



Rakamin
Academy



kimia farma

Sales Performance Analytics

Kimia Farma – Big Data Analytics 

Presented by

Egi Fermana Putra



egifermn@gmail.com



Egi Fermana Putra



[egifermana](#)

Hello! 

Egi Fermana Putra

Data enthusiast with a strong foundation in statistical data analyses with a degree from Universitas Medika Suherman. Dedicated my academic journey to unraveling insight, particularly in academic research, thesis papers, and community projects to inform evidence-based decision-making. Proficient in statistical methods such as chi-square, t-test, and linear regression, etc. Tools such as Python and its libraries for data analysis, R Studio, SQL, SPSS Statistics, Looker Studio, and Microsoft Excel.

Courses and Certification ✓

Data Analyst Associate | <https://www.datacamp.com/certificate/DAA0018380321407>

January, 2024

IBM Data Science | <https://www.coursera.org/account/accomplishments/specialization/JRPWTG5832ME>

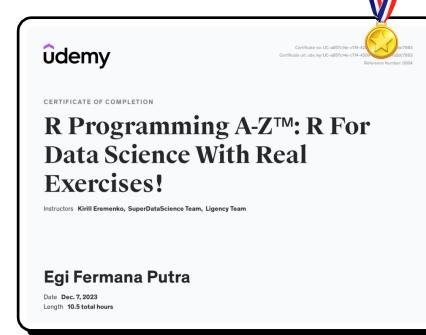
December, 2023

R Programming A-Z | <https://www.udemy.com/certificate/UC-a857c14e-c7f4-4209-93d9-6367a2dc7883>

December, 2023

IBM Data Analyst | <https://www.coursera.org/account/accomplishments/professional-cert/AK8PEENEST8Y>

November, 2023



About Company



Kimia Farma is the first pharmaceutical industry company in Indonesia, founded by the Dutch East Indies government in 1817. The company's original name was NV Chemicalien Handle Rathkamp & Co. Based on the policy of nationalization of former Dutch companies in the early independence period, in 1958, the Republic of Indonesia government merged several pharmaceutical companies into PNF (State Pharmaceutical Company) Bhinneka Kimia Farma. Then on August 16, 1971, the legal form of PNF was changed to a Limited Liability Company, so the company's name was changed to PT Kimia Farma (Persero).



Project Portfolio 😎

This project aims to provide in-depth insights into Kimia Farma sales performance through detailed data analysis. The first step involved importing the dataset into the BigQuery platform to ensure the availability of the necessary data. Subsequently, comprehensive data analysis was conducted using BigQuery to identify relevant trends and patterns in sales. The results of the analysis provide valuable insights into Kimia Farma's sales performance, including factors influencing it.

Through the narrative built from the analysis findings, I can highlight important insights into sales performance, including areas requiring further attention and potential growth opportunities. The prepared infographics and data visualizations provide clear and easily understandable understanding of the analysis findings, facilitating interpretation and decision-making.



[GitHub repository here!](#)



[Project explanation video here!](#)

The Challenges

Challenge #1

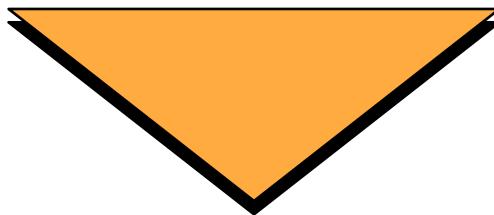
Importing dataset into
BigQuery

Challenge #2

Creating analytics tables in
BigQuery

Challenge #3

Creating a performance
dashboard in Google Looker



Objective

The objective of the project is to evaluate the business performance
of Kimia Farma from 2020 to 2023.

