

# Kimia Farma Business Performance Analysis

Kimia Farma - Big Data Analytics

Presented by  
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Bramantyo Raka

## ***Big Data Analyst***

Fresh graduate in Computer Science from Universitas Brawijaya with a strong interest in data analysis. Enthusiastic about becoming a Data Analyst, skilled in Python, SQL, and Looker Studio. Experienced in handling large datasets, cleaning data, and creating visualizations to support business decisions. Eager to apply my skills in statistical analysis and data insights to help solve business problems and drive success.

# Courses and Certification

**BANK MUAMALAT X RAKAMIN ACADEMY** | [Certificate](#)

**December, 2024**

**Data Science Specialization Bootcamp - Rakamin Academy** | [Certificate](#)

**December, 2024**

**Introduction to Data Analytics - RevoU Academy** | [Certificate](#)

**December, 2023**

**BSc Computer Science – Brawijaya University** | [Certificate](#)

**July, 2023**

# About Company



Kimia Farma is one of Indonesia's largest and oldest pharmaceutical companies, originally established in 1817 as NV Chemicalien Handle Rathkamp & Co. Headquartered in Jakarta, it operates under the state-owned Bio Farma group and plays a key role in the country's healthcare sector. The company's business spans multiple segments, including pharmaceutical manufacturing, where it produces both generic and branded medicines, and retail pharmacy, managing thousands of pharmacy outlets across Indonesia. Additionally, Kimia Farma provides healthcare services through clinics and diagnostic labs while also offering medical devices and cosmetic products. Its wholesale and distribution network ensures the widespread availability of medicines and healthcare products nationwide. Over the years, the company has expanded its footprint by opening new pharmacies and clinics while also embracing digital transformation through e-commerce and telemedicine services.

# Project Portfolio

**Kimia Farma, Indonesia's leading pharmaceutical chain, continues to expand its presence while tackling the challenges of revenue fluctuations, branch performance gaps, and customer engagement.**

**As we analyze the data, key questions arise:**

**What drives the consistent February revenue decline?**



**How do transaction rates correlate with revenue trends?**



**Which provinces and branches contribute most to transactions?**



**What role does customer behavior play in shaping sales performance?**



# 1. Importing Dataset to BigQuery

kimia_farma	
Dataset info	
Dataset ID	rakaminkimiafarma.kimia_farma
Created	Mar 3, 2025, 9:44:06 AM UTC+7
Default table expiration	Never
Last modified	Mar 3, 2025, 9:44:06 AM UTC+7
Data location	US
Description	
Default collation	
Default rounding mode	ROUNDING_MODE_UNSPECIFIED
Time travel window	7 days
Case insensitive	false
Labels	
Tags	
Dataset replica info	
Primary location	US

1. Create a New Project, named it `rakaminkimiafarma`, add New Dataset `kimia\_farma`.
2. Proceed to add one by one each csv's until done.
3. Do some exploration regarding the data.

Further details click [here](#)

# 2. Analysis Table

kf\_analysis

QUERY OPEN IN SHARE COPY

SCHEMA DETAILS PREVIEW TABLE EXPLORER PREVIEW IN:

Filter Enter property name or value

	Field name	Type	Mode	Key	Collation
<input type="checkbox"/>	transaction_id	STRING	NULLABLE	-	-
<input type="checkbox"/>	date	DATE	NULLABLE	-	-
<input type="checkbox"/>	branch_id	INTEGER	NULLABLE	-	-
<input type="checkbox"/>	branch_name	STRING	NULLABLE	-	-
<input type="checkbox"/>	kota	STRING	NULLABLE	-	-
<input type="checkbox"/>	provinsi	STRING	NULLABLE	-	-
<input type="checkbox"/>	rating_cabang	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	customer_name	STRING	NULLABLE	-	-
<input type="checkbox"/>	product_id	STRING	NULLABLE	-	-
<input type="checkbox"/>	product_name	STRING	NULLABLE	-	-
<input type="checkbox"/>	actual_price	INTEGER	NULLABLE	-	-
<input type="checkbox"/>	discount_percentage	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	nett_sales	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	persentase_gross_laba	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	nett_profit	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	rating_transaksi	FLOAT	NULLABLE	-	-

