PERFORMANCE ANALYTICS

KIMIA FARMA BUSINESS YEAR

(2020-2023)

Presented by

FADHIL APTANA SADJIANA

Final Assignment Link

1. Folder Results Link:

https://drive.google.com/drive/folders/1bayllqfnavlK3ZiX8eqQpTe7sBOg7YSC?usp=sharing

2. Link to Video Presentation of Work Results:

https://drive.google.com/drive/folders/1nbhvt2c-Ac6yOEFmgOetc2yw3jrCHku1?usp=sharing

3. Github Link for Work Results: https://github.com/sadjiana/Kimia-Farma-Big-Data-Analytics-March-2024-Period-/blob/main/README.md

Hello, let me introduce myself, my name is Fadhil Aptana Sadjiana, I am usually called Fadhil. I come from Andalas University, majoring in economics. I am a fresh graduate. I have several experiences, including, so far I have participated in internships 3 times, the first at the Indonesian Ministry of Education and Culture in the field of Human Resources, then the Indonesian Ministry of Finance in the field of Data Analyst, and now at PT Kimia Farma Tbk, as Big Data Analytics. I also joined one of Andalas University's projects, namely the Andalas University Book Project, and I also served as a teaching assistant while I was studying.

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Fadhil Aptana Sadjiana

About Company

PT Kimia Farma Tbk is a subsidiary of Bio Farma which does business in the pharmaceutical sector. To support its business activities, by the end of 2020, this company had 12 factories, 1,278 pharmacies, 451 health clinics, 75 clinical laboratories, 10 opticians and 3 beauty clinics spread throughout Indonesia. The company also has 18 retail outlets in Saudi Arabia. Pharmaceutical preparations and medicinal raw materials made by this company have also been exported to India, Malaysia, Maldives, Kenya, Yemen, Hong Kong and the Philippines.

kimia farma

Rakamin Academy

Project Portofolio

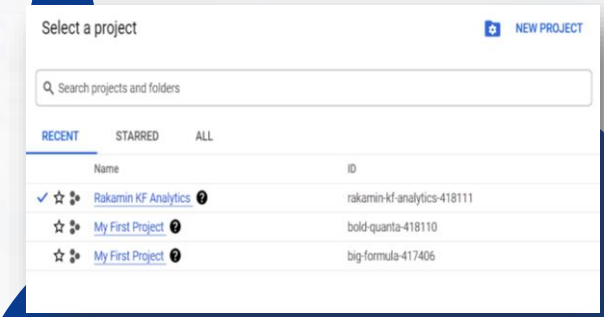
The Project Based Internship Program in collaboration with Rakamin Academy and Kimia Farma Big Data Analytics is a self-development and career acceleration program intended to deepen the position of Big Data Analytics in the Kimia Farma company. This program provides access to basic learning in the form of Article Reviews (reading materials) and Company Coaching Videos (video learning) to introduce the competencies and skills that Big Data Analytics must have in companies. The final task that will be created in this program is to create a Kimia Farma Business Performance Analytics Dashboard for 2020-2023.

Project Explanation Video Here!

https://drive.google.com/drive/folders/1nbhvt2c-Ac6yOEFmgOetc2yw3jrCHku1?usp=sharing

1. Importing Dataset to BigQuery

Create a new project in Google Cloud Platform >>>



Preparation Before Data Processing

There are several steps I took before starting data processing. The first step I have to do is prepare the raw data into structured data so that the data is ready to be processed. The steps taken when preparing the data are:

A. Download the data set provided by Kimia Farma, the data is as follows:

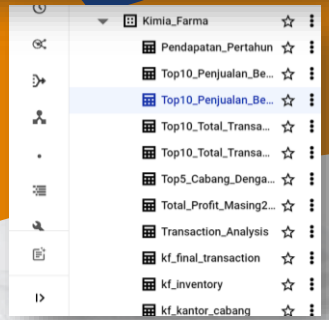
kf_final_transaction.csv
kf_inventory.csv
kf_kantor_cabang.csv
kf_product.csv