Tools and Datasets



Tools

Project platform



Execute SQL query



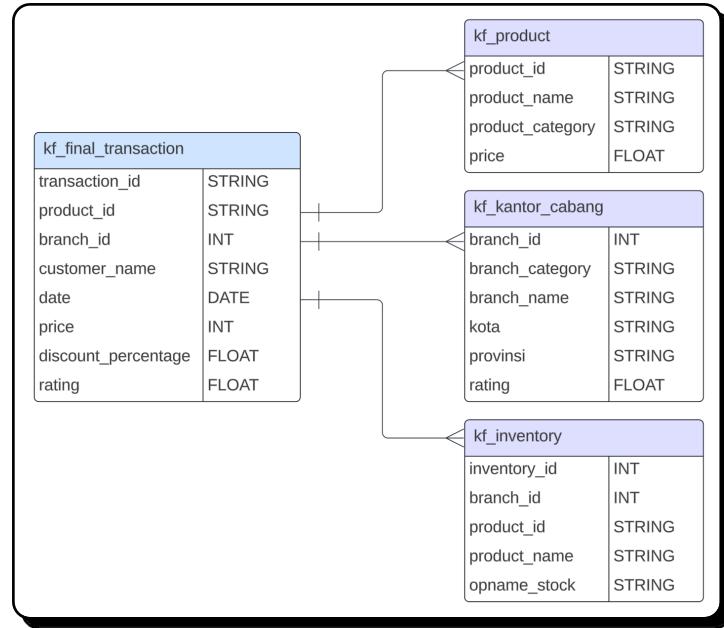
Data visualization



Documentation

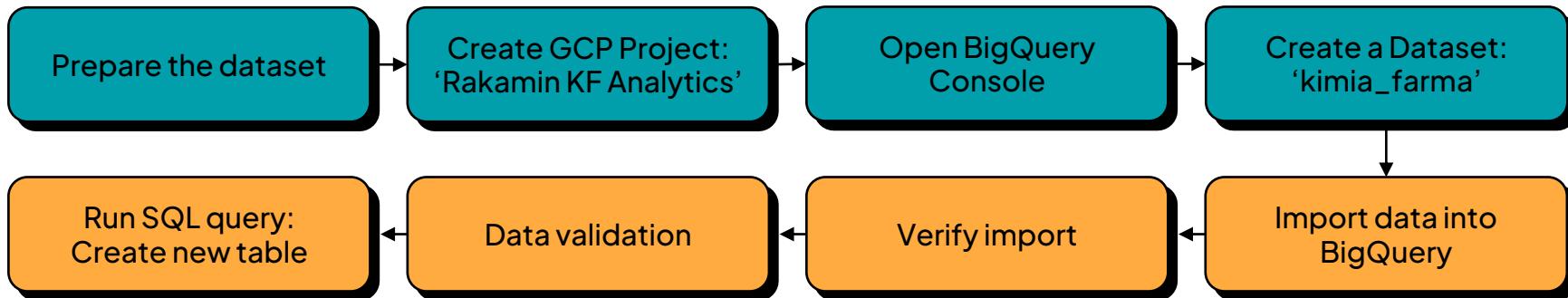


Datasets



Source: Screenshot from Lucid Chart ([Link](#)).

Importing Dataset to BigQuery



New table preview:

kf_analysis														 REFRESH
SCHEMA		DETAILS		PREVIEW		LINEAGE		DATA PROFILE		DATA QUALITY				
Row	transaction_id	date	branch_id	branch_name	kota	provinsi	rating_transaction	customer_name	product_id	product_name	price	discount_percentage		
1	TRX3887597	2020-02-01	55000	Kimia Farma - Apotek	Makassar	Sulawesi Selatan	3.5	Erin Taylor	KF132	Psycholeptics drugs, Hypnotics...	6400	0.0		
2	TRX2735782	2022-02-18	81487	Kimia Farma - Apotek	Lhokseumawe	Aceh	4.6	Justin Fuentes	KF132	Psycholeptics drugs, Hypnotics...	6400	0.0		
3	TRX1878665	2021-04-13	48130	Kimia Farma - Apotek	Tasikmalaya	Jawa Barat	4.0	Daniel Reid	KF132	Psycholeptics drugs, Hypnotics...	6400	0.0		
4	TRX7774440	2021-10-23	75181	Kimia Farma - Apotek	Palembang	Sumatera Selatan	4.0	Kenneth White	KF132	Psycholeptics drugs, Hypnotics...	6400	0.0		
5	TRX7853542	2021-04-05	40120	Kimia Farma - Apotek	Jayapura	Papua	4.1	Richard Miller	KF132	Psycholeptics drugs, Hypnotics...	6400	0.0		
6	TRX3647414	2023-02-19	55000	Kimia Farma - Apotek	Makassar	Sulawesi Selatan	4.2	Danielle Ward	KF132	Psycholeptics drugs, Hypnotics...	6400	0.0		
7	TRX8808913	2023-02-11	37191	Kimia Farma - Apotek	Bima	Nusa Tenggara Barat	3.2	Stephen Kline	KF132	Psycholeptics drugs, Hypnotics...	6400	0.0		
8	TRX6546900	2020-09-26	82095	Kimia Farma - Apotek	Tomohon	Sulawesi Utara	3.1	Jesus Ramos	KF132	Psycholeptics drugs, Hypnotics...	6400	0.0		
9	TRX2534048	2023-01-14	65560	Kimia Farma - Apotek	Balikpapan	Kalimantan Timur	4.7	Donald Martinez	KF132	Psycholeptics drugs, Hypnotics...	6400	0.0		
10	TRX1749373	2022-07-06	80673	Kimia Farma - Apotek	Kendari	Sulawesi Tenggara	3.4	Paula Patel	KF132	Psycholeptics drugs, Hypnotics...	6400	0.0		

BigQuery Syntax 🔥

This SQL syntax is used to create a new table named **kf_analysis** in the database **kimia_farma**. The new table is populated with data selected from existing tables (**kf_final_transaction**, **kf_inventory**, **kf_kantor_cabang**, and **kf_product**).

