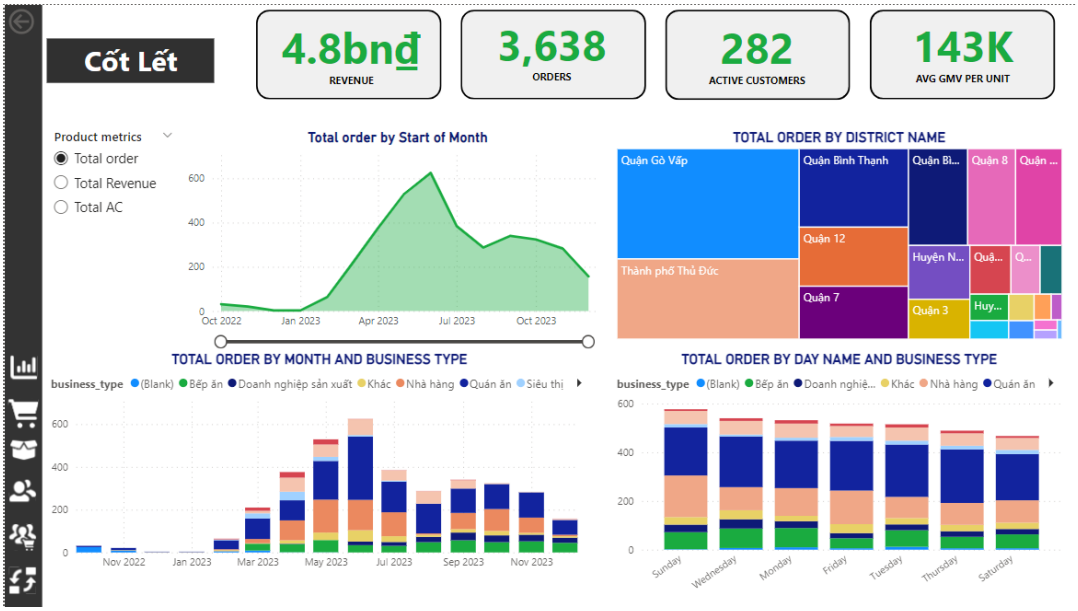


In summary, Mixed Pork stands out as the top revenue generator, contributing 86.48% of total revenue and attracting 83.12% of customers. Frozen Pork shows steady performance since March 2023, while Processed Pork fluctuates, appealing to a smaller segment.

Restaurants and commercial establishments heavily favor Mixed Pork, showcasing its strategic importance. Thu Duc City and Go Vap District play significant roles in revenue generation. Overall, this underscores the importance of Mixed Pork, the consistent performance of Frozen Pork, and the evolving trajectory of Processed Pork for decision-making.

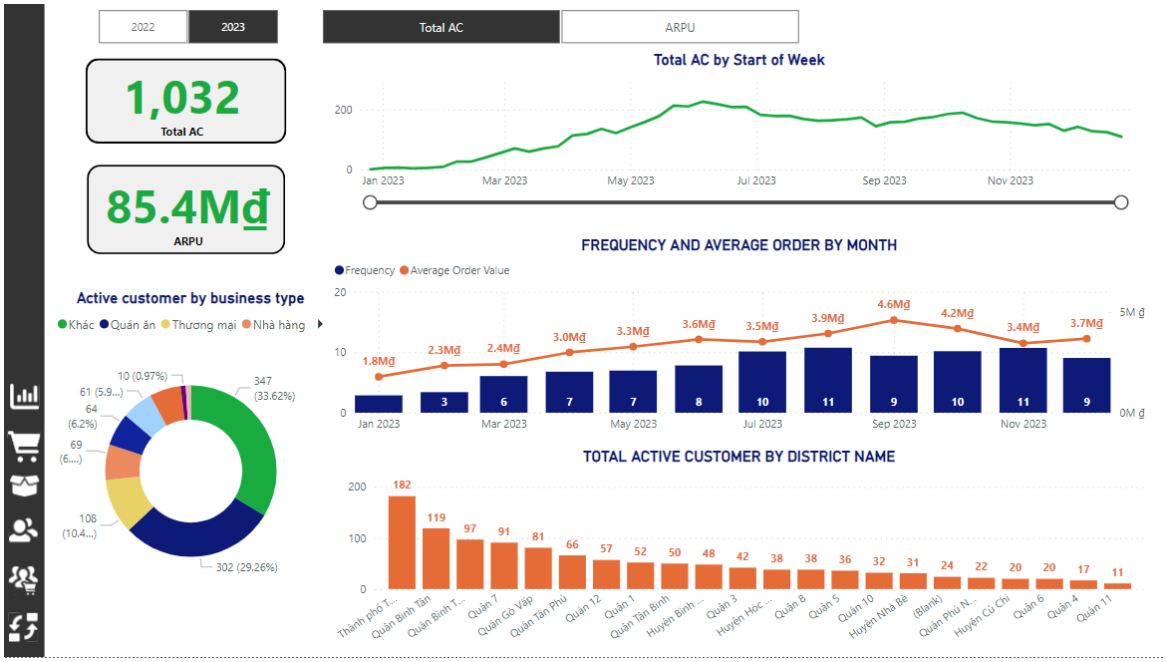
From a data analyst perspective, focusing on Mixed Pork's dominance in the market, especially in restaurants and commercial sectors, presents a clear path for revenue optimization. Targeted marketing efforts in Thu Duc City and Go Vap District could further amplify returns. Additionally, strategic product innovations tailored to consumer preferences can enhance the appeal of Processed Pork and drive sustained growth.

