Rakamin Academy X kimia farma

Business Performance Dashboard

Kimia Farma - Big Data Analytics

Presented by
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Data Analyst

Mathematics graduate from Brawijaya University with strong analytical and statistical skills, currently gaining hands-on experience as a Data Analyst Intern at Rhaya Flicks. Skilled in data collection, processing, and visualization using Python, SQL, and Power BI. Passionate about transforming data into actionable insights to support business decision-making and growth.

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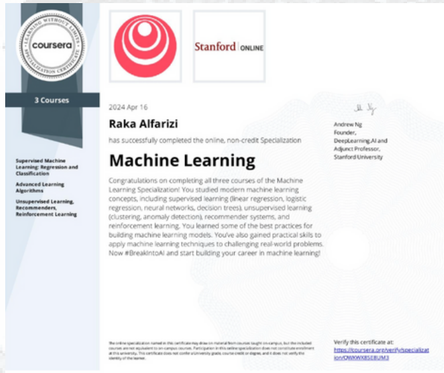
Courses and Certification

Microsoft Power BI | certificate	**August, 2025**
Bangkit Academy | certificate	**July, 2024**
Machine Learning Specialization | certificate	**April, 2024**
Belajar Analisis Data dengan Python | certificate	**March, 2024**



About Company

Kimia Farma is recognized as Indonesia's first pharmaceutical company, established by the Dutch East Indies government in 1817 under the name NV Chemicalien Handle Rathkamp & Co. Following Indonesia's independence, the government implemented a nationalization policy for former Dutch enterprises, which led to the merger of several pharmaceutical firms into PNF (State Pharmaceutical Company) Bhinneka Kimia Farma in 1958. Later, on August 16, 1971, the company's legal status was transformed into a Limited Liability Company (PT), officially adopting the name PT Kimia Farma (Persero).

Project Portfolio

This project aims to provide an in-depth understanding of Kimia Farma's sales performance through structured data analysis. The initial stage involved importing the dataset into BigQuery to ensure that the data was complete and ready for analysis. After that, a comprehensive analysis was conducted using BigQuery to identify trends and important patterns in the sales data.

The results of the analysis provide valuable insights into Kimia Farma's sales performance and the factors that influence it. Based on these findings, I compiled a narrative highlighting key insights, areas that require more attention, and opportunities for future sales growth. The resulting visualizations and infographics help present the analysis results clearly and comprehensively, thereby supporting the process of data-driven interpretation and decision-making.

Github Link

Project explanation video here!

Mission and Objective

Mission 1

Import dataset into Big Query.

Mission 2

Build an integrated analysis table using JOIN operations in BigQuery.

Mission 3

Create Performance dashboard in Looker Studio.

Objective

Evaluate the business performance of Kimia Farma from 2020 to 2023.

Importing Dataset to BigQuery

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1. Dataset Preparation
2. Open BigQuery Console
3. Create GCP project : 'Rakamin KF Analytics'
4. Create a dataset 'kimia_farma'
5. Import dataset into BigQuery
6. Verifiy Import

1

kf_final_transaction.csv (link),
kf_inventory.csv (link),
kf_kantor_cabang.csv (link),
kf_product.csv (link).

2

3

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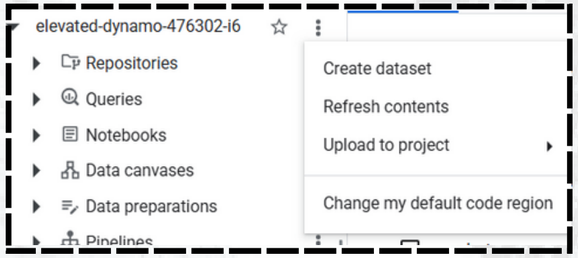

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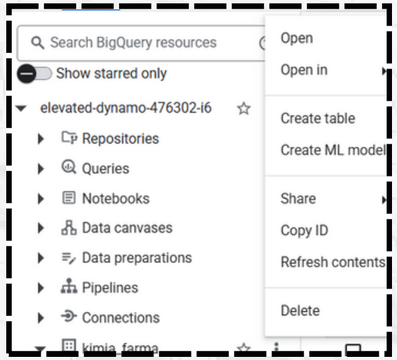

