

Performance Analytics

Kimia Farma - Big Data Analytics

Presented by

Arvi Hasanah



Arvi Hasanah

-Data Analyst Intern-

A Mathematics graduate from the University of Lampung with a strong interest in data and finance. I enjoy working with numbers, reports, and visualizations, and find great satisfaction in simplifying complex data into clear, actionable insights.

With experience in various organizations and collaborative projects, I've developed strong communication, teamwork, and adaptability skills. Currently, I'm sharpening my technical abilities in Excel, Python, SQL, and Google BigQuery, while also deepening my knowledge of data visualization through Looker Studio.



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About Company



Kimia Farma is the first pharmaceutical company in Indonesia, established in 1817 by the Dutch East Indies Government under the name *NV Chemicalien Handle Rathkamp & Co.* Following nationalization in 1958, it became PNF Bhinneka Kimia Farma, and later transformed into a state-owned company, PT Kimia Farma (Persero), in 1971. In 2001, it became a publicly listed company under the name PT Kimia Farma (Persero) Tbk on the Indonesia Stock Exchange. In 2020, the majority of its shares were transferred to PT Bio Farma (Persero), officially making Kimia Farma part of the State-Owned Pharmaceutical Holding, and its name changed to PT Kimia Farma Tbk. Today, Kimia Farma has grown into an integrated healthcare company in Indonesia.

Project Portfolio

As a Big Data Analytics Intern at Kimia Farma, I worked on a data-driven project aimed at evaluating the company's operational and sales performance over the period of 2020–2023. This project involved applying data analytics to uncover insights that could support business decision-making.

The datasets I worked with included:

- **kf_final_transaction**: transactional records of drug sales across branches
- **kf_inventory**: inventory levels and movement of pharmaceutical products
- **kf_kantor_cabang**: database of branch locations and office identities
- **kf_produk**: product list and classification of items sold by Kimia Farma

This experience helped me strengthen my technical and analytical skills using tools such as SQL, BigQuery, and Looker Studio, while also deepening my understanding of business processes in the pharmaceutical industry.

Business Problem & Analytical Focus

Kimia Farma is one of Indonesia's leading pharmaceutical companies with a wide network of branches across the country. With a large product portfolio and high sales volume, managing inventory, monitoring performance, and ensuring efficiency are key to maintaining competitiveness in the healthcare sector.

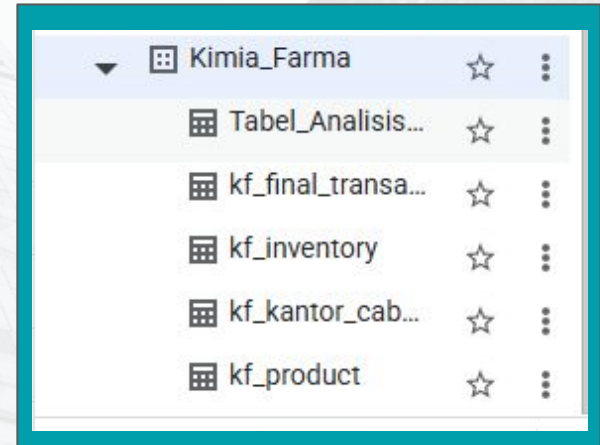
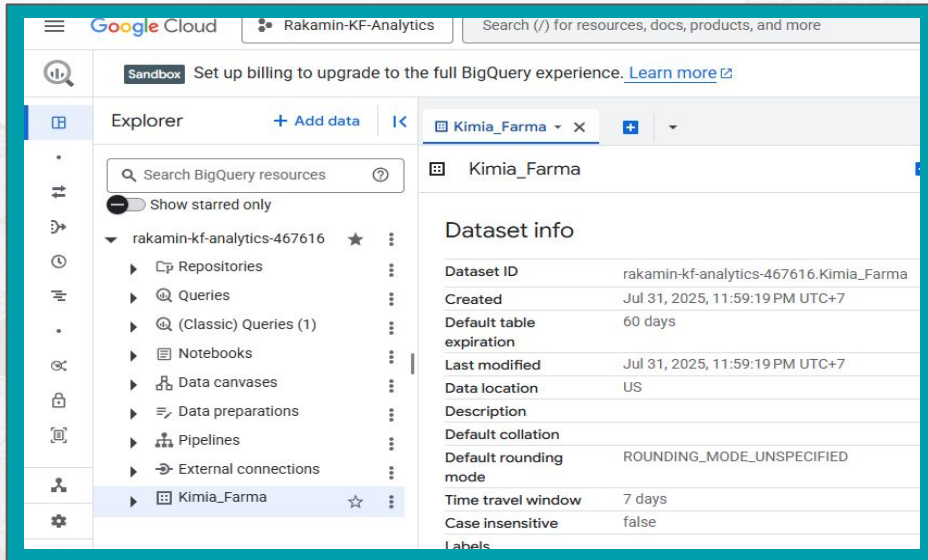
Despite its scale, the company faces challenges in tracking sales performance, managing inventory efficiently, and identifying underperforming branches. Data is available, but lacks centralized, actionable insights to support timely business decisions.

