Rakamin Academy X kimia farma

Performance Analytics

Analisis Kinerja Bisnis Kimia Farma Tahun 2020-2023

Kimia Farma - Big Data Analytics

Presented by
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A 3 years experienced former Project Assistant for IT Consultant and Research Assistant in Berlin, Germany with a Bachelor's Degree in Transportation Planning from Technical University Berlin.

With skills in Project Management, Research, Financial Analysis, and further SQL and Business Intelligence, together we can fulfill our goals in creating a sustainable and developed Indonesia.

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About Company

PT Kimia Farma Tbk is a state-owned company operating within the pharmaceutical industry in Indonesia and several other countries.

One of the first companies that became Kimia Farma was established by the colonial Dutch East Indies government in 1817, initiating a long tradition as the first and oldest pharmaceutical company in Indonesia.

In 1958, the Indonesian government nationalized several Dutch-owned companies and merged these companies into the PNF Bhinneka Kimia Farma, the direct predecessor of PT Kimia Farma.

With a long history of tradition and expertise gathered in hundreds of years, Kimia Farma has grown into an integrated healthcare company, supporting Indonesia's development within its role in fostering healthy Indonesians.

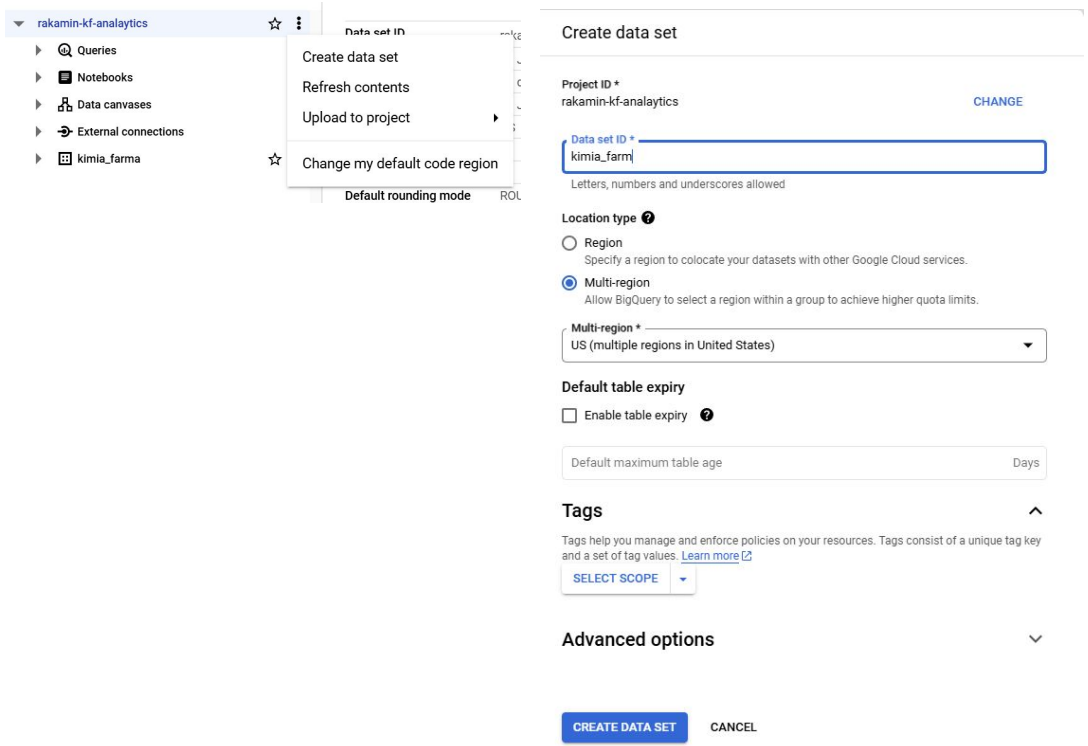
Project Portfolio

As a business, Kimia Farma has managed to operate between 2020-2023 across Indonesia, selling various kinds of products and amass a huge amount of data associated with the sale of these products.

Therefore, there is a necessity for a Big Data Analytics Intern at Kimia Farma to understand and analyse these data associated with the sale of products, and further evaluate the business performance of Kimia Farma between 2020-2023.