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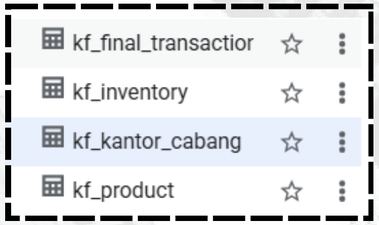
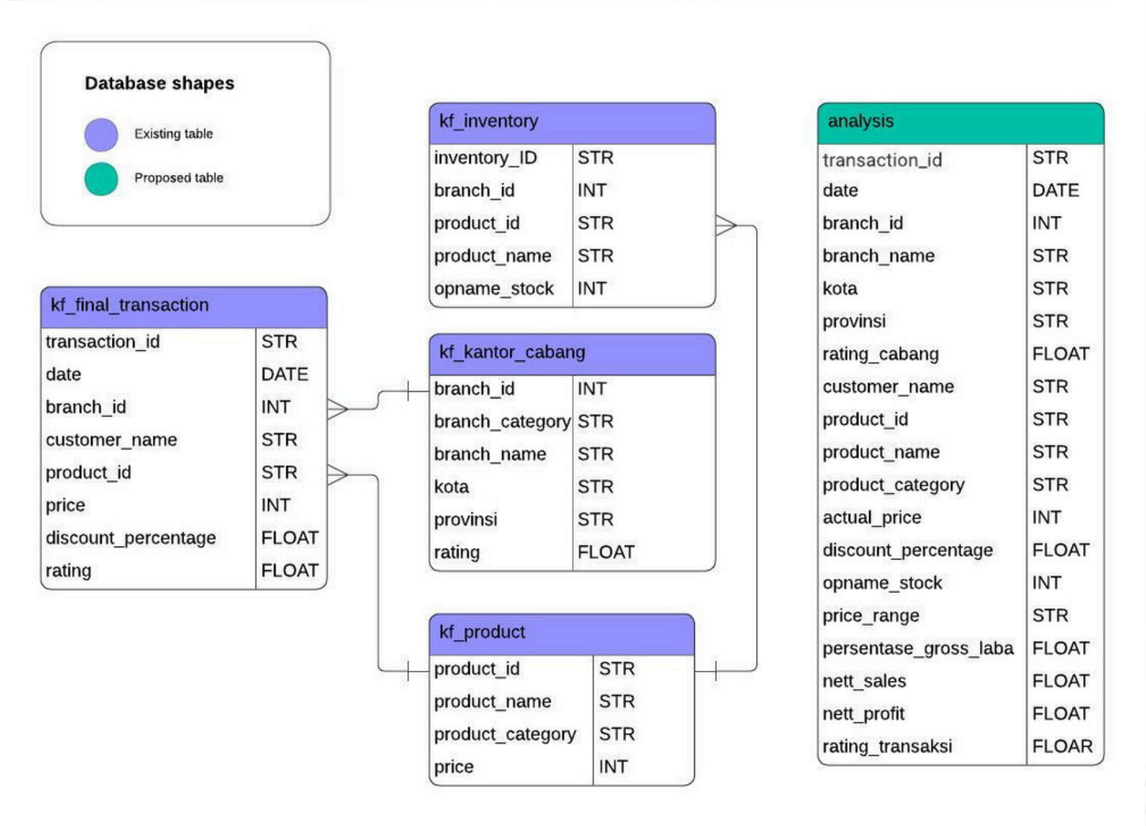


Tabel Analisis



The analysis table is created by combining transaction, branch, product, and stock data to produce a comprehensive table that is ready to be used in sales and branch performance analysis.

BigQuery Syntax

```
CREATE OR REPLACE TABLE `kimia_farma.analysis` AS
```

Create New Table

This SQL command is used to create or replace a table named analysis in the **kimia_farma dataset.**

If the table already exists, it will be overwritten with the new version.

The new table is filled with data retrieved through a SELECT query from several existing tables **kf_final_transaction, kf_inventory, kf_kantor_cabang, and kf_product.**

In short, this statement rebuilds the analysis table by combining and updating data from those four source tables within the **kimia_farma dataset.**

BigQuery Syntax

```sql
SELECT
    t.transaction_id,
    t.date,
    t.branch_id,
    kc.branch_name,
    kc.kota,
    kc.provinsi,
    kc.rating AS rating_cabang,
    t.customer_name,
    t.product_id,
    p.product_name,
    p.product_category,
    p.price AS actual_price,
    t.discount_percentage,
    i.opname_stock,
    CASE
        WHEN p.price <= 50000 THEN '≤ 50K'
        WHEN p.price > 50000 AND p.price <= 100000 THEN '50K - 100K'
        WHEN p.price > 100000 AND p.price <= 300000 THEN '100K - 300K'
        WHEN p.price > 300000 AND p.price <= 500000 THEN '300K - 500K'
        WHEN p.price > 500000 THEN '> 500K'
    END AS price_range,
    CASE
        WHEN t.price <= 50000 THEN 0.10
        WHEN t.price > 50000 AND t.price <= 100000 THEN 0.15
        WHEN t.price > 100000 AND t.price <= 300000 THEN 0.20
        WHEN t.price > 300000 AND t.price <= 500000 THEN 0.25
        WHEN t.price > 500000 THEN 0.30
    END AS persentase_gross_laba,
    (t.price * (1 - t.discount_percentage)) AS nett_sales,
    (t.price * (1 - t.discount_percentage)) *
        CASE
            WHEN t.price <= 50000 THEN 0.10
            WHEN t.price > 50000 AND t.price <= 100000 THEN 0.15
            WHEN t.price > 100000 AND t.price <= 300000 THEN 0.20
            WHEN t.price > 300000 AND t.price <= 500000 THEN 0.25
            WHEN t.price > 500000 THEN 0.30
        END AS nett_profit,
    t.rating AS rating_transaksi
```

Steps Behind the Analysis Table

This SELECT query retrieves data from several related tables — kf_final_transaction, kf_kantor_cabang, kf_product, and kf_inventory. It extracts specific columns from each table and applies several calculated transformations:

- It categorizes product prices into different price ranges.
- It determines the gross profit percentage based on the product's price level.
- It computes nett sales by applying the discount rate to the original price.
- It calculates nett profit using the nett sales value multiplied by the corresponding profit percentage.

