Rakamin Academy X kimia farma

Performance Analytics

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Kimia Farma - Big Data Analytics

Presented by
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Big Data Analyst

I'm a health psychology graduate turned data scientist, bridging the gap between human behavior and data-driven solutions. With a Master's in Health Psychology from the University of Stirling and ongoing training in data science, I combine expertise in research methods, data analysis, and understanding human behavior. My experience spans from studying post-traumatic growth in cancer survivors to applying data science techniques in digital healthcare and career development. I'm passionate about leveraging interdisciplinary skills to create evidence-based strategies that improve health outcomes and overall well-being, always prioritizing a human-centric approach in collaborative environments.

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Courses and Certification

Rakamin Academy

Data Science : Machine Learning | Link Certificate — February-July, 2024

Agile Project Management| Link Certificate — January, 2024

Visit my LinkedIn for more qualification.

About Company

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

Project Portfolio

This project is part of the Big Data Analytics Intern assignment at Kimia Farma to evaluate the company's business performance from 2020-2023. The project involves processing 4 datasets (kf_final_transaction.csv, kf_inventory.csv, kf_kantor_cabang.csv, and kf_product.csv) which will be imported into BigQuery for further analysis. The data includes information on transactions, branch ratings, and sales performance. The problem statement focuses on creating a comprehensive business performance dashboard, including revenue analysis, transactions per province, branch ratings, and profit. The final output will be a dashboard in Google Looker Studio that will help stakeholders monitor and analyse the business performance of Kimia Farma comprehensively.

Project explanation video here!

1. Importing Dataset to BigQuery

The first step on analysis is to import the dataset given which are:

- kf_final_transaction.csv
- kf_inventory.csv
- kf_kantor_cabang.csv
- kf_product.csv

Each of dataset are imported as table with the same name (without. csv). Then, ensuring all type of data are matched for each column while checking for null values.

2. Analysis Table

The second step is to make a separate table for analysis. The analysis table is called kimia_farma and created by aggregating data from 4 imported tables. Some of mandatory columns include:

- transaction_id: kode transaksi (primary key)
- date: tanggal transaksi
- branch_id: kode cabang
- branch_name: nama cabang
- kota: lokasi cabang
- provinsi: provinsi cabang

Besides, calculation of business metrics such as net sales and profit based on discount and profit schemes. Formulas for the said business metrics will be shown on the next slides.

3. BigQuery Syntax

The third steps is to aggregate the tables using SQL query on BigQuery. As shown in the picture:

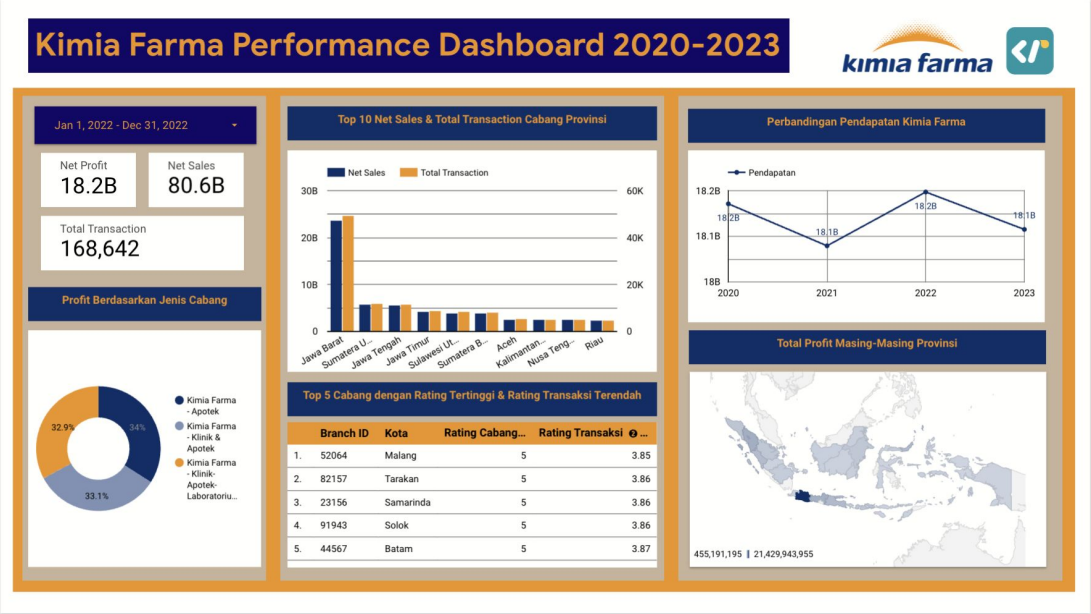
- JOIN between the transaction table and the branch table
- Make a new column of persentase_gross_laba based on the price
- Calculation of net_sales after discount
- Calculation of net_profit based on profit percentage

```sql
CREATE OR REPLACE TABLE `Rakamin_KF_Analytics.kimia_farma` AS
SELECT
    t.transaction_id,
    t.date,
    t.branch_id,
    b.branch_name,
    b.kota,
    b.provinsi,
    b.rating as rating_cabang,
    t.customer_name,
    t.product_id,
    p.product_name,
    t.price,
    t.discount_percentage,

    -- Presentase Gross Laba (dalam desimal)
    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,

    -- NET SALES = Harga asli - total diskon
    -- atau = Harga asli * (1 - total diskon) menggunakan prinsip A - (A * B) = A * (1 - B)
    ROUND(t.price * (1 - t.discount_percentage), 2) as net_sales,

    -- NET PROFIT = Net Sales - (Harga asli - (Harga asli × persentase_laba))
    ROUND(
        (t.price * (1 - t.discount_percentage)) -
        (t.price - (t.price *
            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
        )),
    2) as net_profit,

    t.rating as rating_transaksi

FROM `Rakamin_KF_Analytics.kf_final_transaction` t
INNER JOIN `Rakamin_KF_Analytics.kf_product` p
    ON t.product_id = p.product_id
INNER JOIN `Rakamin_KF_Analytics.kf_kantor_cabang` b
    ON t.branch_id = b.branch_id

ORDER BY product_id;
```

4. Dashboard Performance Analytics

Based on the attached dashboard for Year 2022:

- Key Metrics:
  - Net Profit: 18.2B
  - Net Sales: 80.6B
  - Total Transactions: 168,642
- Visualizations:
  - Annual revenue comparison (2020-2023)
  - Top 10 net sales per province
  - Profit distribution map per province
  - Top 5 branches with the highest branch ratings but lowest transaction ratings
- Profit by Branch Type:
  - Pharmacy: 34%
  - Clinic & Pharmacy: 33.1%
  - Clinic-Pharmacy-Laboratory: 32.9%



Visit the dashboard to check for other condition.

4. Dashboard Performance Analytics

Core strategic recommendations targeting low transaction rating within high branch rating :

- Customer Experience Optimization
  - Implement digital queue management
  - Install real-time feedback systems
  - Create express service lanes
- Staff Excellence Program
  - Launch intensive service training
  - Implement standardized operating procedures
  - Develop performance-based incentives
- Operational Enhancement
  - Conduct time-motion studies
  - Optimize staffing schedules
  - Implement real-time inventory tracking

Visit the dashboard to check for other condition.

Thank You