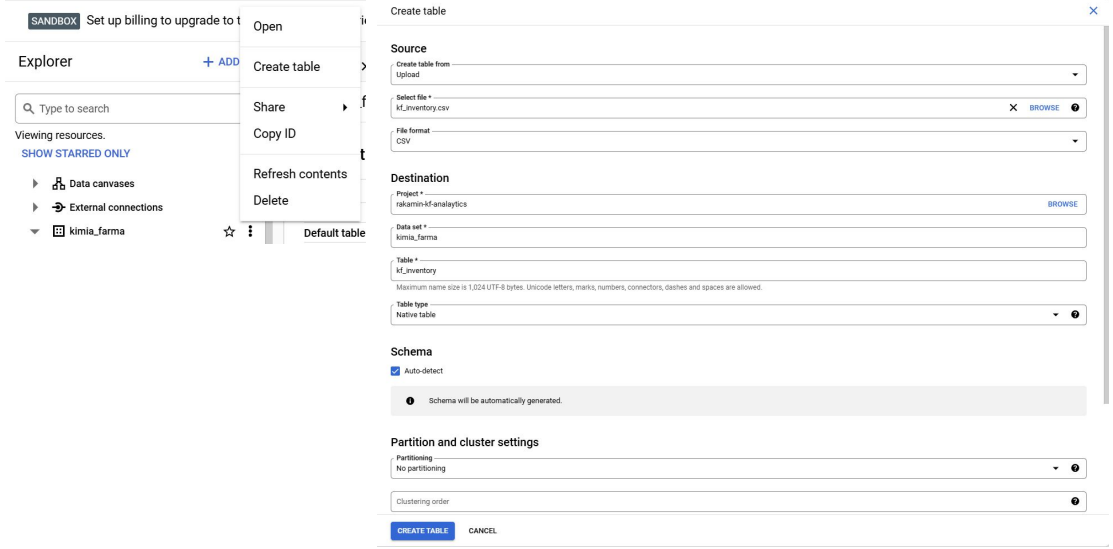
One of the supporting tools to help evaluate business performance of companies with huge amount of data is a business intelligence dashboard. Therefore, a dashboard is created with the aim to visualize the collected data and present findings related to the business performance.

1. Importing Dataset to BigQuery



1. Choose the appropriate project in BigQuery Studio
2. Click the three dot button beside the project name
3. Type the data set name in the ‘Data set ID’ field
4. Click the ‘Create Data Set’ button to create the Data Set

1. Importing Dataset to BigQuery



1. Choose the appropriate data set (‘kimia_farma’) in BigQuery Studio
2. Click the three dot button beside the data set name
3. Choose the source of the dataset in ‘Create table from’
4. Select the file
5. Type the table name in the ‘Table’ field
6. Click the Auto-detect box in Schema
7. Click the create table button

2. Analysis Table

Data Snapshot

	transaction_id	d...	br...	br...	kota	prov...	rating...	custo...	product...	product_...	price	discount_per...	persentase_la...	nett_sales	nett_profit	rating_transaksi
1.	TRX9999998	13...	24...	Ki...	Kun...	Jawa...	4	Wendy ...	KF151	Other ana...	723800	0.09	0.3	658658	151998.00000000006	4.1
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8.	TRX9999958	31...	18...	Ki...	Mak...	Sula...	4.9	Joseph ...	KF605	Anti-infla...	164900	0.06	0.2	155006	23086	4.5
9.	TRX9999949	1 ...	56...	Ki...	Gor...	Goro...	4	Brian ...	KF879	Antihista...	441000	0.02	0.25	432180	101430	4.3
10.	TRX9999938	18...	32...	Ki...	Garut	Jawa...	4.3	Julia M...	KF710	Antihista...	958000	0.03	0.3	929260	258660	3.5
11.	TRX9999922	5 ...	36...	Ki...	Mak...	Sula...	4.3	Jennife...	KF829	Drugs for ...	76900	0	0.15	76900	11535	3.5
12.	TRX9999902	7 ...	20...	Ki...	Sub...	Jawa...	4.1	Jeremy...	KF485	Psycholep...	300800	0	0.25	300800	75200	3.3
13.	TRX9999868	3...	43...	Ki...	Sura...	Jawa...	4.6	Janice ...	KF878	Psycholep...	533500	0.09	0.3	485485	112035	4.6

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- Data from various datasets were merged into 16 columns
- Data for 13 columns were directly taken from other datasets, the remaining 3 (**persentase_laba_gross, nett_sales, and nett_profit**) were calculated
- Snapshot taken from Google Data Studio

3. BigQuery Syntax

Query | Query History

```
create table kimia_farma.kf_analisis as
select
*
from
(
select
ft.transaction_id, ft.date, ft.branch_id, kc.branch_name, kc.kota,
kc.provinsi, kc.rating as rating_kantor_cabang, ft.customer_name,
ft.product_id, p.product_name, ft.price, ft.discount_percentage,
 case
  when ft.price <= 50000 then 0.1
  when ft.price <= 100000 then 0.15
  when ft.price <= 300000 then 0.2
  when ft.price <= 500000 then 0.25
  else 0.3
  end as persentase_laba_brutto,
  (ft.price-(ft.price*ft.discount_percentage)) as nett_sales,
  (ft.price-(ft.price*ft.discount_percentage)-
  (ft.price *
  case
  when ft.price <= 50000 then 1-0.1
  when ft.price <= 100000 then 1-0.15
  when ft.price <= 300000 then 1-0.2
  when ft.price <= 500000 then 1-0.25
  else 1-0.3
  end
  )) as nett_profit,
 ft.rating as rating_transaksi

from kimia_farma.kf_final_transaction ft
left join
kimia_farma.kf_kantor_cabang kc
on
ft.branch_id = kc.branch_id
left join
kimia_farma.kf_product p
on ft.product_id = p.product_id
order by ft.branch_id asc
)
;
```