Overall, this query combines key transactional, product, and branch data while adding meaningful business metrics that can be used for further sales and profitability analysis.

BigQuery Syntax

```sql
FROM
    `kimia_farma.kf_final_transaction` t
LEFT JOIN
    `kimia_farma.kf_kantor_cabang` kc ON t.branch_id = kc.branch_id
LEFT JOIN
    `kimia_farma.kf_product` p ON t.product_id = p.product_id
LEFT JOIN
    `kimia_farma.kf_inventory` i
    ON t.branch_id = i.branch_id AND t.product_id = i.product_id;
```

How tables are connected?

This FROM–JOIN section specifies where the data is sourced and how the tables are connected to each other.It links multiple tables within the kimia_farma database using LEFT JOINs, ensuring that all transaction records are kept even if some related data is missing.

- The main table is kf_final_transaction (alias t), which contains core transaction data.
- It's joined with kf_kantor_cabang (alias kc) through the column branch_id to include information about the branch, such as its name, city, and province.
- Next, it joins kf_product (alias p) using product_id, adding product details like the name, category, and price.
- Finally, it connects to kf_inventory (alias i) through both branch_id and product_id, allowing access to stock information for each product in each branch.

This part of the query combines transaction, branch, product, and inventory data into a single, unified dataset, which serves as the foundation for further analysis.

BigQuery Syntax

Row	transaction_id	date	branch_id	branch_name	kota	provinsi	rating_cabang	customer_name
1	TRX6539812	2021-01-25	17275	Kimia Farma - Apotek	Banda Aceh	Aceh	3.9	Linda Buchanan
2	TRX5777638	2021-02-20	11400	Kimia Farma - Apotek	Ambon	Maluku	4.1	Warren Snyder
3	TRX6938546	2021-06-25	47503	Kimia Farma - Apotek	Denpasar	Bali	4.1	Max Sutton
4	TRX5455288	2023-02-21	31935	Kimia Farma - Apotek	Tangerang	Banten	4.4	Juan Bentley
5	TRX8383972	2020-07-22	64080	Kimia Farma - Apotek	Batam	Kepulauan Riau	4.1	Luis Smith
6	TRX4786828	2022-10-08	77512	Kimia Farma - Apotek	Cirebon	Jawa Barat	4.5	Jake Hammond
7	TRX3119648	2020-09-16	77824	Kimia Farma - Apotek	Banda Aceh	Aceh	4.5	Jessica Hood
8	TRX6080961	2022-07-08	48130	Kimia Farma - Apotek	Tasikmalaya	Jawa Barat	4.7	Sandra Mendez
9	TRX6601695	2022-08-25	78158	Kimia Farma - Apotek	Palu	Sulawesi Tengah	4.1	Kendra Brown
10	TRX2020418	2021-02-26	81651	Kimia Farma - Apotek	Bitung	Sulawesi Utara	4.2	Selena Lopez
11	TRX7899036	2021-05-19	12369	Kimia Farma - Apotek	Ciamis	Jawa Barat	4.4	Melissa Simmons
12	TRX4060557	2021-06-20	65947	Kimia Farma - Apotek	Pontianak	Kalimantan Barat	5.0	Kim Maxwell
13	TRX1161346	2020-06-29	67921	Kimia Farma - Apotek	Ternate	Maluku Utara	5.0	Sandra Jacobs
14	TRX3193958	2021-07-24	15917	Kimia Farma - Apotek	Semarang	Jawa Tengah	4.8	Crystal Jefferson
15	TRX1931842	2022-02-22	20505	Kimia Farma - Apotek	Cilacap	Jawa Tengah	4.5	Anthony Browning

Analysis table preview

EDA Syntax

```sql
SELECT
    COUNT(*) AS total_transactions,
    MIN(date) AS earliest_date,
    MAX(date) AS latest_date,
    AVG(actual_price) AS average_price,
    AVG(discount_percentage) AS average_discount_percentage,
    AVG(persentase_gross_laba) AS average_gross_profit_percentage,
    SUM(nett_sales) AS total_net_sales,
    SUM(nett_profit) AS total_net_profit,
    AVG(rating_transaksi) AS average_transaction_rating,
    AVG(rating_cabang) AS average_branch_rating,
    branch_name,
    COUNT(DISTINCT customer_name) AS total_customers
FROM
    `kimia_farma.analysis`
GROUP BY
    branch_name
ORDER BY
    total_net_sales DESC;
```

Exploratory Data Analysis

This SQL query summarizes sales performance per branch from the kimia_farma.analysis table.