This project aims to explore and analyze:

- Sales transaction trends from 2020–2023
- Inventory movement and product demand patterns
- Branch performance based on location and sales
- Product categories contributing most to revenue

1. Importing Dataset to BigQuery

As the first step, after aligning on the analysis goals and strategy, we imported the dataset into Google BigQuery. This allows us to efficiently explore and query large volumes of data as part of the initial data exploration phase.



After creating the dataset in Google BigQuery, I imported several source tables that support the analysis.

2. Tabel Analisa

kf_final_transa...

Query

Open in ▾

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Snapshot

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Export

Schema

Details

Preview

Table Explorer

Preview

Insights

Lineage

Data Profile

Data Quality

Row	transaction_id	date	branch_id	customer_name	product_id	price	dis
1	TRX5103706	2021-08-25	93529	Derrick Wright III	KF116	251700	
2	TRX5388139	2020-12-29	24832	Elizabeth Ramos	KF116	251700	
3	TRX7251897	2020-02-03	20505	Meghan Warner	KF116	251700	
4	TRX4943675	2022-09-09	17678	Steven Roberts	KF116	251700	
5	TRX3469820	2020-06-20	28315	Linda Bruce DDS	KF116	251700	
6	TRX1213133	2021-09-17	22280	Cory Castro	KF116	251700	
7	TRX2020131	2020-12-16	40028	Stephanie Boone	KF116	251700	
8	TRX5015870	2022-08-17	41343	Mary Hughes	KF116	251700	
9	TRX7064077	2021-06-21	86546	Tamara Bruce	KF116	251700	
10	TRX5979742	2020-12-31	18235	Aaron Reed	KF116	251700	
11	TRX2209141	2021-03-20	59571	Nancy Kennedy	KF116	251700	

kf_product

Query

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Lineage

Data Profile

Data Quality

Row	product_id	product_name	product_category	price	
1	KF766	Anti-inflammatory and antirheumatic products, non-steroids, Acetic acid derivatives and related substances	M01AB	108500	
2	KF400	Anti-inflammatory and antirheumatic products, non-steroids, Acetic acid derivatives and related substances	M01AB	359500	
3	KF312	Anti-inflammatory and antirheumatic products,	N02BE/B	774700	

kf_inventory

Query

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Refresh

Schema

Details

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Table Explorer

Preview

Insights

Lineage

Data Profile

Data Quality

Row	Inventory_ID	branch_id	product_id	product_name	opname_stock
1	INV1828570	14724	KF116	Psycholeptics drugs, Hypnotics ...	0
2	INV6358449	30475	KF116	Psycholeptics drugs, Hypnotics ...	0
3	INV8727436	24294	KF116	Psycholeptics drugs, Hypnotics ...	0
4	INV9842687	81965	KF116	Psycholeptics drugs, Hypnotics ...	0
5	INV6215728	67373	KF116	Psycholeptics drugs, Hypnotics ...	0
6	INV7363800	35354	KF116	Psycholeptics drugs, Hypnotics ...	0
7	INV3163646	15943	KF116	Psycholeptics drugs, Hypnotics ...	0
8	INV5179715	37402	KF116	Psycholeptics drugs, Hypnotics ...	0
9	INV5094212	22494	KF116	Psycholeptics drugs, Hypnotics ...	0
10	INV2346003	88089	KF116	Psycholeptics drugs, Hypnotics ...	0
11	INV1529487	85206	KF116	Psycholeptics drugs, Hypnotics ...	0

kf_kantor_cab...

