

Business Performance Analytics 2020 - 2023

Kimia Farma - Big Data Analytics

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[Github Link Here](#)

Hi, I'm Christian Gavriel Emanuel Hariyadi



Hello! I'm a Computer Science student at BINUS University specializing in Database. I am driven to transform data into actionable insights and visualizations. With a foundation in building and managing data-driven systems, I strive to turn complex data into valuable solutions that support smarter decision-making.

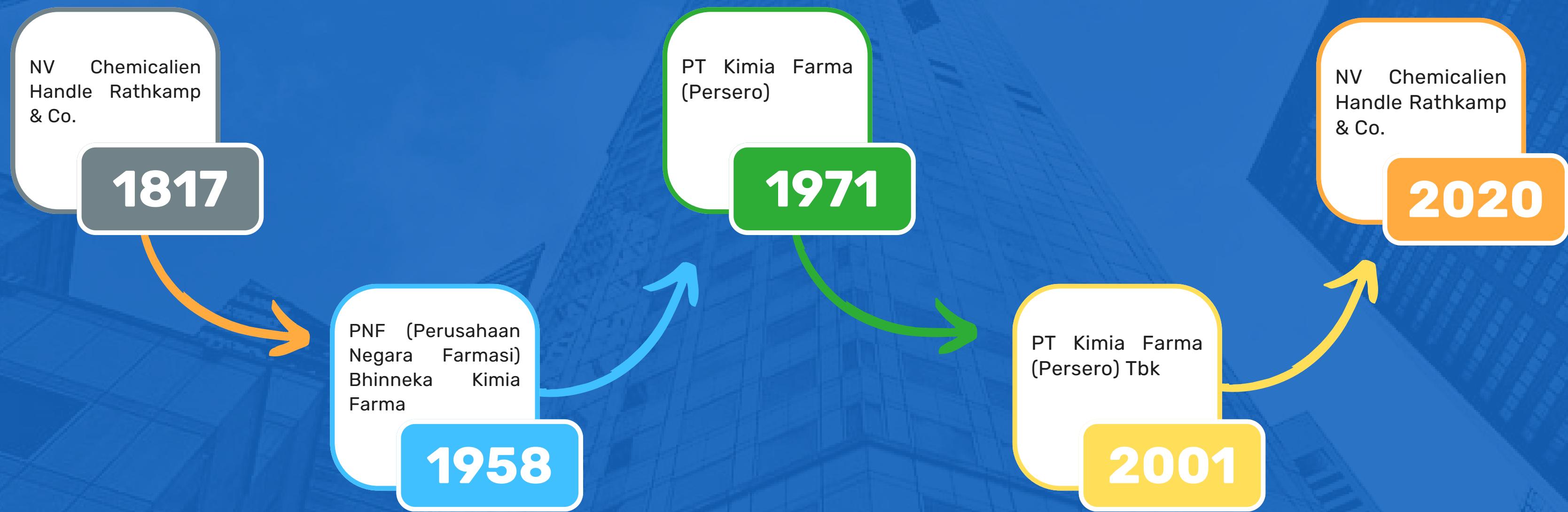
Currently, I am studying at the BINUS Kemanggisan campus as part of a student mobility program to gain new skills and experience. Through campus projects and organizations, I have learned how to work well in a team, think creatively, and adapt to new challenges.

About Company

PT Kimia Farma Tbk, or Kimia Farma, is the first and one of the largest state owned pharmaceutical companies in Indonesia. It operates a fully integrated business model, spanning from manufacturing and distribution to its well known retail pharmacy and healthcare services



kimia farma



Project Portfolio

Kimia Farma, as one of the leading pharmaceutical companies in Indonesia, operates a wide network of branches and customers across the country. To support decision making, a comprehensive analysis of business performance is required, focusing on sales trends, profitability, customer behavior, and branch performance from 2020 to 2023.