1. Creating CTE named, **`transaction\_data`**
2. Selecting Transaction Data by extracting key details from **`kf\_final\_transaction`** such as, transaction\_id, date, branch\_id, customer\_name, product\_id, and rating.
3. Joining Related Tables :
  - Joins **kf\_product** (using product\_id) to get:product\_name and price (actual price before discount).
  - Joins **kf\_kantor\_cabang** (using branch\_id) to get:branch\_name, kota, provinsi, and rating\_cabang (branch rating).
4. Calculating Net Sales
5. Assigning Gross Profit Percentage
6. Computing Net Profit
7. Creating the Analysis Table

Further details click [here](#)

# 3. Clean Analysis Table

kf\_analysis\_cleaned

QUERY OPEN IN SHARE COPY

SCHEMA DETAILS PREVIEW TABLE EXPLORER PREVIEW INSIGHTS

Filter Enter property name or value

	Field name	Type	Mode	Key	Collation
<input type="checkbox"/>	transaction_id	STRING	NULLABLE	-	-
<input type="checkbox"/>	date	DATE	NULLABLE	-	-
<input type="checkbox"/>	branch_id	INTEGER	NULLABLE	-	-
<input type="checkbox"/>	branch_name	STRING	NULLABLE	-	-
<input type="checkbox"/>	kota	STRING	NULLABLE	-	-
<input type="checkbox"/>	provinsi	STRING	NULLABLE	-	-
<input type="checkbox"/>	rating_cabang	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	customer_name	STRING	NULLABLE	-	-
<input type="checkbox"/>	product_id	STRING	NULLABLE	-	-
<input type="checkbox"/>	product_name	STRING	NULLABLE	-	-
<input type="checkbox"/>	actual_price	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	discount_percentage	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	cleaned_discount_percentage	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	nett_sales	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	persentase_gross_laba	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	nett_profit	FLOAT	NULLABLE	-	-
<input type="checkbox"/>	rating_transaksi	FLOAT	NULLABLE	-	-

1. Remove Duplicates
2. Standardize and Clean Columns :
  - Handle missing branch names
  - Replace NULL ratings with 0
  - Handle missing customer names
  - Handle missing product names
  - Ensure price is numeric
  - Ensure discount is numeric
3. Ensure discount is within a reasonable range (0-100%)
4. Calculate net sales and ensure it's valid
5. Ensure net profit is non-negative, using price tiers
6. Ensure ratings are within a valid range

Further details click [here](#)