Query

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Schema

Details

Preview

Table Explorer

Preview

Insights

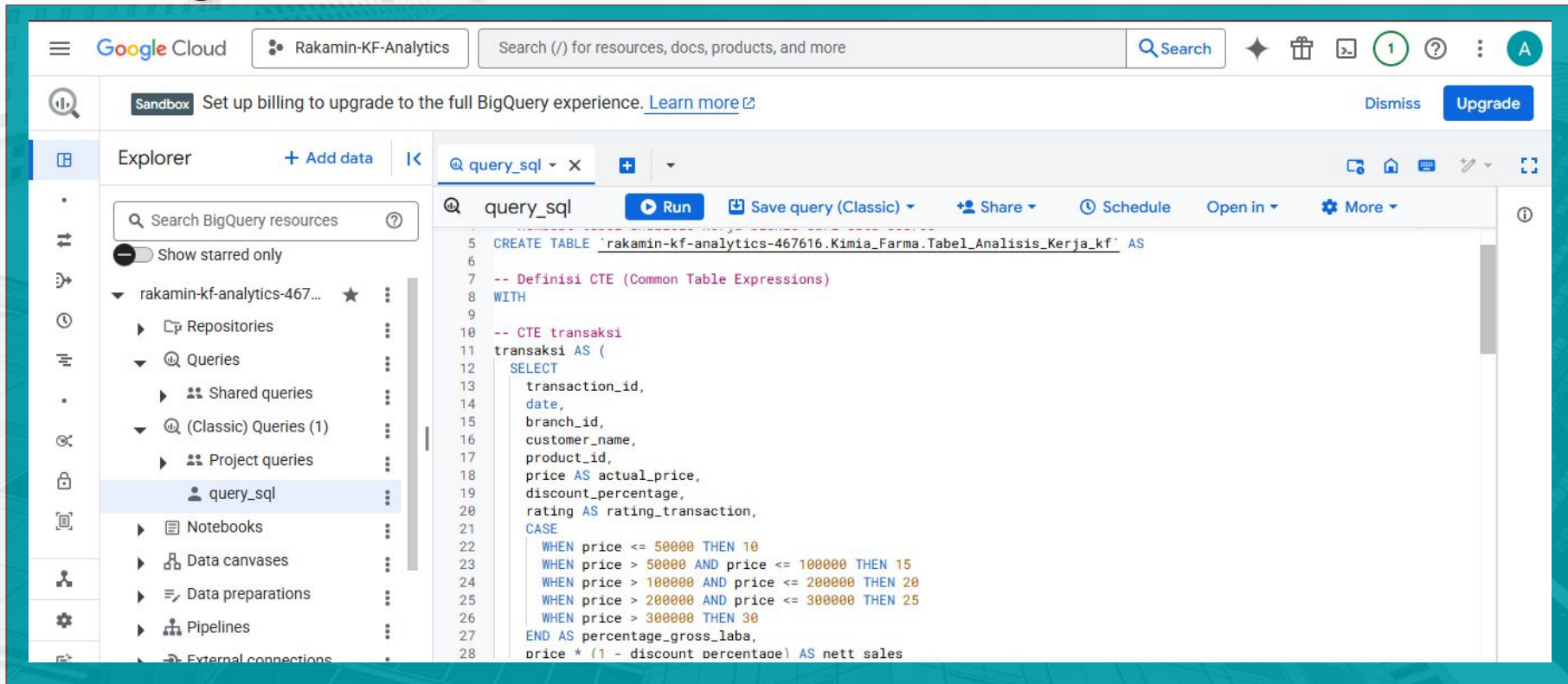
Lineage

Data Profile

Data Quality

Row	branch_id	branch_category	branch_name	kota	provinsi	rati
1	39578	Apotek	Kimia Farma - Apotek	Ambon	Maluku	
2	55171	Apotek	Kimia Farma - Apotek	Ambon	Maluku	
3	11400	Apotek	Kimia Farma - Apotek	Ambon	Maluku	
4	38733	Apotek	Kimia Farma - Apotek	Ambon	Maluku	
5	93401	Apotek	Kimia Farma - Apotek	Ambon	Maluku	
6	68034	Apotek	Kimia Farma - Apotek	Ambon	Maluku	
7	59260	Apotek	Kimia Farma - Apotek	Ambon	Maluku	
8	49260	Apotek	Kimia Farma - Apotek	Ambon	Maluku	
9	14799	Apotek	Kimia Farma - Apotek	Ambon	Maluku	
10	22275	Apotek	Kimia Farma - Apotek	Ambon	Maluku	
11	65902	Apotek	Kimia Farma - Apotek	Balikpapan	Kalimantan Timur	

3. BigQuery Syntax



The screenshot displays the Google Cloud BigQuery console. The top navigation bar includes the Google Cloud logo, the project name 'Rakamin-KF-Analytics', a search bar, and a 'Search' button. Below the navigation bar, the 'Explorer' panel on the left shows a tree view of resources, with 'query_sql' selected. The main editor area displays a SQL query titled 'query_sql' with a 'Run' button and options to 'Save query (Classic)', 'Share', 'Schedule', 'Open in', and 'More'. The query is a CREATE TABLE statement for 'rakamin-kf-analytics-467616.Kimia_Farma.Tabel_Analisis_Kerja_kf' AS, defining a CTE named 'transaksi' and selecting various fields with a CASE statement for 'percentage_gross_laba' and a calculation for 'nett sales'.