It groups data by branch_name and calculates key metrics such as:

- Total transactions (COUNT(*))
- Sales period (MIN(date) – MAX(date))
- Average price, discount, and profit percentage
- Total net sales and total net profit
- Average ratings (transaction and branch)
- Unique customers per branch

The result is sorted by total net sales (DESC) to show which branches generate the highest revenue.

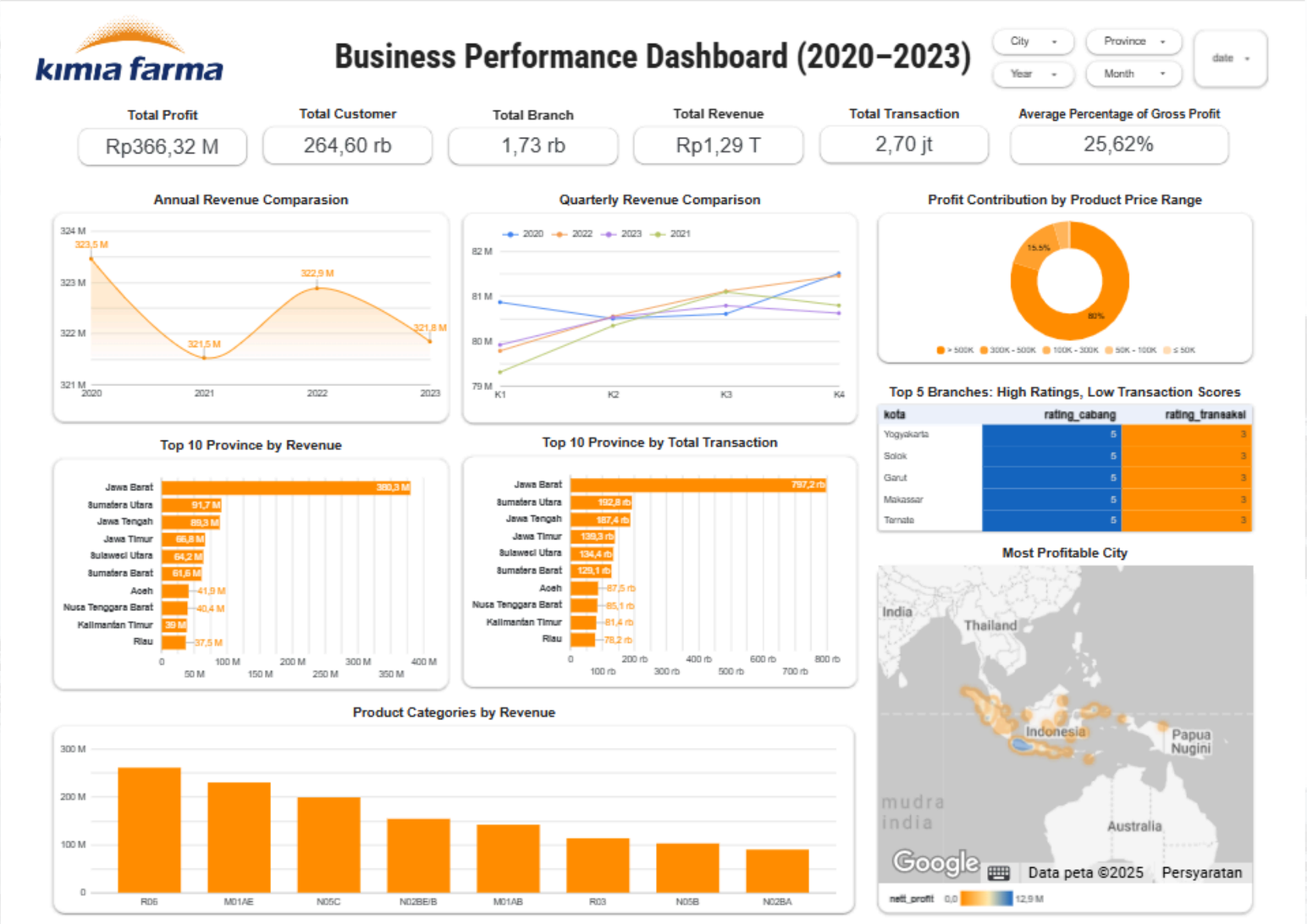
Exploratory Data Analysis

Analysis Aspect	Findings (EDA BigQuery)	Insight / Implication
Total Transactions	Each branch recorded total transactions ranging from **890,000 to 916,000 (period 2020–2023)**	Transaction volumes across branches are **relatively even**, indicating balanced customer distribution and operational activity.
Average Product Price	Approximately **Rp 516,000**	Kimia Farma's products fall under the **mid-to-high price category**.
Average Discount	Around **7.5%**	Discounts are applied **within a reasonable range**, suggesting a promotional strategy that is **not overly aggressive but still effective**.
Average Gross Profit %	Approximately **25.6%**	Profit margins are **stable and healthy**, reflecting **pricing and cost efficiency**.
Total Revenue	Reaching **Rp 425–438 billion per branch**	Sales performance is **strong and consistent across branches**.