Create New Table

```
CREATE TABLE `kimia_farma.kf_analysis` AS
```

This line creates a new table named **kf_analysis** in the **kimia_farma** database.

BigQuery Syntax 🔥

```
SELECT
    t.transaction_id,
    t.date,
    t.branch_id,
    c.branch_name,
    c.kota,
    c.provinsi,
    t.rating AS rating_transaction,
    t.customer_name,
    t.product_id,
    p.product_name,
    t.price,
    t.discount_percentage,
CASE
    WHEN t.price <= 50000 THEN 0.1
    WHEN t.price > 50000 AND t.price <= 100000 THEN 0.15
    WHEN t.price > 100000 AND t.price <= 300000 THEN 0.2
    WHEN t.price > 300000 AND t.price <= 500000 THEN 0.25
    ELSE 0.3
END AS gross_profit_percentage,
(t.price * (1 - (t.discount_percentage / 100))) AS nett_sales,
(t.price * (1 - (t.discount_percentage / 100)) *
CASE
    WHEN t.price <= 50000 THEN 0.1
    WHEN t.price > 50000 AND t.price <= 100000 THEN 0.15
    WHEN t.price > 100000 AND t.price <= 300000 THEN 0.2
    WHEN t.price > 300000 AND t.price <= 500000 THEN 0.25
    ELSE 0.3
END) AS nett_profit,
c.rating AS rating_branch
```

Data Selection and Transformation

This **SELECT** statement fetches data from the specified tables (**kf_final_transaction**, **kf_kantor_cabang**, and **kf_product**). It selects specific columns from these tables and performs transformations on some columns:

- It calculates **gross_profit_percentage** based on the **price** column.
- It calculates **nett_sales** by subtracting the **discount** from the **price**.
- It calculates **nett_profit** based on **nett_sales** and **gross_profit_percentage**.

BigQuery Syntax 🔥

Data Joins

```
FROM `kimia_farma.kf_final_transaction` t
JOIN `kimia_farma.kf_kantor_cabang` c ON t.branch_id = c.branch_id
JOIN `kimia_farma.kf_product` p ON t.product_id = p.product_id;
```

This part specifies the tables to be joined (**kf_final_transaction**, **kf_kantor_cabang**, and **kf_product**) and the conditions for joining them. It joins **kf_final_transaction** with **kf_kantor_cabang** on **branch_id** and **kf_final_transaction** with **kf_product** on **product_id**.

Data Analysis

This SQL syntax enables the analysis of transactional data to gain insights into the performance of different branches of Kimia Farma, facilitating comparisons, trend identification, and informed decision-making.

SQL Query

```
SELECT
    COUNT(*) AS total_transactions,
    MIN(date) AS earliest_date,
    MAX(date) AS latest_date,
    AVG(price) AS average_price,
    AVG(discount_percentage) AS average_discount_percentage,
    AVG(gross_profit_percentage) AS average_gross_profit_percentage,
    SUM(net_sales) AS total_net_sales,
    SUM(net_profit) AS total_net_profit,
    AVG(rating_transaction) AS average_transaction_rating,
    AVG(rating_branch) AS average_branch_rating,
    branch_name,
    COUNT(DISTINCT customer_name) AS total_customers
FROM `kimia_farma.kf_analysis`
GROUP BY branch_name
ORDER BY total_net_sales DESC;
```

This query provides the following insights:

- Total number of transactions.
- Earliest and latest transaction dates.
- Average price, discount percentage, and gross profit percentage.
- Total net sales and net profit.
- Average transaction and branch ratings.
- Total number of customers per branch.

Performance Insights



Total Transactions	The total number of transactions for each branch ranges from approximately 222,000 to 227,000 . This indicates a high volume of activity across all branches .
Transaction Period	The transaction data spans from January 1, 2020 , to December 30, 2023 , for all branches, showing consistent data collection over a four-year period.
Average Price	The average price of products sold at each branch is relatively consistent , with values around 516,000 to 517,000 units of Indonesian Rupiah. This suggests a uniform pricing strategy across branches.
Average Discount Percentage	The average discount percentage applied to transactions is approximately 7.5% across all branches. This insight can be used to assess the effectiveness of discounting strategies and their impact on sales.