```
5 CREATE TABLE `rakamin-kf-analytics-467616.Kimia_Farma.Tabel_Analisis_Kerja_kf` AS
6
7 -- Definisi CTE (Common Table Expressions)
8 WITH
9
10 -- CTE transaksi
11 transaksi AS (
12   SELECT
13     transaction_id,
14     date,
15     branch_id,
16     customer_name,
17     product_id,
18     price AS actual_price,
19     discount_percentage,
20     rating AS rating_transaction,
21     CASE
22       WHEN price <= 50000 THEN 10
23       WHEN price > 50000 AND price <= 100000 THEN 15
24       WHEN price > 100000 AND price <= 200000 THEN 20
25       WHEN price > 200000 AND price <= 300000 THEN 25
26       WHEN price > 300000 THEN 30
27     END AS percentage_gross_laba,
28     price * (1 - discount_percentage) AS nett sales
```

For a closer look at the queries used in this project, feel free to visit my GitHub: [link](#)

4. Dashboard Performance Analytics

KIMIA FARMA BUSINESS PERFORMANCE ANALYSIS DASHBOARD



PERIODE: 2020-2023

Total Nett Sales (Rp)
1.3T

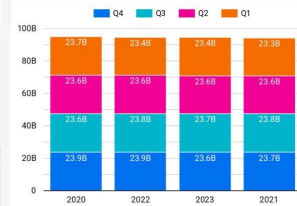
Total Nett Profit (Rp)
378.2B

Total Transaction
660.1K

AVG. Rating Trans
4.0

AVG. Rating Branch
4.4

Revenue by Quarter



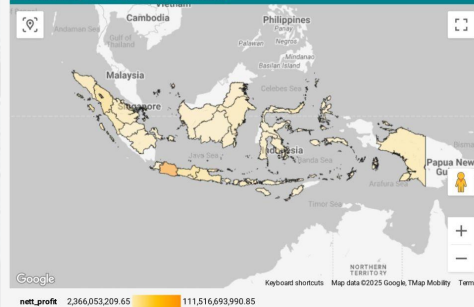
Top 10 Branches by Total Transaction across Provinces