Exploratory Data Analysis

Analysis Aspect	Findings (EDA BigQuery)	Insight / Implication
Total Profit	Approximately **Rp 107–110 billion per branch**	Branch profitability shows **efficient cost control and sustainable business performance**.
Average Transaction Rating	Around **4.2 out of 5**	Indicates **positive customer satisfaction** with overall service and product quality.
Average Branch Rating	Around **4.4 out of 5**	Reflects **consistent operational quality** and **customer trust** across branches.
Unique Customers per Branch	Between **17,000 and 18,500**	Suggests a **stable and loyal customer base**, evenly distributed across locations.

Dashboard Performance Analytics



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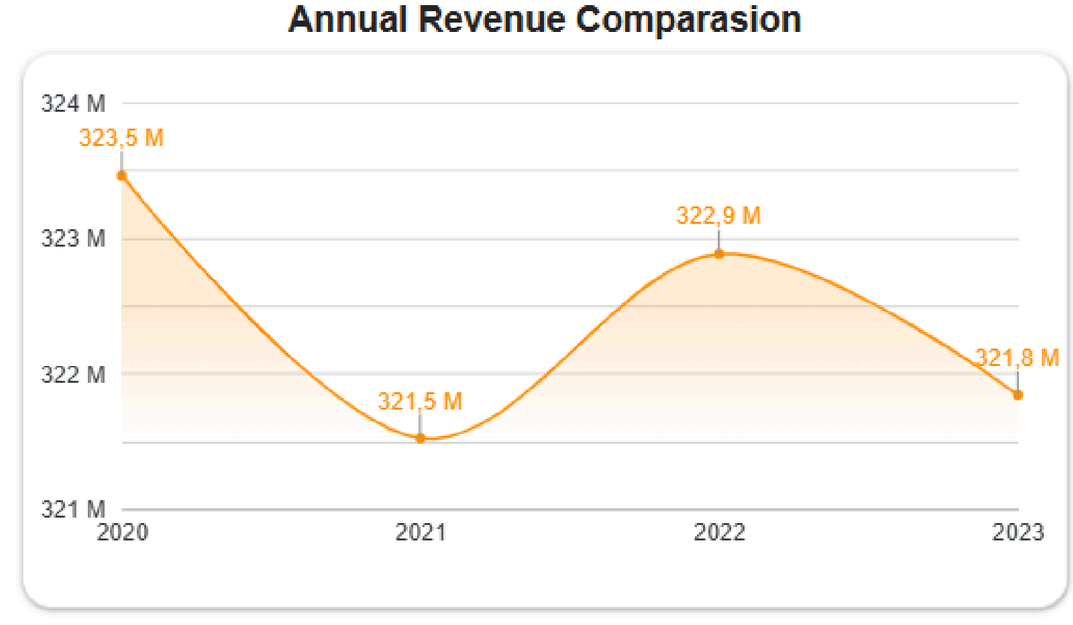
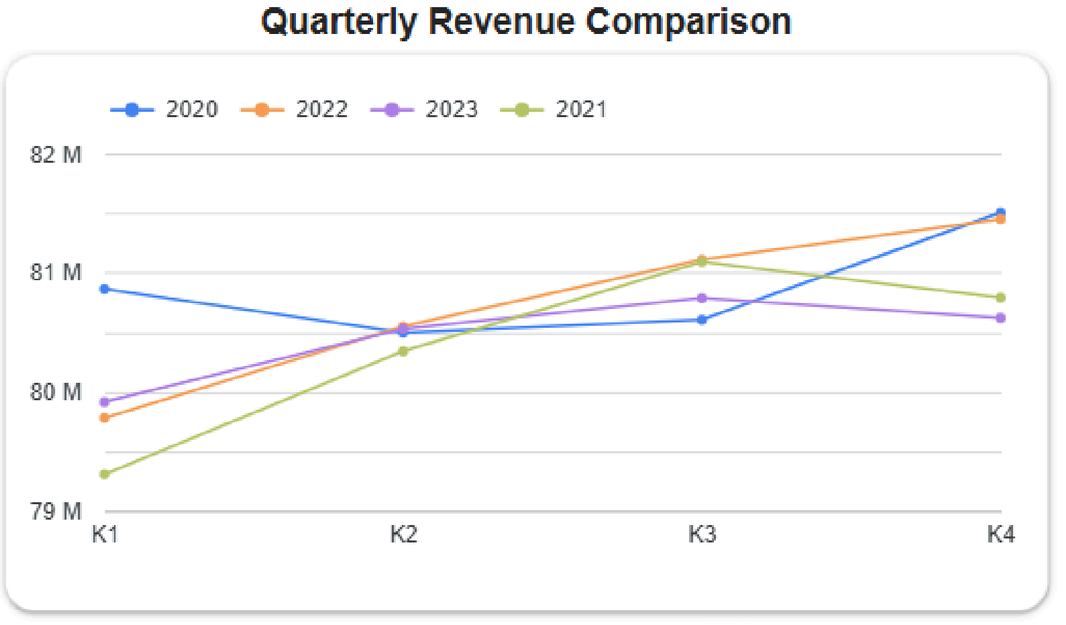
Dashboard Performance Analytics