YEAR SELECTED

2021

## MONTHLY REVENUE

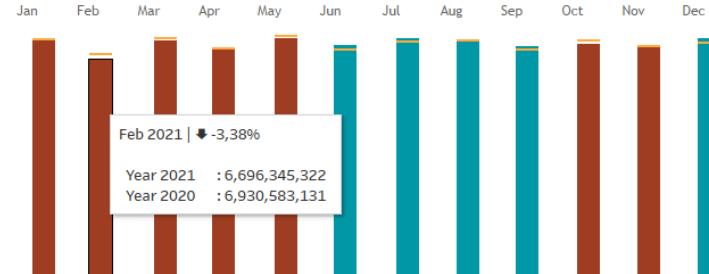
Revenue Previous Year

REVENUE

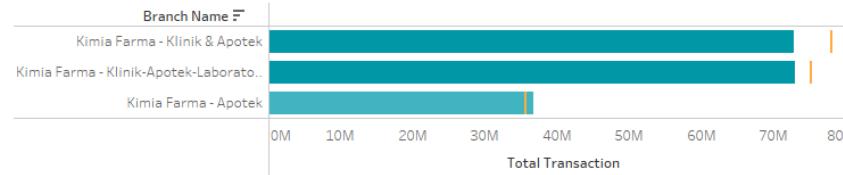
**Rp86.470M**

Rp86.896M Prior Year

-0,49% vs Prior Year



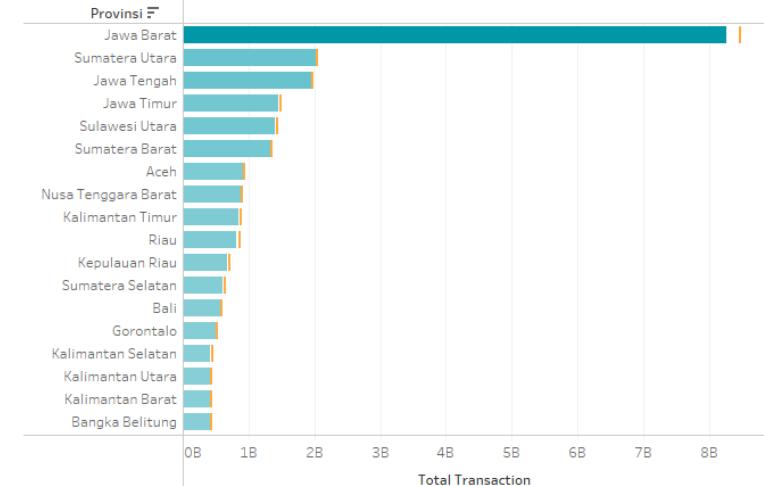
## BRANCHES OVERVIEW



## BRANCH RATE vs TRANSACTION RATE



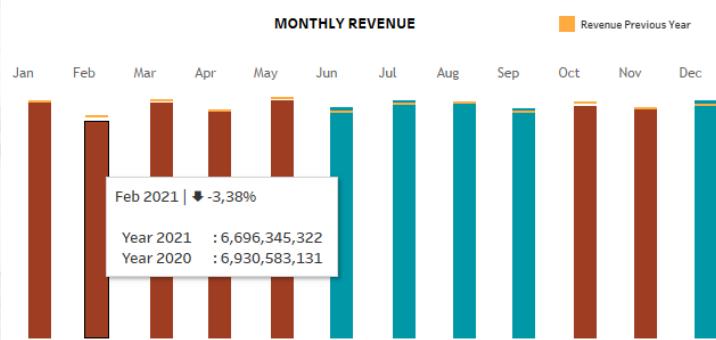
## TOP PROVINCE



## Geo Map: Total Profit by Province

**Further details click here**

# 4. Cracking the February Dip



Looking at monthly revenue trends, a familiar pattern emerges: February revenue dips consistently year over year.

## What's happening in February?

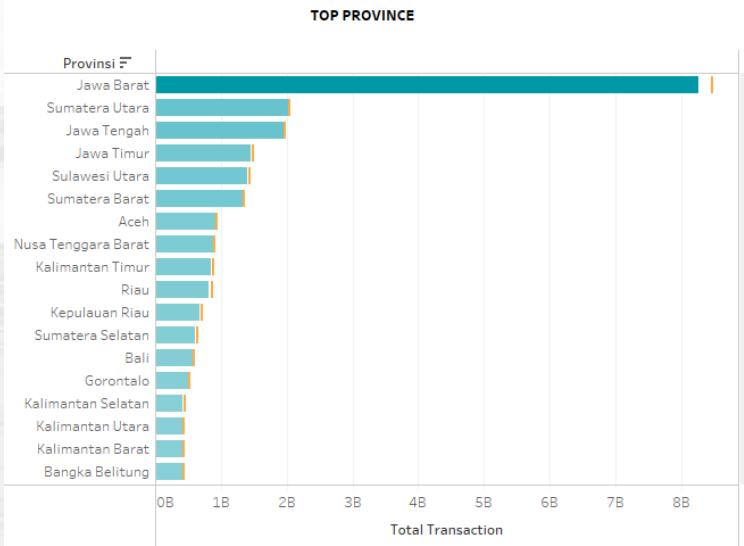
- A closer look at transactions confirms **a drop in customer purchases** during this month.
- Possible causes include **post-holiday spending slowdowns** (New Year & Chinese New Year) and seasonal demand shifts.
- **Solution:** Introducing **targeted promotions** and **loyalty rewards** in early Q1 can help counteract the drop.

## Revenue Recovery Strategy:

Despite the February decline, steady growth in later months (March–December) signals resilient demand. Strengthening marketing efforts in Q2-Q3 can boost revenue stability.

**Further details click [here](#)**

# 5. The Power of Location



Kimia Farma operates across multiple provinces, but not all locations contribute equally to total transactions.

 Top-Performing Province:

- Jawa Barat leads in total transactions, far ahead of other provinces.
- Sumatera Utara and Jawa Tengah follow but at a significantly lower level.
- This indicates regional concentration in revenue generation.