branch_name	province	transaction_id
1. Kimia Farma - Apotek	Jawa Barat	70,278
2. Kimia Farma - Klinik-Apotek...	Jawa Barat	68,506
3. Kimia Farma - Klinik & Apotek	Jawa Barat	56,238
4. Kimia Farma - Klinik-Apotek...	Jawa Tengah	17,240
5. Kimia Farma - Klinik-Apotek...	Sumatera Utara	17,207
6. Kimia Farma - Apotek	Sumatera Utara	16,589
7. Kimia Farma - Klinik & Apotek	Jawa Timur	15,429
8. Kimia Farma - Klinik & Apotek	Jawa Tengah	15,388
9. Kimia Farma - Klinik & Apotek	Sumatera Utara	13,458
10. Kimia Farma - Klinik-Apotek...	Sulawesi Utara	13,416

Top 10 Branches by Nett Sales across Provinces

branch_name	province	nett_sales
1. Kimia Farma - Apotek	Jawa Barat	136,940,501,950
2. Kimia Farma - Klinik-Apotek-Laborat...	Jawa Barat	132,356,801,835
3. Kimia Farma - Klinik & Apotek	Jawa Barat	109,193,427,365
4. Kimia Farma - Klinik-Apotek-Laborat...	Jawa Tengah	33,311,086,701
5. Kimia Farma - Klinik-Apotek-Laborat...	Sumatera Uta...	33,181,586,087
6. Kimia Farma - Apotek	Sumatera Uta...	32,028,366,321
7. Kimia Farma - Klinik & Apotek	Jawa Tengah	30,126,869,705
8. Kimia Farma - Klinik & Apotek	Jawa Timur	29,737,015,639
9. Kimia Farma - Klinik-Apotek-Laborat...	Sulawesi Utara	26,227,211,536
10. Kimia Farma - Klinik & Apotek	Sumatera Uta...	26,007,850,080

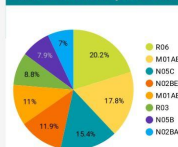
Nett Profit per Province (Map View)



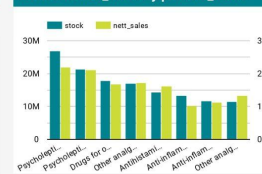
Top 5 Branches: High Branch Scores, Low Transaction Ratings

branch_name	province	city	rating_branch	rating_transaction
1. Kimia Farma - Klinik-Apo...	Sumatera Uta...	Pematangsiantar	4.84	3.99
2. Kimia Farma - Klinik & Ap...	Jambi	Jambi	4.78	4.01
3. Kimia Farma - Apotek	Papua Barat	Sorong	4.73	3.99
4. Kimia Farma - Klinik-Apo...	Kepulauan Ri...	Batam	4.72	4
5. Kimia Farma - Klinik-Apo...	Jawa Tengah	Cilacap	4.72	4

Sales Distribution by Product Category



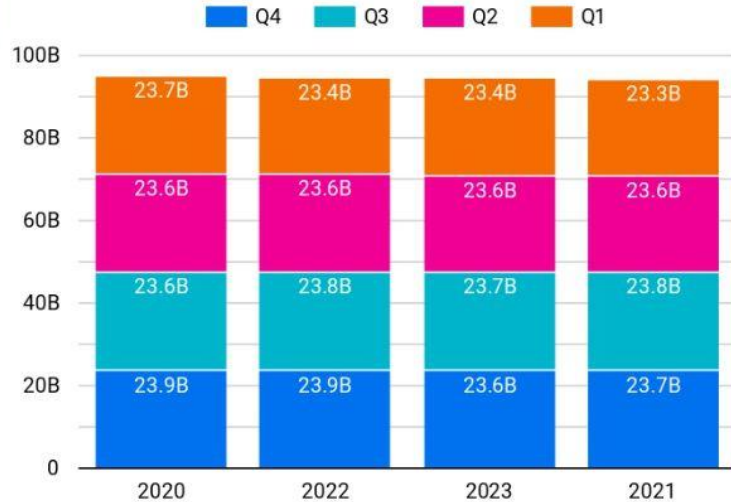
stock and nett_sales by product_name



[looker_studio_visualisasi](#)

Insight

Revenue by Quarter



Quarterly revenue remained stable throughout 2020 to 2023, averaging around 23-24B per quarter. There were no significant fluctuations between quarters or years, indicating consistent sales performance over time.