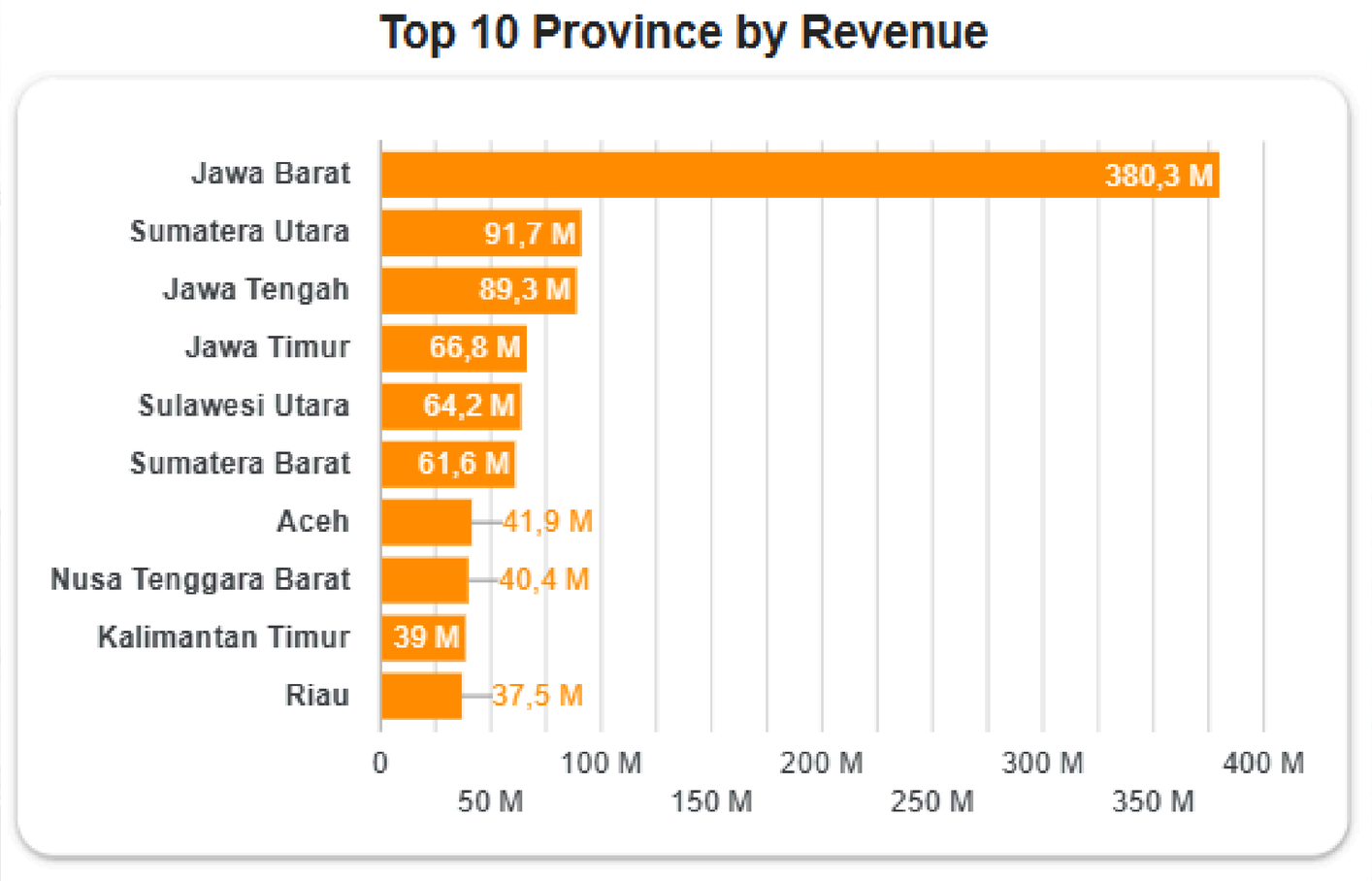




Insight

- Annual revenue fluctuates, with a significant increase in 2022, then a slight decline in 2023.
- This pattern may indicate a post-pandemic rebound (2022) and market adjustments in 2023.
- In general, revenue increases every quarter, especially in 2022, which shows consistent growth.
- Each year shows significant revenue growth, especially in the third and fourth quarter.