Import a dataset from data provided by Kimia Farma >>>

B. Create a new project in Google Cloud Platform - BigQuery with the existing name conditions

C. Import a dataset from data provided by Kimia Farma, create a new name for the table uploaded to Google Cloud Platform - BigQuery, and provide auto-detect on the schema to create a new schema display according to the data that was previously imported into the dataset

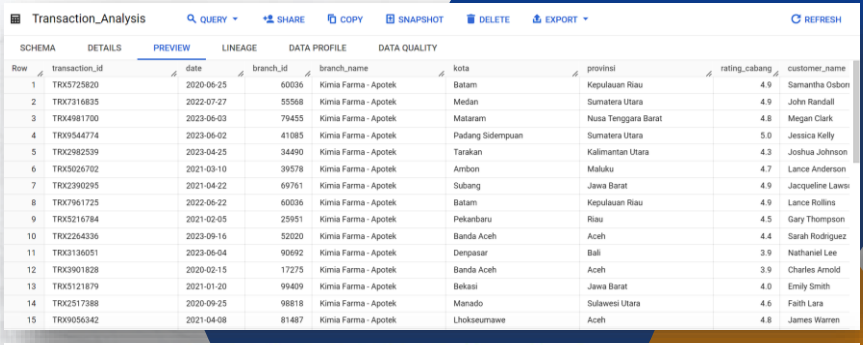
Table display in the Kimia_Farma dataset >>>



2. Table Analysis

Analysis Transaction Table >>>

The Analysis Transaction Table is used to view the overall data needed to perform data analysis with SQL, both in rows and columns. This Analysis Transaction Table is used as a benchmark and data source for creating tasks per each instruction given as material for creating a dashboard.