Available Data

1. Sales transaction data including transaction ID, date, customer name, price, discounts, and transaction rating
2. Product data containing product ID, product name, category, and base price
3. Branch data consisting of branch ID, branch name, city, province, category, and branch rating

Problem Statement

1. Evaluate year over year business performance, including total customers, total transactions, net sales, and net profit from 2020 - 2023
2. Identify top performing provinces, in total transactions, net sales, and net profit, and analyze regional differences in business performance
3. Measure profitability through profit margin to determine which regions or years contribute the strongest financial performance
4. Provide a clear performance dashboard that highlights trends, and actionable business insights to support strategic decision making

Project Explanation Video [Here](#)

Importing Dataset to BigQuery

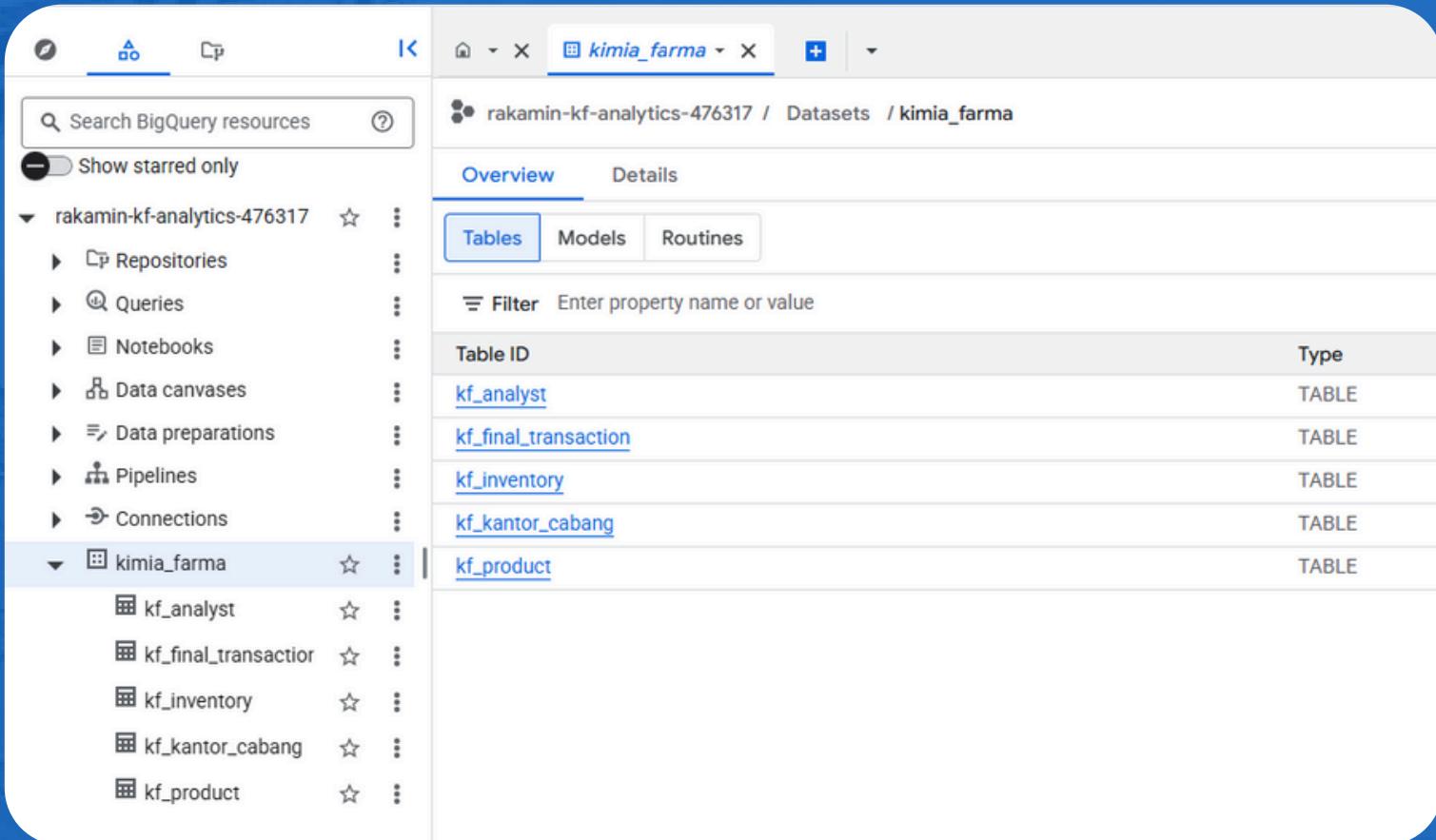
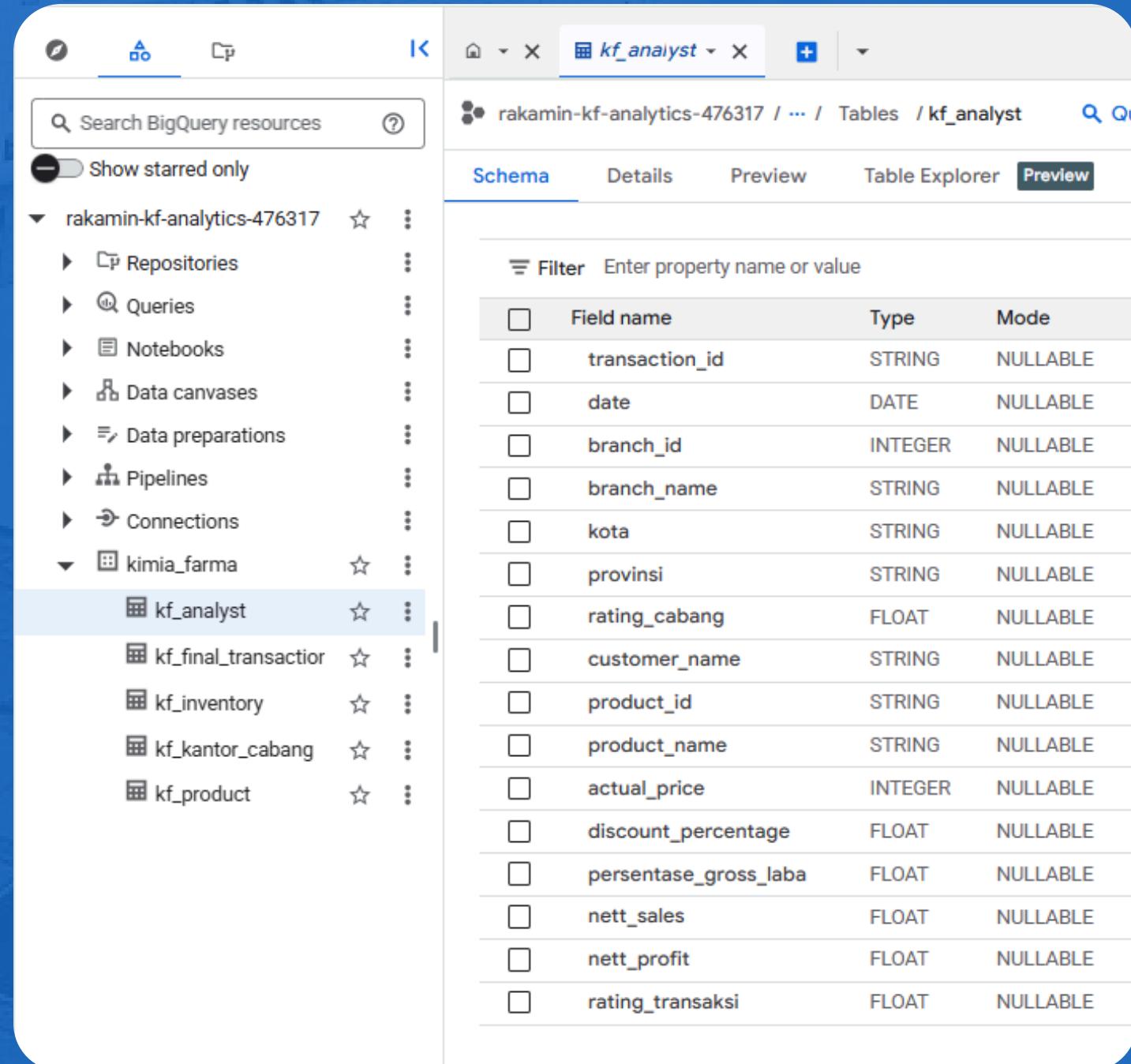