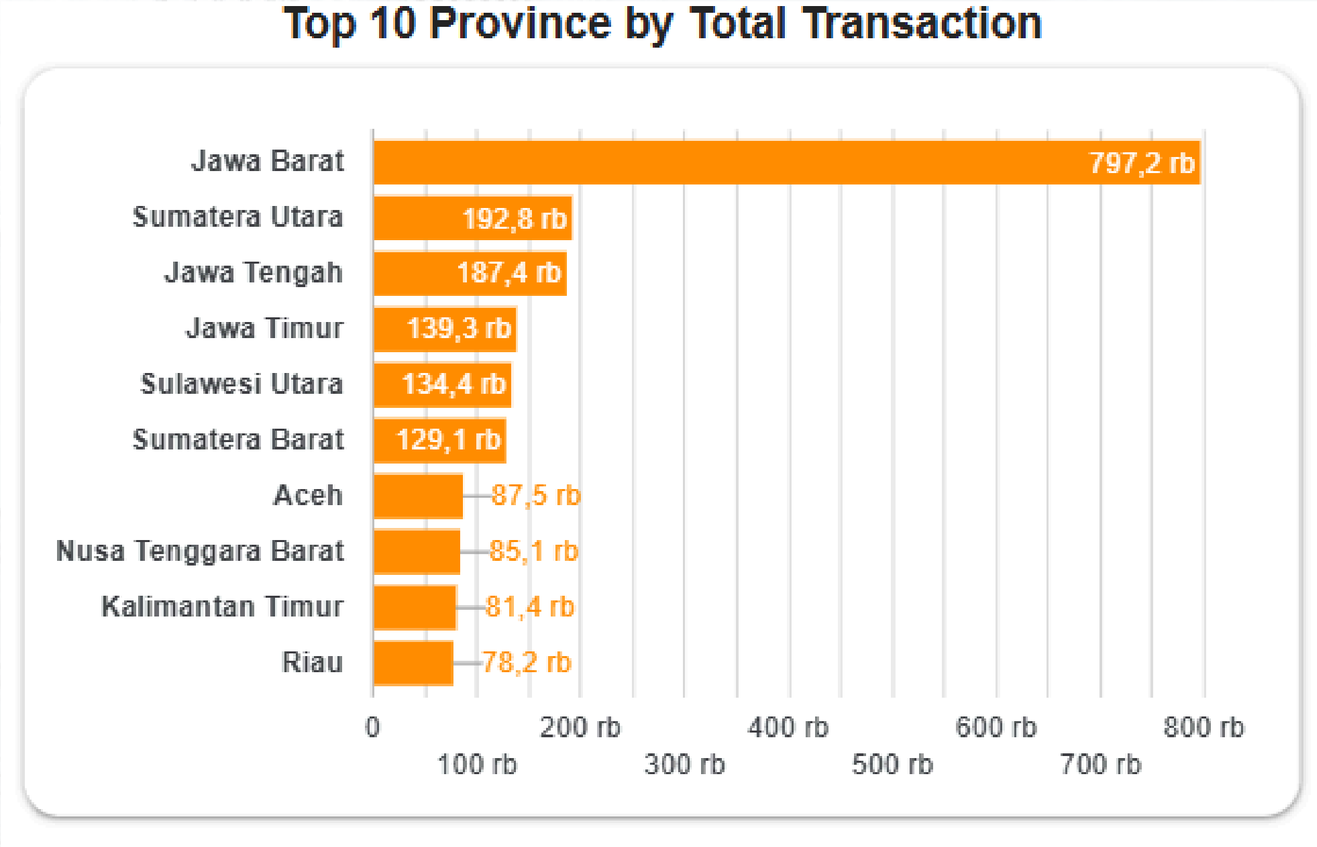
Dashboard Performance Analytics



West Java

is the highest contributor to revenue, followed by North Sumatra and Central Java.

Dashboard Performance Analytics

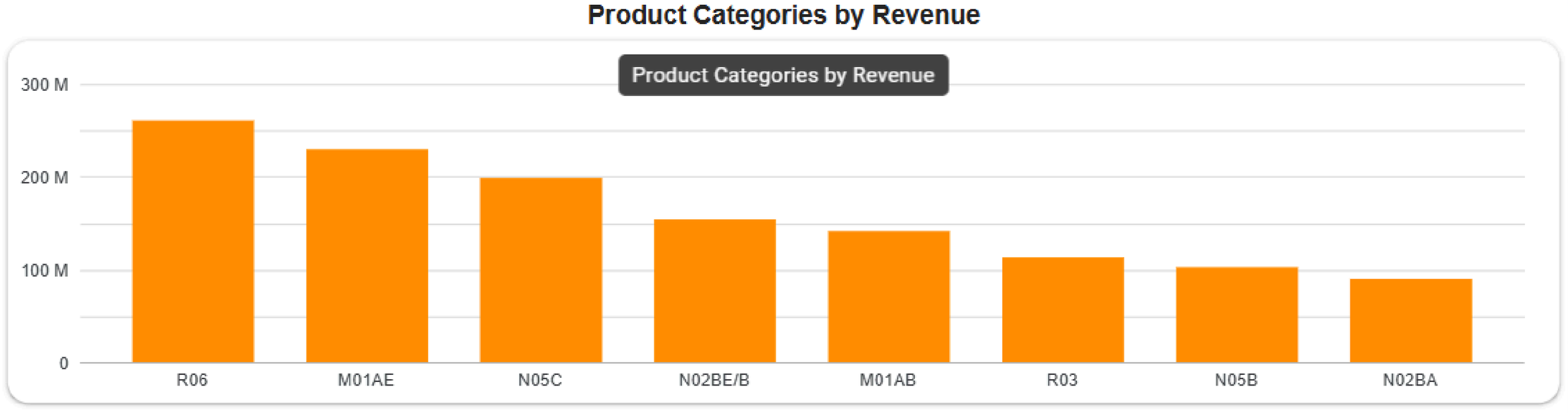


Once Again

West Java is the highest contributor to revenue, followed by North Sumatra and Central Java.