Top 10 Branches by Total Transaction across Provinces

	branch_name	province	transaction_id ▾
1.	Kimia Farma - Apotek	Jawa Barat	70,278
2.	Kimia Farma - Klinik-Apotek-L...	Jawa Barat	68,506
3.	Kimia Farma - Klinik & Apotek	Jawa Barat	56,238
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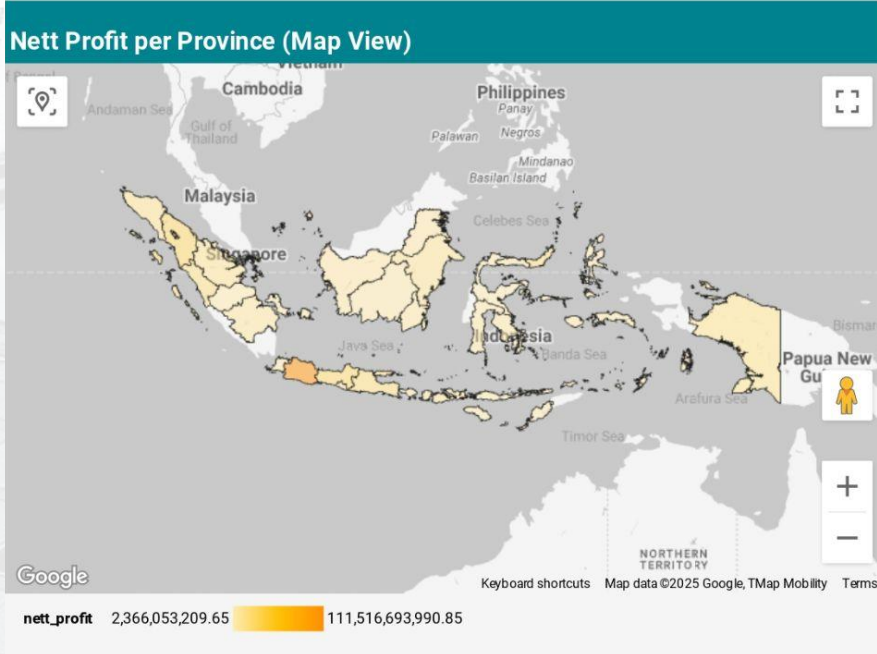
Most branches with the highest number of transactions are located in West Java, making it the main market for Kimia Farma. Branches in Central Java and North Sumatra also appear frequently, showing strong customer activity in those areas.

Top 10 Branches by Nett Sales across Provinces

	branch_name	province	nett_sales ▾
1.	Kimia Farma - Apotek	Jawa Barat	136,940,501,950
2.	Kimia Farma - Klinik-Apotek-Laborat...	Jawa Barat	132,356,801,835
3.	Kimia Farma - Klinik & Apotek	Jawa Barat	109,193,427,365
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5.	Kimia Farma - Klinik-Apotek-Laborat...	Sumatera Uta...	33,181,586,087
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9.	Kimia Farma - Klinik-Apotek-Laborat...	Sulawesi Utara	26,227,211,536
10.	Kimia Farma - Klinik & Apotek	Sumatera Uta...	26,007,850,080











The top-performing branches in terms of sales are dominated by those in West Java, just like in transaction volume. This confirms that West Java branches are not only busy but also generate the highest revenue.