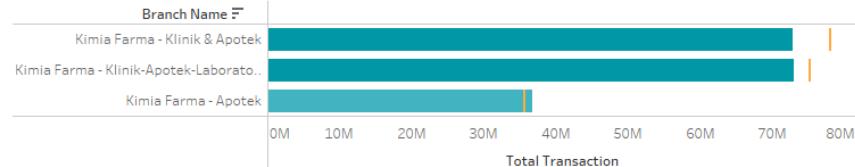
Further details click [here](#)

# 6. The Power of Location - 2

Geo Map: Total Profit by Province



BRANCHES OVERVIEW

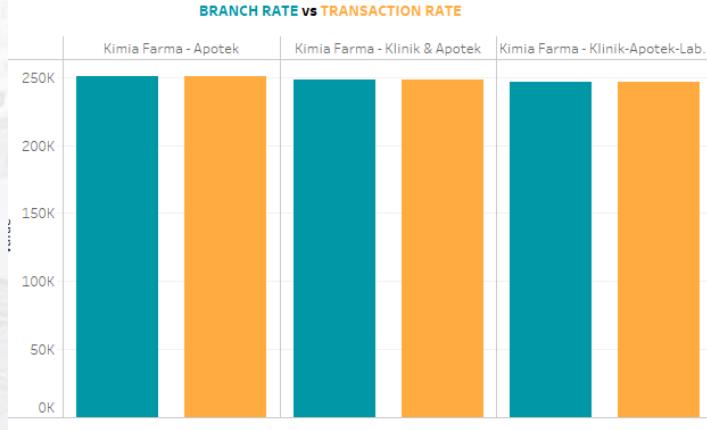


## 🔍 Branch-Level Insights:

- The **Branches Overview** chart shows that **two branches drive most transactions**, while one contribute minimally.
- Geo-Map Analysis:** The **distribution of total profit by province** highlights areas with high profitability potential.
- Action Plan:** Optimizing stock availability and promotions in **high-growth regions** can maximize revenue impact.

Further details click [here](#)

# 7. Understanding the Relationship



One of the key findings in the dashboard is the Branch Rate vs. Transaction Rate relationship, which reveals an unexpected pattern:

## ⚖️ Key Observations:

- Each branch exhibits the same transaction rate relative to its branch rate, indicating a uniform distribution of transactions across locations.
- This suggests that branch presence directly correlates with transaction volume, rather than being influenced by external factors like local demand differences or promotions.
- Revenue differences across branches may stem from pricing variations, product assortment, or customer spending behavior rather than transaction frequency alone.

Further details click [here](#)

