Rakamin Academy X kimia farma

Performance Analytics

Analisis Kinerja Bisnis Kimia Farma Tahun 2020-2023

Kimia Farma - Big Data Analytics

Presented by
Tsabitah Karimah

Rakamin Academy

Tsabitah Karimah

Big Data Analyst

Recent dietetics graduate combining analytical expertise with healthcare insights, transitioning into Big Data Analytics. Gained proficiency in SQL, Python, and data visualization through intensive data science training, with hands-on experience in Google BigQuery and Looker Studio. Eager to apply this unique blend of domain knowledge and technical skills to derive meaningful insights from complex datasets in a Big Data Analyst role.

Medan, Indonesia

tsabitahkarimah@gmail.com

Tsabitah Karimah

Courses and Certification

Rakamin Academy

Data Science Bootcamp: Machine Learning | link certificate

February-July 2024

kimia farma

Rakamin Academy

About the Company

Kimia Farma, Indonesia's oldest pharmaceutical company, traces its roots back to 1817 when it was established by the Dutch East Indies government. Post-independence, it underwent nationalization and merged with other pharmaceutical companies. In 1971, it transitioned into a state-owned limited liability company. A significant milestone occurred in 2001 when it went public and listed on the stock exchange. Fast forward to 2020, the Indonesian government transferred a majority stake to Bio Farma, forming a pharmaceutical holding company. With decades of experience, Kimia Farma has evolved into an integrated health services company, making substantial contributions to Indonesia's healthcare landscape.

Project Portfolio

Kimia Farma has initiated a Project-Based Internship program for a Big Data Analytics position to analyze their business performance from 2020 to 2023. The project uses four main datasets containing information about transactions, inventory, products, and branch offices.

The intern's tasks are divided into three main parts: First, importing the datasets into BigQuery; second, creating an analysis table that combines all the data and includes calculations for sales and profits; and third, developing a comprehensive dashboard using Google Looker Studio. The dashboard should visualize key business metrics such as yearly revenue, top-performing branches, sales analysis by province, and other relevant insights.

The final deliverables include a PowerPoint presentation, the BigQuery code stored in GitHub, and a video presentation explaining the entire analysis. This project aims to provide Kimia Farma with valuable insights into their business performance across different regions and time periods.

Project explanation video here!

1. Importing Dataset to BigQuery

A new project named Rakamin KF Analytics was created and the four main datasets: transaction data (kf_final_transaction.csv), inventory records (kf_inventory.csv), product information (kf_product.csv), and branch office details (kf_kantor_cabang.csv) were added locally through a dataset named kimia_farma as a table named as its own file.

2. Tabel Analisa

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
rating_transaksi	FLOAT	NULLABLE
persentase_gross_laba	FLOAT	NULLABLE
nett_sales	FLOAT	NULLABLE
nett_profit	FLOAT	NULLABLE

Analysis table named kimia_farma_analysis was created through the aggregation of the four existing tables consisting of 16 columns There are 13 columns, from the existing tables which are transaction_id, date, branch_id, branch_name, kota, provinsi, rating_cabang, customer_name, product_id, product_name, actual_price, discount_percentage, and another 3 columns which are persentase_gross _laba, nett_sales and nett_profit were derived through multiplication operations on existing columns.

3. BigQuery Syntax

```sql
CREATE TABLE kimia_farma.kimia_farma_analysis AS
SELECT
  kf_final_transaction.transaction_id,
  kf_final_transaction.date,
  kf_kantor_cabang.branch_id,
  kf_kantor_cabang.branch_name,
  kf_kantor_cabang.kota,
  kf_kantor_cabang.provinsi,
  kf_kantor_cabang.rating AS rating_cabang,
  kf_final_transaction.customer_name,
  kf_product.product_id,
  kf_product.product_name,
  kf_product.price AS actual_price,
  kf_final_transaction.discount_percentage,
  kf_final_transaction.rating AS rating_transaksi,
FROM kimia_farma.kf_final_transaction
INNER JOIN kimia_farma.kf_kantor_cabang
    ON kf_final_transaction.branch_id = kf_kantor_cabang.branch_id
INNER JOIN kimia_farma.kf_product
    ON kf_final_transaction.product_id = kf_product.product_id;
```

- JOIN the tables based on matching branch_id and product_id values from `kf_final_transaction`, `kf_kantor_cabang`, and `kf_product` tables

```sql
UPDATE kimia_farma.kimia_farma_analysis
SET
  persentase_gross_laba = CASE
      WHEN actual_price <= 50000 THEN 0.1
      WHEN actual_price <= 100000 THEN 0.15
      WHEN actual_price <= 300000 THEN 0.2
      WHEN actual_price <= 500000 THEN 0.25
      ELSE 0.3
  END,
  nett_sales = actual_price * (1 - discount_percentage),
  nett_profit = actual_price * (1 - discount_percentage) *
      CASE
          WHEN actual_price <= 50000 THEN 0.1
          WHEN actual_price <= 100000 THEN 0.15
          WHEN actual_price <= 300000 THEN 0.2
          WHEN actual_price <= 500000 THEN 0.25
          ELSE 0.3
      END
WHERE persentase_gross_laba IS NULL
  OR nett_sales IS NULL
  OR nett_profit IS NULL;
```