Products



This meticulous exploration into individual products equips us with a comprehensive understanding of their performances, enabling us to fine-tune strategies, optimize resources, and ensure each product resonates effectively in its unique market context.

Active customers

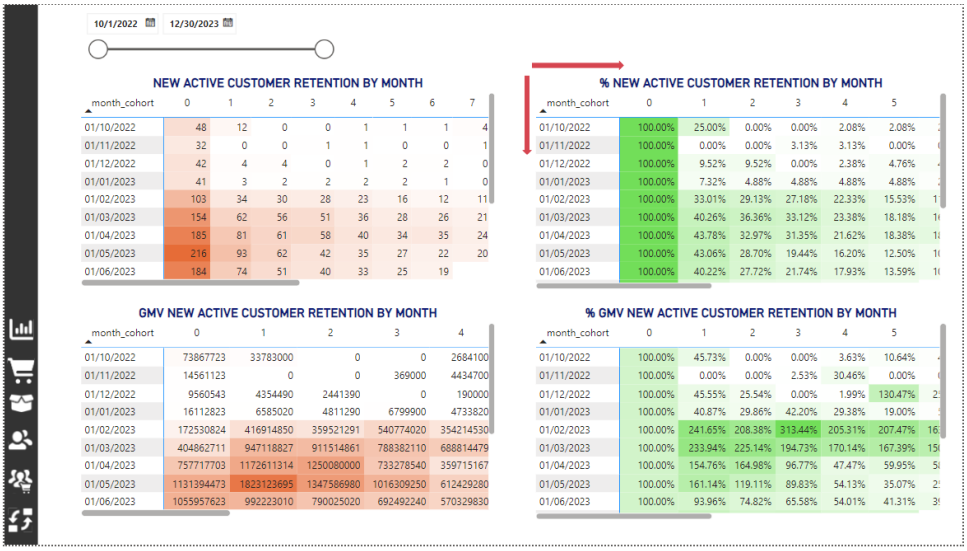


The data indicates a positive trend in business activity, with increasing active customers, purchase frequency, and average order value. B2B customers are concentrated in specific districts, suggesting opportunities for targeted marketing and expansion. Prioritizing relationship-building with B2B clients in these areas and implementing focused marketing strategies could further drive growth in a thriving business environment.

New active customer

The data shows a shift in revenue sources over the observed period. Initially, revenue mainly came from new customers, but from June 2023 onwards, returning customers have become the primary source. Nevertheless, the business still attracts new customers consistently. This shift indicates the success of building loyalty among existing customers, alongside continuous efforts in customer acquisition. To further capitalize on this shift, the business could consider implementing loyalty programs, personalized promotions for returning customers and refining company customer retention.

New active customers retention



Analysis shows an increasing trend of attracting new customers and revenue from these customers over time. However, customer retention rates decrease over time, with the highest retention rates observed in the month immediately following the first purchase, followed by a decreasing rate of returning customers over time. In addition, it can be seen that the return rate of new customers from February 2023 increased compared to previous months, accompanied by the revenue from returning customers from 2023 still surpassing the previous revenue. their original purchase. This shows that although the percentage of new returning customers is relatively modest, those who return contribute significantly to overall revenue through higher value transactions.

To address this, the business could implement personalized retention strategies, enhance the customer experience, leverage data analytics, encourage customer engagement, and prioritize continuous improvement efforts to foster loyalty and drive sustained revenue growth.

III. CONCLUSION

In summary, the analysis underscores the pivotal role of Mixed Pork in driving revenue, alongside opportunities for targeted marketing and product enhancement. The observed shift towards returning customers emphasizes the effectiveness of loyalty-building initiatives. To maintain growth, implementing personalized retention strategies and refining the customer experience are critical steps. These insights, rooted in data analysis, provide a roadmap for sustaining revenue growth and competitive advantage.

IV. REFLECTION

This project has taught me the importance of utilizing data visualization tools to effectively communicate complex information clearly and accurately. It has also emphasized the significance of identifying relevant data and accurately analyzing it to support real-world business processes. However, a limitation of this project is the reliance on historical data, which may not reflect the current state of the company. Utilizing a method of fetching data directly from the database in future projects would address this issue, minimizing storage constraints and optimizing data updates. This approach would allow for more efficient data management and ensure the timely availability of up-to-date information for analysis and decision-making.