# 8. Next Step



## Evaluate pricing strategies

determine their impact on revenue distribution

## Analyze customer preferences

optimize product offerings per region

## Explore targeted marketing efforts

beyond location-based strategies to drive higher transaction values

# Thank You



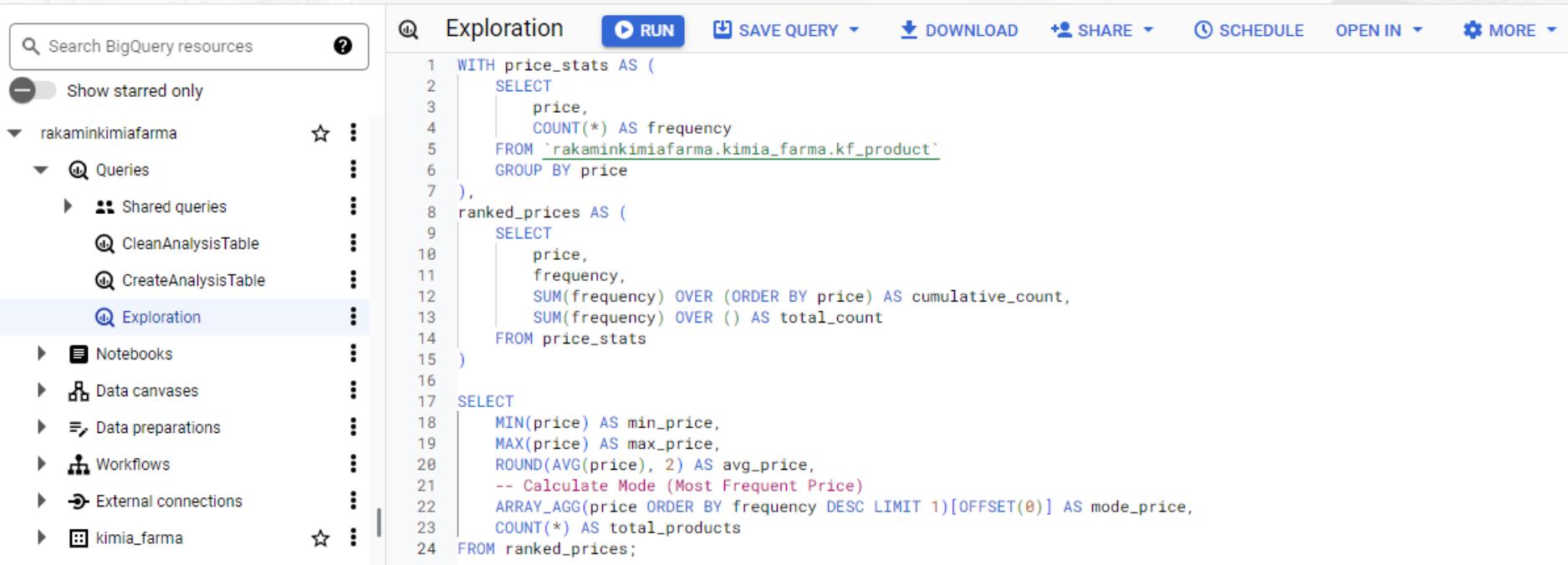
Rakamin  
Academy



 kimia farma

The Kimia Farma logo consists of a white, semi-circular graphic with a halftone dot pattern at the bottom, followed by the brand name 'kimia farma' in a lowercase, sans-serif font.

# Appendix – Exploratory



The screenshot shows the Google BigQuery Exploration interface. On the left, there's a sidebar with a search bar and a 'Show starred only' toggle. Below that is a tree view of project resources under 'rakaminkimiafarma'. The 'Queries' node is expanded, showing four shared queries: 'CleanAnalysisTable', 'CreateAnalysisTable', and 'Exploration', which is currently selected. Other nodes include 'Notebooks', 'Data canvases', 'Data preparations', 'Workflows', 'External connections', and a 'kimia\_farma' dataset. The main area is titled 'Exploration' and contains a query code editor. The query itself is a complex SQL script designed to calculate various statistical metrics from a product price dataset.

```
1 WITH price_stats AS (
2     SELECT
3         price,
4         COUNT(*) AS frequency
5     FROM `rakaminkimiafarma.kimia_farma.kf_product`
6     GROUP BY price
7 ),
8 ranked_prices AS (
9     SELECT
10        price,
11        frequency,
12        SUM(frequency) OVER (ORDER BY price) AS cumulative_count,
13        SUM(frequency) OVER () AS total_count
14     FROM price_stats
15 )
16
17 SELECT
18    MIN(price) AS min_price,
19    MAX(price) AS max_price,
20    ROUND(AVG(price), 2) AS avg_price,
21    -- Calculate Mode (Most Frequent Price)
22    ARRAY_AGG(price ORDER BY frequency DESC LIMIT 1)[OFFSET(0)] AS mode_price,
23    COUNT(*) AS total_products
24 FROM ranked_prices;
```

# Appendix – Create Analysis Table

CreateAnalysisTable

[RUN](#)
[SAVE QUERY](#)
[DOWNLOAD](#)
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[MORE](#)

```

1 CREATE TABLE `rakaminkimiafarma.kimia_farma.kf_analysis` AS
2 WITH transaction_data AS (
3     SELECT
4         t.transaction_id,
5         t.date,
6         t.branch_id,
7         c.branch_name,
8         c.kota,
9         c.provinsi,
10        c.rating AS rating_cabang,
11        t.customer_name,
12        t.product_id,
13        p.product_name,
14        p.price AS actual_price,
15        t.discount_percentage,
16        -- Calculate net sales (price after discount)
17        (p.price * (1 - t.discount_percentage / 100)) AS nett_sales,
18        -- Calculate gross profit percentage based on price ranges
19        CASE
20            WHEN p.price <= 50000 THEN 0.10
21            WHEN p.price > 50000 AND p.price <= 100000 THEN 0.15
22            WHEN p.price > 100000 AND p.price <= 500000 THEN 0.20
23            WHEN p.price > 500000 AND p.price <= 800000 THEN 0.25
24            ELSE 0.30
25        END AS persentase_gross_laba,
26        -- Net profit calculation
27        (p.price * (1 - t.discount_percentage / 100)) *
28        CASE
29            WHEN p.price <= 50000 THEN 0.10
30            WHEN p.price > 50000 AND p.price <= 100000 THEN 0.15
31            WHEN p.price > 100000 AND p.price <= 500000 THEN 0.20
32            WHEN p.price > 500000 AND p.price <= 800000 THEN 0.25
33            ELSE 0.30
34        END AS nett_profit,
35        t.rating AS rating_transaksi
36    FROM `rakaminkimiafarma.kimia_farma.kf_final_transaction` t
37    JOIN `rakaminkimiafarma.kimia_farma.kf_product` p
38    ON t.product_id = p.product_id
39    JOIN `rakaminkimiafarma.kimia_farma.kf_kantor_cabang` c
40    ON t.branch_id = c.branch_id
41 )
42
43 SELECT * FROM transaction_data