Table ID	Type
kf_analyst	TABLE
kf_final_transaction	TABLE
kf_inventory	TABLE
kf_kantor_cabang	TABLE
kf_product	TABLE
kf_analyst	TABLE
kf_final_transaction	TABLE
kf_inventory	TABLE
kf_kantor_cabang	TABLE
kf_product	TABLE

1. Initiate the setup process for a new project. This project is required to have the specific identifier "**Rakamin_KF_Analytics**" and will serve as the primary workspace and container for all subsequent data assets and analysis related to this task.
2. Next, create a new dataset. This dataset must be defined within the "Rakamin_KF_Analytics" project and be named "**kimia_farma**". This new dataset will function as the central repository or schema to hold all the relevant data tables.
2. Last, locate all of the provided CSV files and execute an import process. This data ingestion step involves loading this source data so that it resides as individual tables within the "kimia_farma" dataset, making it ready for querying and analysis.

Analytics Table



The screenshot shows the Google BigQuery interface. On the left, the sidebar lists projects and datasets, with 'rakamin-kf-analytics-476317' and 'kimia_farma' selected. Under 'kimia_farma', the 'kf_analyst' table is highlighted. The main panel displays the schema for the 'kf_analyst' table, which contains 15 columns: transaction_id, date, branch_id, branch_name, kota, provinsi, rating_cabang, customer_name, product_id, product_name, actual_price, discount_percentage, persentase_gross_laba, nett_sales, nett_profit, and rating_transaksi. Each column is defined with its type (e.g., STRING, DATE, INTEGER) and mode (e.g., NULLABLE).

Field name	Type	Mode
transaction_id	STRING	NULLABLE
date	DATE	NULLABLE
branch_id	INTEGER	NULLABLE
branch_name	STRING	NULLABLE
kota	STRING	NULLABLE
provinsi	STRING	NULLABLE
rating_cabang	FLOAT	NULLABLE
customer_name	STRING	NULLABLE
product_id	STRING	NULLABLE
product_name	STRING	NULLABLE
actual_price	INTEGER	NULLABLE
discount_percentage	FLOAT	NULLABLE
persentase_gross_laba	FLOAT	NULLABLE
nett_sales	FLOAT	NULLABLE
nett_profit	FLOAT	NULLABLE
rating_transaksi	FLOAT	NULLABLE

The "**kf_analyst**" table is a fact table that stores detailed records of every sales transaction. This table consolidates various key data dimensions for business analysis, which include:

- Transaction Details: (Transaction ID, date, product, and price)
- Branch Information: (Branch ID, name, city, province, and branch rating)
- Customer Data: (Customer name)
- Financial Metrics (KPIs): (Discount, gross profit percentage, net sales, and net profit)

This table is designed to enable analysts to answer business questions related to sales performance, profitability per product, or branch performance.

BigQuery Syntax

```
-- Create New Table  
  
CREATE TABLE `rakamin-kf-analytics-476317.kimia_farma.kf_analyst` AS  
  
SELECT  
    t.transaction_id,  
    t.date,  
    c.branch_id,  
    c.branch_name,  
    c.kota,  
    c.provinsi,  
    c.rating AS rating_cabang,  
    t.customer_name,  
    p.product_id,  
    p.product_name,  
    t.price AS actual_price,  
    t.discount_percentage,
```

This CASE statement is used to dynamically determine the “**persentase_gross_laba**” by assigning a specific rate based on the price tier of the item.