Insight



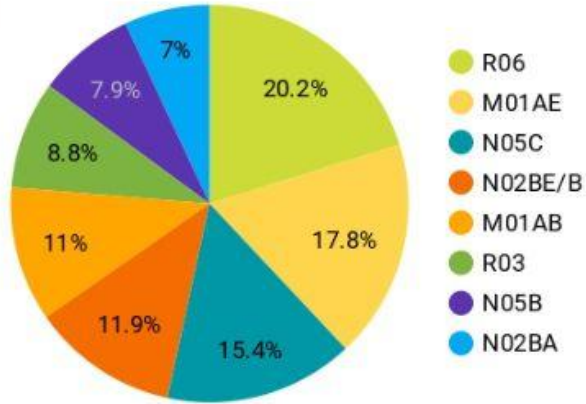
The provinces with the highest net profit are **West Java**, followed by **Central Java** and **North Sumatra**. **Eastern Indonesia** contributes relatively less, indicating potential opportunities for expansion or performance improvement in those regions.

Top 5 Branches: High Branch Scores, Low Transaction Ratings

	branch_name	province	city	rating_branch ① ▾	rating_transaction ② ▲
1.	Kimia Farma - Klinik-Apo...	Sumatera Uta...	Pematangsiantar	4.84 	3.99 
2.	Kimia Farma - Klinik & Ap...	Jambi	Jambi	4.78 	4.01 
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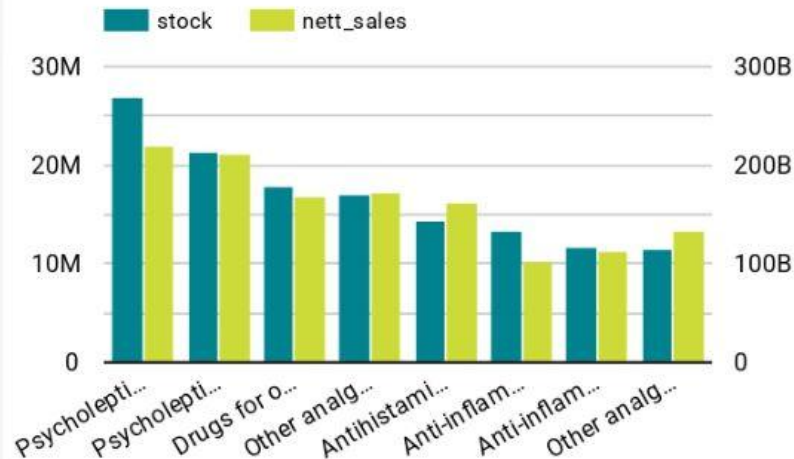
These 5 branches have very high branch ratings (>4.7) but low transaction ratings (<4.1). This suggests potential issues with the transaction process, such as long queues, payment delays, or inefficiencies in service delivery.

Sales Distribution by Product Category



Product categories R06 and M01AE contribute the highest proportions, at 20.2% and 13.7% respectively. Focusing on these top categories can help maximize revenue, while low-performing categories may need reassessment.

stock and nett_sales by product_name



Some products like Psycholeptic and Drugs for acid-related disorders show strong sales with well-balanced stock levels. However, there are products with high stock but low sales, which could lead to overstock and increased inventory costs.

Strategic Recommendations for Kimia Farma

1. **Improve Transaction Experience in High-Rated Branches**

Branches with excellent service ratings but low transaction satisfaction (e.g., Pematangsiantar, Jambi) should be audited to identify issues and improve the customer journey.

2. **Optimize Inventory for Over-Stocked, Low-Selling Products**

Implement smarter procurement and bundling strategies for underperforming products to reduce overstock and free up working capital.

3. **Prioritize Best-Selling Product Categories**

Focus on categories like R06 and M01AE which drive the highest net sales. Ensure availability and consider targeted promotions or product line expansions.

4. **Scale Up in High-Contribution Provinces**

West Java and Central Java are top contributors in both sales and transactions. Allocate more resources and expand operations in these areas.

5. **Strengthen Market Penetration in Low-Profit Regions**

Regions with low net profit (e.g., Papua, East Nusa Tenggara) may benefit from digital outreach strategies or mobile services to improve accessibility and demand.

6. **Enhance Digital Channels & Loyalty Programs**

Low average transaction ratings suggest a need for better digital user experience. Consider revamping apps/web platforms and offering incentives for repeat customers.

Thank You



Rakamin
Academy



kimia farma