Performance Insights



Profitability

All branches maintain a healthy **average gross profit** margin around **25.6%**. This suggests they are effective at managing their costs. The total net profit figures are also quite similar, again reflecting consistent profitability across the branches.

Customer Satisfaction

There's a very slight difference in **average transaction rating** around **4.00** and **average branch rating** around **4.45** across the branches. Overall, customer satisfaction seems positive for all three.

Total Customers

The total number of unique customers served by each branch ranges from approximately **129,000** to **131,000**. This insight provides an indication of customer reach and market penetration for each branch.

Infographic Chart



Discover 1: Profit, Transaction, and Customer Performance

Total Profit

Rp98,539,911,168

Total Transaction

672,458

Total Customer

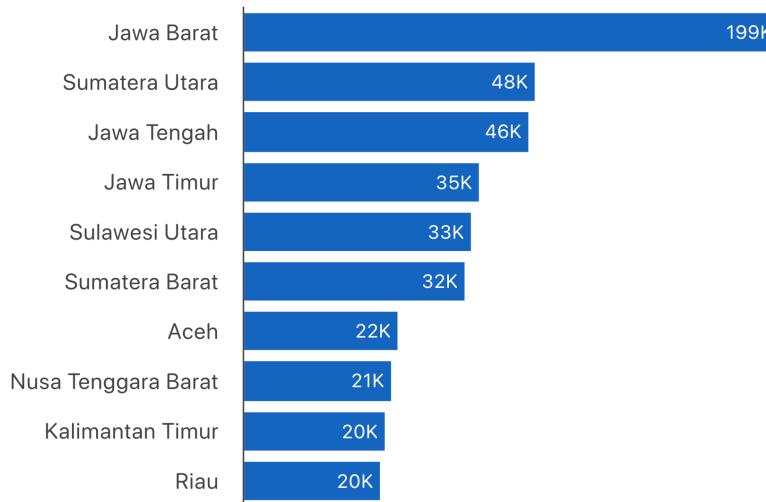
264,601

- **Total Profit:** Kimia Farma had a profitable period between 2020-2023, **generating a total profit of nearly Rp100 billion.**
- **Total Transaction:** There were over **670,000 transactions** during the 2020-2023.
- **Total Customer:** There were also over **260,000 customers** who made purchases.

Infographic Chart

Discover 2: Top 10 Total Transactions by Province Branch

Top 10 Total Transaksi Cabang Provinsi



- **Jawa Barat is the province with the most Kimia Farma drug transactions.** There were 199,000 transactions in Jawa Barat.
- **Sumatera Utara is the province with the second most Kimia Farma drug transactions.** There were 48,000 transactions in Sumatera Utara.
- **Jawa Tengah ranks third in total transactions.** There were 46,000 transactions in Jawa Tengah.
- **The remaining provinces on the list have considerably fewer transactions.** Sulawesi Utara has 33,000 transactions, Sumatera Barat has 32,000 transactions, Aceh has 22,000 transactions, Nusa Tenggara Barat has 21,000 transactions, Kalimantan Timur has 20,000 transactions, and Riau has 20,000 transactions.

Source: Screenshot from Looker Studio ([Link](#)).

Infographic Chart



Discover 3: Top 10 Total Sales by Province Branch

Top 10 Total Penjualan Cabang Provinsi



- **Jawa Barat leads the way in total sales among all provinces.** The total sales for Jawa Barat is Rp102 billion.
- **Sumatera Utara ranks second in total sales.** Sumatera Utara has a total sales of Rp25 billion.
- **Jawa Tengah comes in third place with a total sales of Rp24 billion.**
- **The remaining provinces have significantly lower total sales compared to the top 3.** Here's the breakdown for the remaining provinces: Jawa Timur Rp18 billion, Sulawesi Utara Rp17 billion, Sumatera Barat Rp17 billion, Aceh Rp11 billion, Nusa Tenggara Barat Rp11 billion, Kalimantan Timur Rp10 billion, and Riau Rp10 billion.

Source: Screenshot from Looker Studio ([Link](#)).