implies : **more transactions = more revenue**

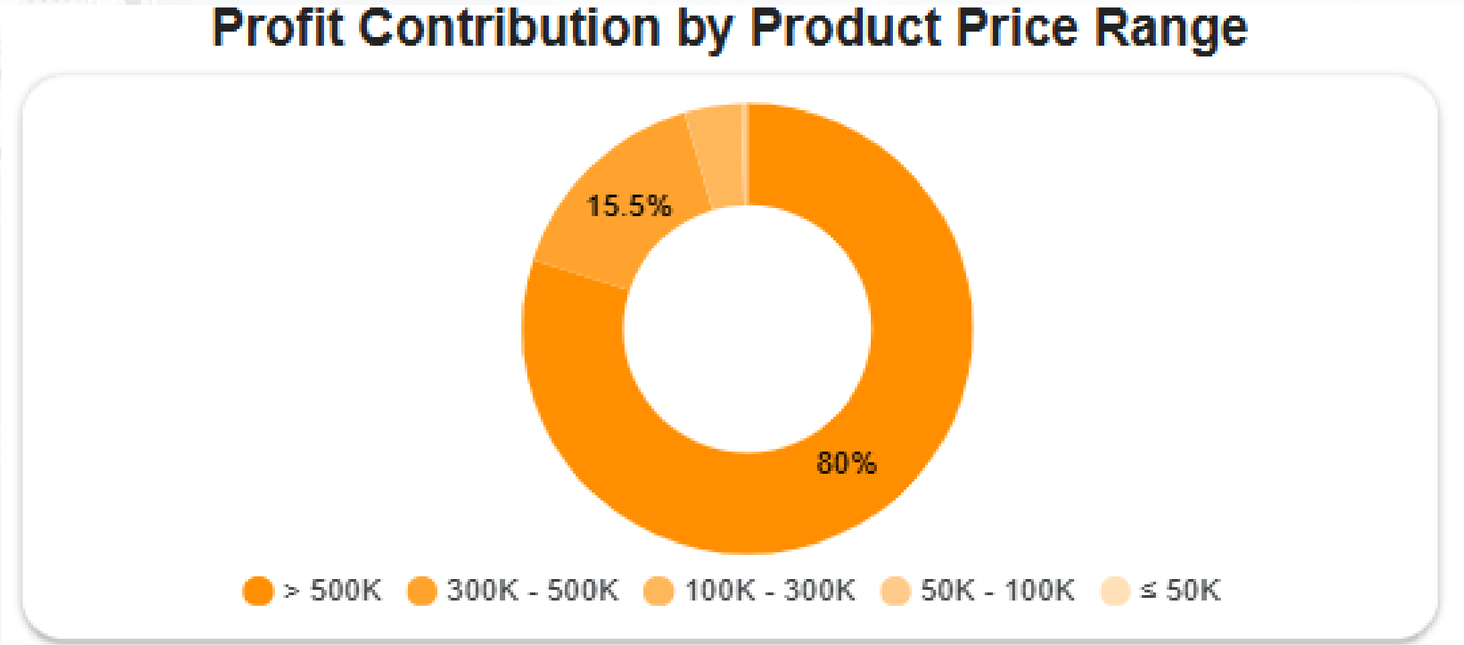
Dashboard Performance Analytics



R06

dominated with the highest revenue of around 260 million, followed by product categories **M01AE** and **N05C**

Dashboard Performance Analytics



>500 K

dominated profit contributions by 80%, indicating that premium products are the main drivers of the company's profitability.

Dashboard Performance Analytics

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Top 5 Branches: High Ratings, Low Transaction Scores

kota	rating_cabang	rating_transaksi
Yogyakarta	5	3
Solok	5	3
Garut	5	3
Makassar	5	3
Ternate	5	3

There is a Gap

indicates a gap between facility expectations and transaction experience.

Summary Insights

Analysis Aspect	Key Findings
Business Performance	Kimia Farma showed solid performance with revenue of Rp425-438 million per branch, a healthy profit margin of ~25.6%, and an even distribution of transactions (890K-916K transactions per branch).
Trend Temporal	Revenue peaked in 2022 (322.9 million) after the pandemic, experienced a slight decline in 2023 (321.8 million), but grew consistently every quarter, especially in Q3-Q4.
Geography	West Java dominated revenue contributions, followed by North Sumatra and Central Java, indicating market concentration on the island of Java.
Product & Pricing	Premium products (>500K) contributed 80% of profits even though the R06 category dominated revenue. The average product price was Rp516K with a moderate discount of 7.5%.
Customer Experience	High branch ratings but lower transaction ratings, especially in the Yogyakarta and Solok branches, indicate a gap between expectations of facilities and transaction experiences.

Thank You

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