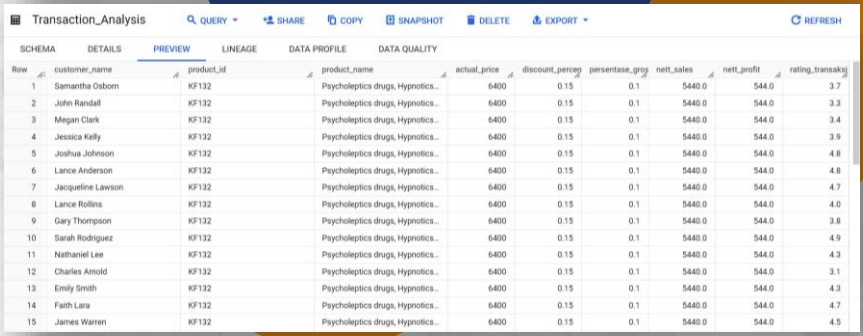


Transaction_Analysis

QUERY SHARE COPY SNAPSHOT DELETE EXPORT REFRESH

SCHEMA DETAILS PREVIEW LINEAGE DATA PROFILE DATA QUALITY

Row	transaction_id	date	branch_id	branch_name	kota	provinsi	rating_cabang	customer_name
1	TRX5725820	2020-06-25	60036	Kimia Farma - Apotek	Batam	Kepulauan Riau	4.9	Samantha Osbor
2	TRX7316835	2022-07-27	55568	Kimia Farma - Apotek	Medan	Sumatera Utara	4.9	John Randall
3	TRX4981700	2023-06-03	79455	Kimia Farma - Apotek	Mataram	Nusa Tenggara Barat	4.8	Megan Clark
4	TRX9544774	2023-06-02	41085	Kimia Farma - Apotek	Padang Sidempuan	Sumatera Utara	5.0	Jessica Kelly
5	TRX2982539	2023-04-25	34490	Kimia Farma - Apotek	Tarakan	Kalimantan Utara	4.3	Joshua Johnson
6	TRX5026702	2021-03-10	39578	Kimia Farma - Apotek	Ambon	Maluku	4.7	Lance Anderson
7	TRX2390295	2021-04-22	69761	Kimia Farma - Apotek	Subang	Jawa Barat	4.9	Jacqueline Lawsı
8	TRX7961725	2022-06-22	60036	Kimia Farma - Apotek	Batam	Kepulauan Riau	4.9	Lance Rollins
9	TRX5216784	2021-02-05	25951	Kimia Farma - Apotek	Pekanbaru	Riau	4.5	Gary Thompson
10	TRX2264336	2023-09-16	52020	Kimia Farma - Apotek	Banda Aceh	Aceh	4.4	Sarah Rodriguez
11	TRX3136051	2023-06-04	90692	Kimia Farma - Apotek	Denpasar	Bali	3.9	Nathaniel Lee
12	TRX3901828	2020-02-15	17275	Kimia Farma - Apotek	Banda Aceh	Aceh	3.9	Charles Arnold
13	TRX5121879	2021-01-20	99409	Kimia Farma - Apotek	Bekasi	Jawa Barat	4.0	Emily Smith
14	TRX2517388	2020-09-25	98818	Kimia Farma - Apotek	Manado	Sulawesi Utara	4.6	Faith Lara
15	TRX9056342	2021-04-08	81487	Kimia Farma - Apotek	Lhokseumawe	Aceh	4.8	James Warren



Transaction_Analysis

QUERY SHARE COPY SNAPSHOT DELETE EXPORT REFRESH

SCHEMA DETAILS PREVIEW LINEAGE DATA PROFILE DATA QUALITY

Row	customer_name	product_id	product_name	actual_price	discount_percen	persentase_gros	nett_sales	nett_profit	rating_transaksi
1	Samantha Osborn	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	3.7
2	John Randall	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	3.3
3	Megan Clark	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	3.4
4	Jessica Kelly	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	3.9
5	Joshua Johnson	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	4.8
6	Lance Anderson	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	4.8
7	Jacqueline Lawson	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	4.7
8	Lance Rollins	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	4.0
9	Gary Thompson	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	3.8
10	Sarah Rodriguez	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	4.9
11	Nathaniel Lee	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	4.3
12	Charles Arnold	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	3.1
13	Emily Smith	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	4.3
14	Faith Lara	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	4.7
15	James Warren	KF132	Psycholeptics drugs, Hypnotics...	6400	0.15	0.1	5440.0	544.0	4.5

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Row	tahun	pendapatan	avg_pendapatan
1	2020	80437605040.0	476947.09809013095
2	2021	80037846824.0	477276.5572669683
3	2022	80578445844.0	477807.69822463812
4	2023	80117292611.0	478403.59119950922

KIMIA FARMA COMPANY INCOME (YoY)

TOP 10 TOTAL PROVINCE BRANCH TRANSACTIONS

Row	provinsi	total_transaksi	total_pendapatan
1	Jawa Barat	198723	94869594875.0
2	Sumatera Utara	48178	22952159897.0
3	Jawa Tengah	46494	22248101144.0
4	Jawa Timur	34766	16627080704.0
5	Sulawesi Utara	33339	15902759535.0
6	Sumatera Barat	32014	15314406695.0
7	Aceh	21825	10467971437.0
8	Nusa Tenggara Barat	21069	10036738806.0
9	Kalimantan Timur	20243	9714536616.0
10	Riau	19607	9354616403.0

TOP 10 PROVINCE BRANCH NET SALES

Row	provinsi	nett_sales_cabang	total_produk_terjual
1	Jawa Barat	94869594875.0	198723
2	Sumatera Utara	22952159897.0	48178
3	Jawa Tengah	22248101144.0	46494
4	Jawa Timur	16627080704.0	34766
5	Sulawesi Utara	15902759535.0	33339
6	Sumatera Barat	15314406695.0	32014
7	Aceh	10467971437.0	21825
8	Nusa Tenggara Barat	10036738806.0	21069
9	Kalimantan Timur	9714536616.0	20243
10	Riau	9354616403.0	19607