```

# Appendix – Clean Analysis Table

CleanAnalysisTable    RUN    SAVE QUERY    DOWNLOAD    SHARE    SCHEDULE    OPEN IN    MORE

```

1 CREATE OR REPLACE TABLE `rakaminkimiafarma.kimia_farma.kf_analysis_cleaned` AS
2 WITH cleaned_data AS (
3     SELECT
4         -- Remove duplicates
5         DISTINCT t.transaction_id,
6
7         -- Standardize and clean columns
8         t.date,
9         t.branch_id,
10        COALESCE(c.branch_name, 'Unknown') AS branch_name, -- Handle missing branch names
11        COALESCE(c.kota, 'Unknown') AS kota,
12        COALESCE(c.provinsi, 'Unknown') AS provinsi,
13        IFNULL(c.rating, 0) AS rating_cabang, -- Replace NULL ratings with 0
14
15        COALESCE(t.customer_name, 'Guest') AS customer_name, -- Handle missing customer names
16        t.product_id,
17        COALESCE(p.product_name, 'Unknown') AS product_name, -- Handle missing product names
18        SAFE_CAST(p.price AS FLOAT64) AS actual_price, -- Ensure price is numeric
19        SAFE_CAST(t.discount_percentage AS FLOAT64) AS discount_percentage, -- Ensure discount is numeric
20
21        -- Ensure discount is within a reasonable range (0-100%)
22        CASE
23            WHEN t.discount_percentage < 0 THEN 0
24            WHEN t.discount_percentage > 100 THEN 100
25            ELSE t.discount_percentage
26        END AS cleaned_discount_percentage,
27
28        -- Calculate net sales (price after discount) and ensure it's valid
29        GREATEST(p.price * (1 - t.discount_percentage / 100), 0) AS nett_sales,
30
31        -- Updated profit margin based on new price tiers
32        CASE
33            WHEN p.price <= 50000 THEN 0.10
34            WHEN p.price > 50000 AND p.price <= 100000 THEN 0.15
35            WHEN p.price > 100000 AND p.price <= 500000 THEN 0.20
36            WHEN p.price > 500000 AND p.price <= 800000 THEN 0.25
37            ELSE 0.30 -- For products above 800,000
38        END AS persentase_gross_laba,
39
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63
64
65
    )
    SELECT * FROM cleaned_data;

```

-- Updated profit margin based on new price tiers  
CASE  
WHEN p.price <= 50000 THEN 0.10  
WHEN p.price > 50000 AND p.price <= 100000 THEN 0.15  
WHEN p.price > 100000 AND p.price <= 500000 THEN 0.20  
WHEN p.price > 500000 AND p.price <= 800000 THEN 0.25  
ELSE 0.30 -- For products above 800,000  
END AS persentase\_gross\_laba,

-- Ensure net profit is non-negative, using updated price tiers  
GREATEST(  
(p.price \* (1 - t.discount\_percentage / 100)) \*  
CASE  
WHEN p.price <= 50000 THEN 0.10  
WHEN p.price > 50000 AND p.price <= 100000 THEN 0.15  
WHEN p.price > 100000 AND p.price <= 500000 THEN 0.20  
WHEN p.price > 500000 AND p.price <= 800000 THEN 0.25  
ELSE 0.30  
END, 0  
) AS nett\_profit,

-- Ensure ratings are within a valid range (e.g., 0-5)  
CASE  
WHEN t.rating\_cabang < 0 THEN 0  
WHEN t.rating\_cabang > 5 THEN 5  
ELSE t.rating\_cabang  
END AS rating\_transaksi