Summary and Feedback



Summary Insight

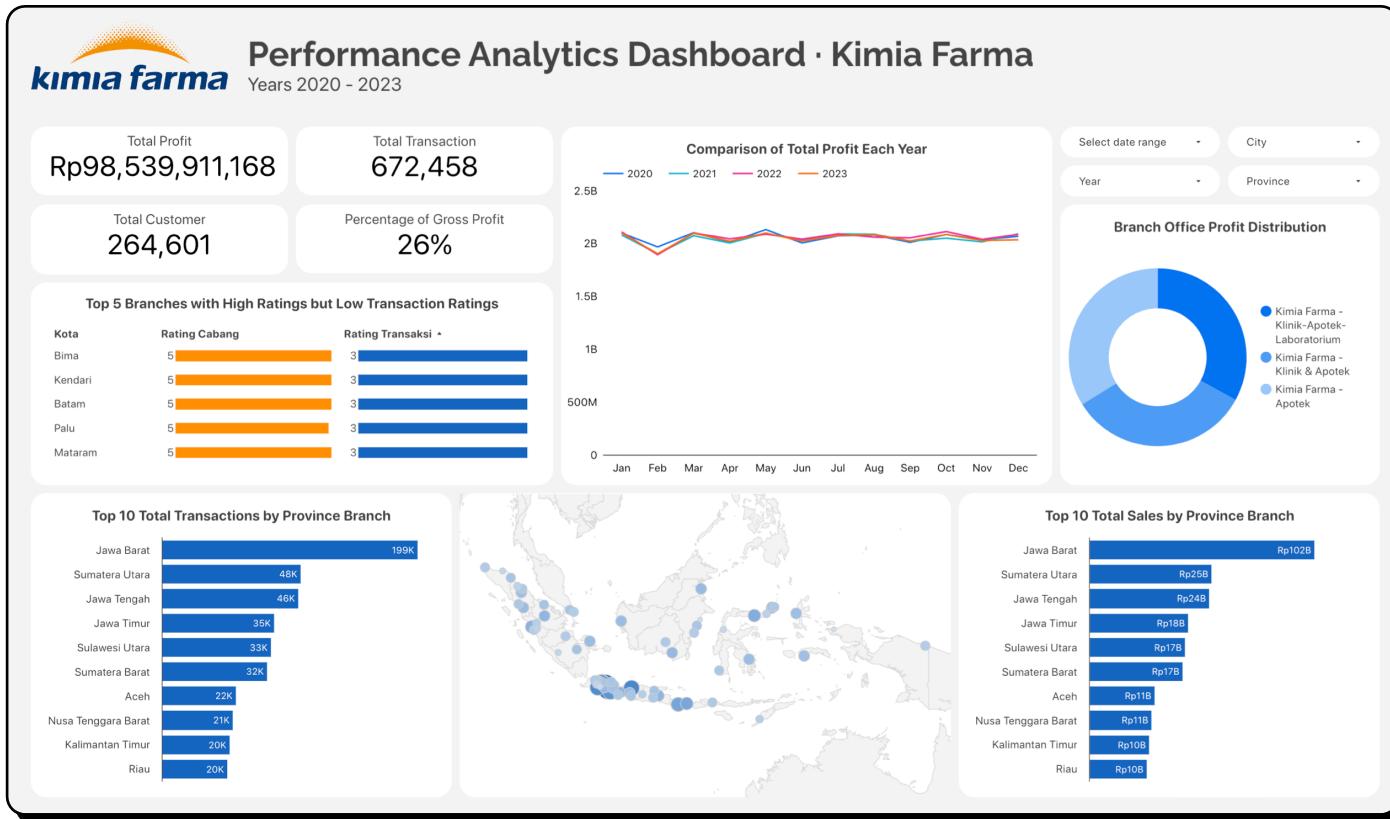
- Uniform Pricing Strategy and Discounting Effectiveness:** The similarity in average product prices and discount percentages across branches suggests a standardized pricing and discounting strategy.
- Regional Sales Disparities:** The significant difference in total sales between the top three provinces and the rest highlights the importance of regional sales analysis and targeted strategies.
- Positive Customer Satisfaction:** The high average transaction and branch ratings indicate overall positive customer satisfaction.
- Effective Cost Management and Profitability:** The healthy average gross profit margin and consistent net profit figures indicate effective cost management practices across all branches.

Actionable Recommendation

- To further optimize sales, **consider conducting A/B testing** on different discount levels or personalized discount offers to identify the most effective strategies for driving sales without compromising profitability.
- Allocate resources and marketing efforts based on regional** sales performance to maximize revenue generation across all provinces.
- Conducting customer surveys** or implementing feedback mechanisms can help identify specific areas for enhancement.
- Continue to monitor and optimize operational efficiency** to maintain or improve profitability over time.

Dashboard Performance Analytics

Link: <https://lookerstudio.google.com/reporting/18f1346f-49e6-41f9-b46c-c47cf0e4fdf9>





Thank You



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