TOP 5 BRANCHES WITH THE HIGHEST RATING, BUT THE LOWEST TRANSACTION RATING

Row	branch_name	kota	rating_cabang	avg_rating_transaksi
1	Kimia Farma - Klinik & Apotek	Tarakan	5.0	3.9051470588235286
2	Kimia Farma - Klinik & Apotek	Batam	5.0	3.9306024096385572
3	Kimia Farma - Klinik & Apotek	Pangkalpinang	5.0	3.9349593495934947
4	Kimia Farma - Apotek	Denpasar	5.0	3.9576923076923083
5	Kimia Farma - Klinik-Apotek-La...	Solok	5.0	3.9581081081081071

3. BigQuery Syntax

Analysis Transaction Queries >>>

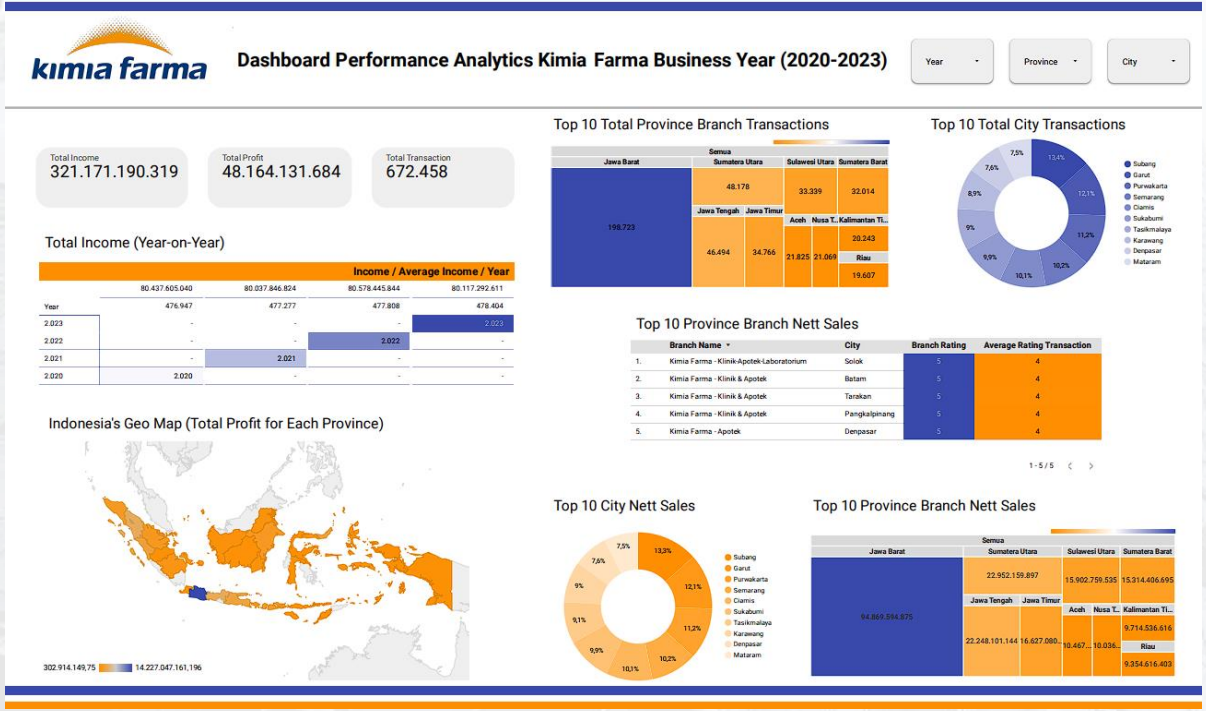
Besides BigQuery Syntax, it is BigQuery Syntax which is used to create transaction tables. BigQuery Syntax besides using SQL to process or analyze data. I use Table CRUD (CREATE TABLE) to create a table. Then to retrieve multiple columns from a particular table I use a SELECT query. I also used the SQL LEFT JOIN operation to return all rows from the left table and match on the left table. To process the gross profit percentage, I use SQL CASE. In this way, the data that I process becomes structured according to the instructions given.