This CREATE TABLE AS SELECT command begins the process of creating a new summary table named “**kf_analyst**” by selecting and renaming the core columns from the transaction, branch, and product tables.

```
-- Calculate profit percentage based on price  
CASE  
    WHEN t.price <= 50000 THEN 0.10  
    WHEN t.price <= 100000 THEN 0.15  
    WHEN t.price <= 300000 THEN 0.20  
    WHEN t.price <= 500000 THEN 0.25  
    ELSE 0.30  
END AS persentase_gross_laba,
```

BigQuery Syntax

```
-- Calculate nett sales
(t.price * (1 - t.discount_percentage/100)) AS nett_sales,
```

This code calculate the “**nett_sales**” by taking the original price (t.price) and subtracting the monetary value of the discount.

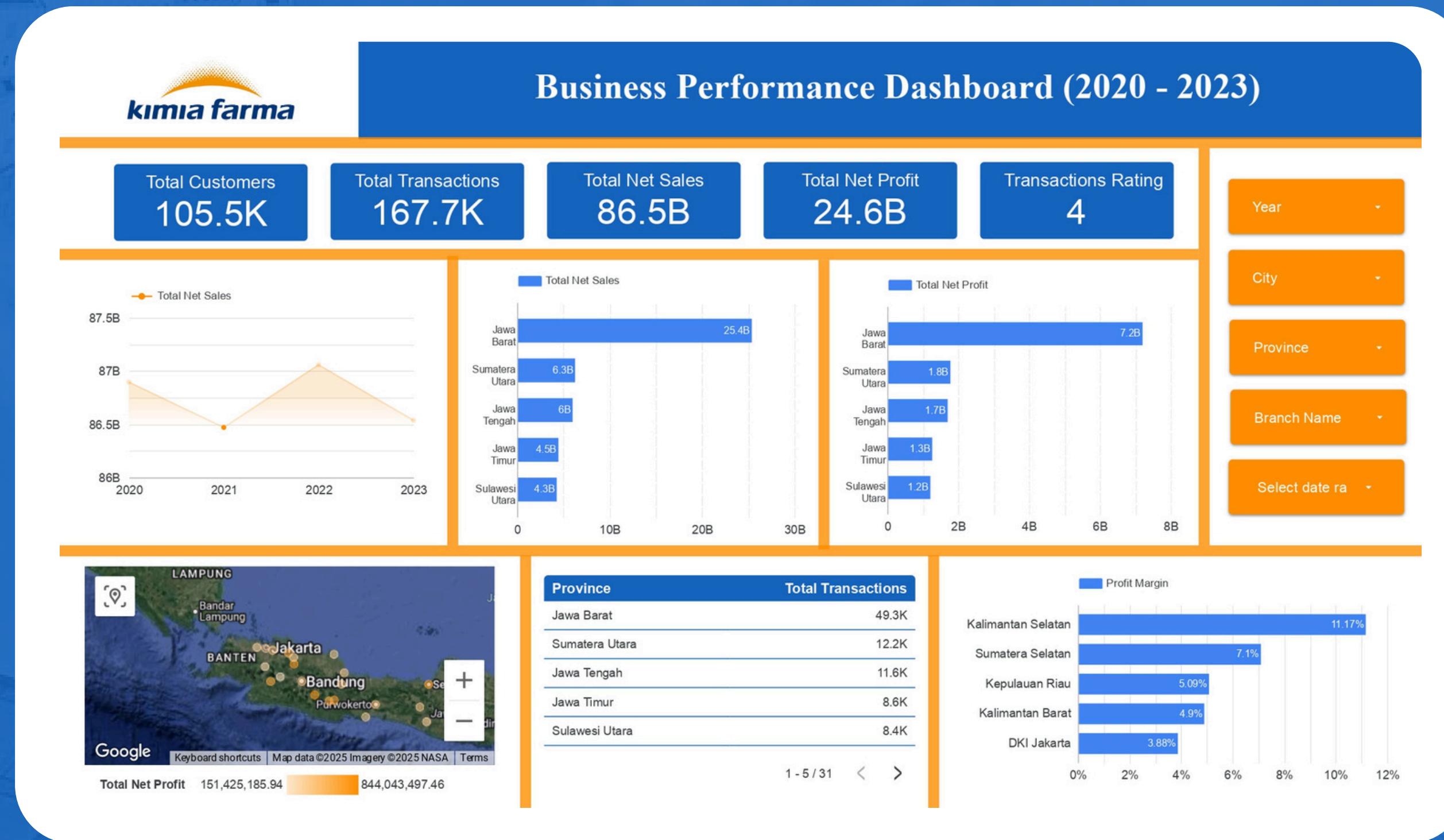
This calculation creates the “**nett_profit**” column by multiplying the nett_sales by the specific profit percentage derived from the CASE statement.

```
-- Calculate net profit
(t.price * (1 - t.discount_percentage/100)) *
CASE
    WHEN t.price <= 50000 THEN 0.10
    WHEN t.price <= 100000 THEN 0.15
    WHEN t.price <= 300000 THEN 0.20
    WHEN t.price <= 500000 THEN 0.25
    ELSE 0.30
END AS nett_profit,
t.rating AS rating_transaksi
```

```
FROM
`rakamin-kf-analytics-476317.kimia_farma.kf_final_transaction` AS t
JOIN
`rakamin-kf-analytics-476317.kimia_farma.kf_product` AS p
ON
t.product_id = p.product_id
JOIN
`rakamin-kf-analytics-476317.kimia_farma.kf_kantor_cabang` AS c
ON
t.branch_id = c.branch_id;
```