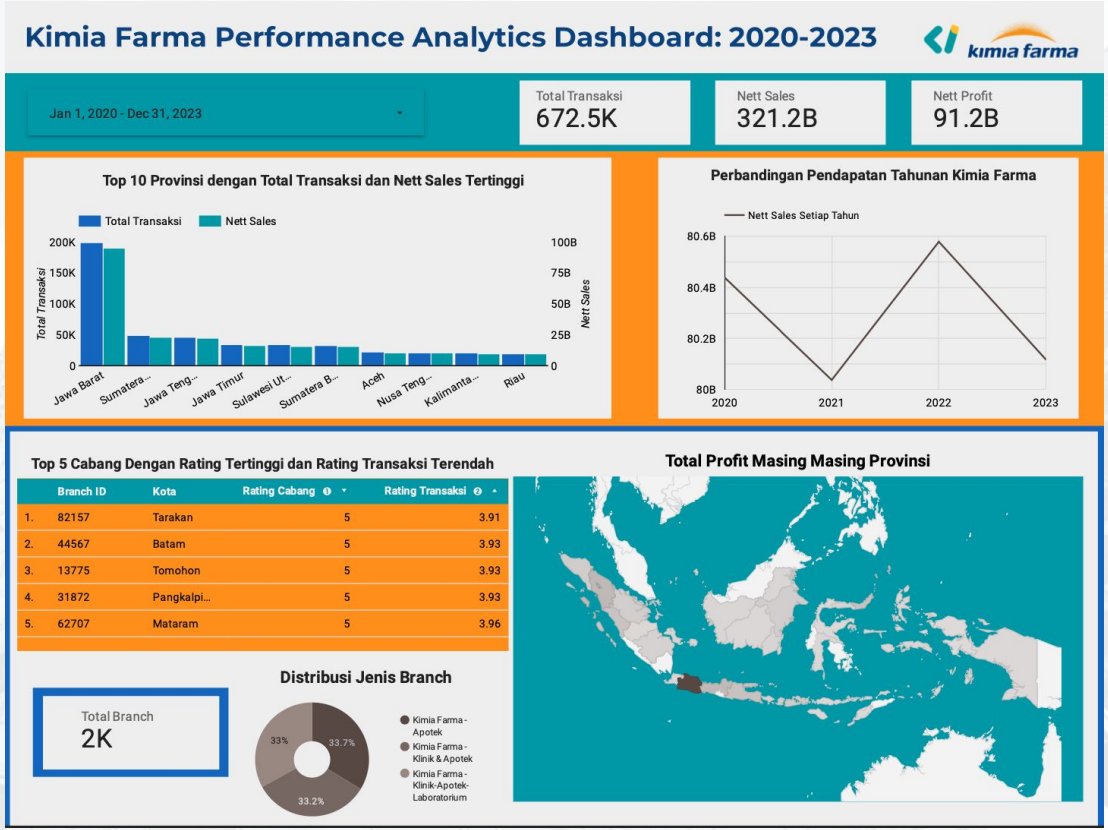
- Add new columns based on the calculation of the actual_price

4. Dashboard Performance Analytics

Rakamin Academy

Insights

- The highest nett sales is in 2022 where it had 168k transactions, 80.6B sales and 22.9B profit.
- Jawa Barat is the leading province in both total transactions and net sales
- Fluctuation in nett sales whereby it peaks in 2022 and had a slight decrease in 2023
- Kimia Farma has a total of 2000 branches, which distributed across three types, namely, Apotek, Klinik dan Apotek, and Klinik, Apotek and Laboratorium.
- Despite having a high rating as a branch, the transaction rating for these branches are slightly lower
- The geo map shows color coded profit distribution by province, with Java provinces showing more activity and profitability than outer regions



Click here to see the dashboard

4. Dashboard Performance Analytics

Business Recommendations

1. **Boost Sales in High-Performing Regions**: Focus marketing efforts in *Jawa Barat*, which leads in sales and transactions. This could further increase revenue in an already high-performing area.

2. **Address Sales Drop in 2023**: Investigate why net sales dropped from 2022 to 2023. Look into launching loyalty programs or special promotions to stabilize sales and attract more customers.

3. **Support High-Rated but Low-Traffic Branches**:Increase local advertising for branches with high ratings but fewer transactions (e.g., *Tarakan* and *Batam*). Bringing more awareness to these well-rated branches could boost customer visits and sales.

Click here to see more information about this project in Github!

Thank You