Transaction Analysis

RUN | SAVE QUERY | DOWNLOAD

```sql
#ANALYZE AND DESIGN QUERIES TO CREATE DATA MART
CREATE TABLE Kimia_Farma.Transaction_Analysis AS
SELECT
    ft.transaction_id,
    ft.date,
    kc.branch_id,
    kc.branch_name,
    kc.kota,
    kc.provinsi,
    kc.rating AS rating_cabang,
    ft.customer_name,
    p.product_id,
    p.product_name,
    ft.price AS actual_price,
    ft.discount_percentage,
    CASE
        WHEN ft.price <= 50000 THEN 0.10
        WHEN ft.price > 50000 - 100000 THEN 0.15
        WHEN ft.price > 100000 - 300000 THEN 0.20
        WHEN ft.price > 300000 - 500000 THEN 0.25
        WHEN ft.price > 50000 THEN 0.30
        ELSE 0.30
    END AS persentase_gross_laba,
    ft.price * (1 - ft.discount_percentage) AS nett_sales,
    (ft.price * (1 - ft.discount_percentage) *
        CASE
            WHEN ft.price <= 50000 THEN 0.10
            WHEN ft.price > 50000 - 100000 THEN 0.15
            WHEN ft.price > 100000 - 300000 THEN 0.20
            WHEN ft.price > 300000 - 500000 THEN 0.25
            WHEN ft.price > 50000 THEN 0.30
            ELSE 0.30
      END) AS nett_profit,
    ft.rating AS rating_transaksi
FROM
    Kimia_Farma.kf_final_transaction AS ft
LEFT JOIN
    Kimia_Farma.kf_kantor_cabang AS kc ON ft.branch_id = kc.branch_id
LEFT JOIN
    Kimia_Farma.kf_product AS p ON ft.product_id = p.product_id
;
```

4. Dashboard Performance Analytics



From the dashboard on the side, you can see that several important indicators can be used as parameters in interpreting the data. We can analyze and review in terms of **income**, **profits**, and **total transactions** on sales of medicinal products in each particular table. If we look at **annual income**, total income experiences increases and decreases or insignificant fluctuations. However, we can see that in 2021, annual income has decreased. This was caused by the **Covid-19** pandemic that hit at that time. So there was a decrease in income from the previous year. then in 2022 and 2023, income will return to its normal fluctuation trend again.

Next, we looked at the **provincial** and **city** branches. If we conclude from the table from the provincial and city branches, we can analyze 3 important points: **income**, **profits**, and **transactions**. From the income, profits, and total transactions in the province, we can see that **West Java** province is the province with the largest total income, profits, and total transactions in Indonesia. followed by North Sumatra, Central Java, and so on. This is also the case in cities, cities that are part of West Java province such as the cities of **Subang** and **Garut,** have the highest total income and total transactions among other cities in Indonesia.

5. Recommendation

Suggestions that I can give to increase sales are,

1. Conduct clear market research
2. Improve product quality
3. Improve customer service
4. Expand the target market
5. Hold attractive promotions
6. Updates on technological developments
7. Get testimonials and reviews
8. Dare to innovate
9. Update trend developments
10. Do effective marketing

We can also take advantage of great opportunities if we look at the income, profits and total transactions in West Java province. Because West Java Province is the province that has the largest Income, Profits and Total Transactions in Indonesia. We can focus on efforts that can increase sales, such as the 10 points above, to focus sales and product specialization in West Java province. So that the product can sell well and experience a significant upward trend.

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THANK YOU