This clause functions as the data foundation, gathering all necessary information by joining the main “**kf_final_transaction**” table with the “**kf_product**” and “**kf_kantor_cabang**” tables.

Dashboard Performance Analytics



Dashboard Performance Analytics [Here](#)

Insight Data

Total Customers
105.5K

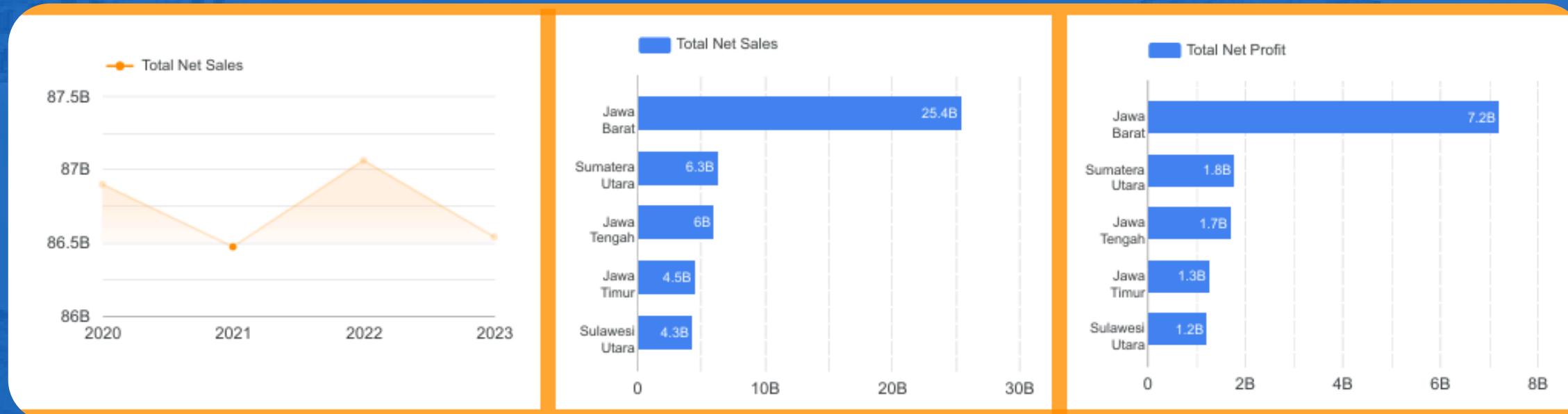
Total Transactions
167.7K

Total Net Sales
86.5B

Total Net Profit
24.6B

Transactions Rating
4

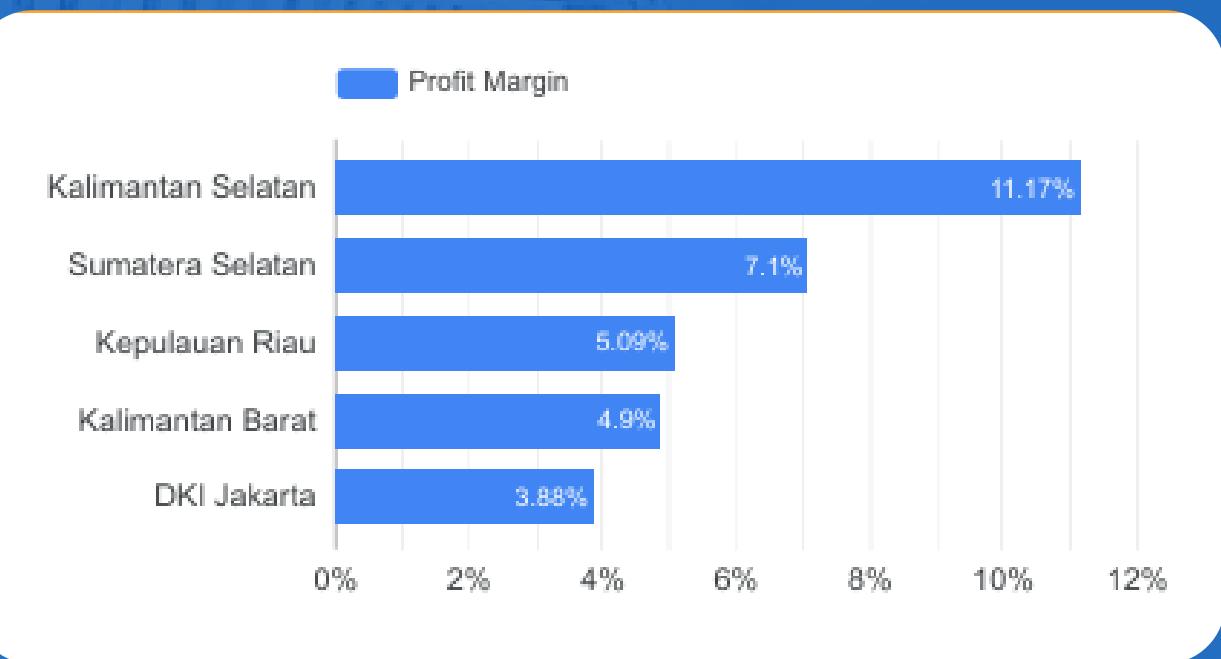
This data establishes the company's total performance. The Total Net Profit by 24.6B and Total Transactions by 167.7K are the high level figures that are primarily driven.



These chart visualizes the fluctuation of Total Net Sales from 2020 to 2023. The other charts clearly identify Jawa Barat as the primary volume engine, contributing the largest absolute Total Net Sales with 25.4B, the highest Total Net Profit with 7.2B, and a massive 49.3K transactions

Province	Total Transactions
Jawa Barat	49.3K
Sumatera Utara	12.2K
Jawa Tengah	11.6K
Jawa Timur	8.6K
Sulawesi Utara	8.4K

Insight Data



This chart shows that Kalimantan Selatan is the most efficient region by 11.17%, while Jawa Barat is not the most efficient, proven by its absence from the Top 5, and DKI Jakarta has a very thin margin 3.88%

Insight Data Conclusion

The company's business performance is supported by two different strategies across its regions. Jawa Barat functions as the primary volume engine, contributing the largest absolute Total Net Profit by 7.2 Billion, driven by a massive number of transactions by 49.3K. However, this region is not the most efficient.

On the other hand, Kalimantan Selatan is the most efficient and profitable region by ratio, leading with the highest Profit Margin by 11.17%. This indicates that while its sales volume is not as large as Jawa Barat, each transaction in Kalimantan Selatan produces a healthier profit. Meanwhile, a busy region like DKI Jakarta has an exceptionally thin margin by 3.88%, which likely means that high competition is suppressing profitability.

Thank You