Overall Strategy:

1. (In another media) plan for the overall syntax, determine columns that can be directly filed using data available from the datasets.
2. Start to create and test the join syntax to fill the 13 columns with available data.
3. Determine that two of the remaining blank columns require special categorization
   a. **Persentase_laba_brutto**: create case when syntax for the required categories

3. BigQuery Syntax

Query | Query History

```
create table kimia_farma.kf_analisis as
select
*
from
(
select
ft.transaction_id, ft.date, ft.branch_id, kc.branch_name, kc.kota,
kc.provinsi, kc.rating as rating_kantor_cabang, ft.customer_name,
ft.product_id, p.product_name, ft.price, ft.discount_percentage,
 case
  when ft.price <= 50000 then 0.1
  when ft.price <= 100000 then 0.15
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  end as persentase_laba_brutto,
  (ft.price-(ft.price*ft.discount_percentage)) as nett_sales,
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  (ft.price *
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  when ft.price <= 50000 then 1-0.1
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  )) as nett_profit,
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from kimia_farma.kf_final_transaction ft
left join
kimia_farma.kf_kantor_cabang kc
on
ft.branch_id = kc.branch_id
left join
kimia_farma.kf_product p
on ft.product_id = p.product_id
order by ft.branch_id asc
)
;
```

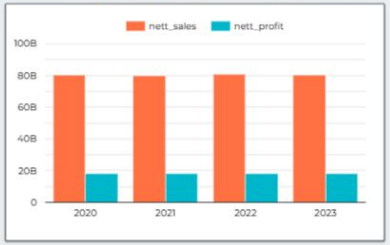
Overall Strategy:

1. Determine that two of the remaining blank columns require special categorization
   a. **Nett_sales**: calculate using the following formula [Price - (Price*discount_percentage)]
   b. **Nett_profit:** calculate using the following formula [Nett_sales - (Price * (1-persentase_laba_brutto)
2. The join queries were put in a subquery, for testing and further analysis purposes
3. Creation of the create table syntax that takes data from the subquery

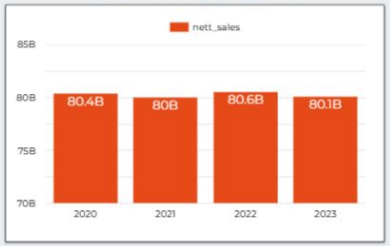
4. Dashboard Performance Analytics

Dashboard Performance Analytics Kimia Farma Business Year 2020-2023

Total Yearly Income 2020-2023



Detailed Total Sales 2020-2023



Key Performance Indicators

Nett Profit Ratio	Nett Sales
22.6%	321.2B
Average Transaction Rating	**Average Branch Rating**
4.0	4.4

Top 5 Branches with Highest Branch Rating and Lowest Transaction Rating

	branch_id	branch_na...	provinsi	rating_k...	rating_tran...
1.	82157	Kimia Farm...	Kalimantan...	5	3.91
2.	44567	Kimia Farm...	Kepulauan ...	5	3.93
3.	13775	Kimia Farm...	Sulawesi Ut...	5	3.93
4.	31872	Kimia Farm...	Bangka Bel...	5	3.93
5.	62707	Kimia Farm...	Nusa Teng...	5	3.96

Filters

provinsi | product_name | branch_id

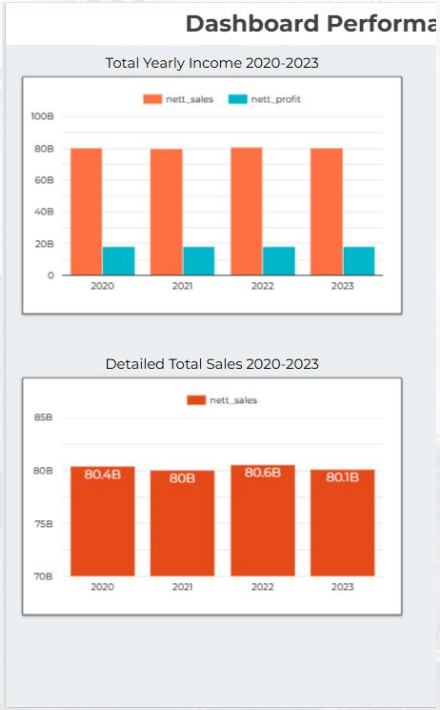
kota | product_id | branch_name

Total Profit per Province in Geo Map

Top 10 Nett Sales and Transactions per Province

	provinsi	nett_sale...	transaction_i...
1.	Jawa Barat	94.9B	198.7K
2.	Sumatera Utara	23B	48.2K
3.	Jawa Tengah	22.2B	46.5K
4.	Jawa Timur	16.6B	34.8K
5.	Sulawesi Utara	15.9B	33.3K
6.	Sumatera Barat	15.3B	32K
7.	Aceh	10.5B	21.8K
8.	Nusa Tenggara Barat	10B	21.1K
9.	Kalimantan Timur	9.7B	20.2K
10.	Riau	9.4B	19.6K

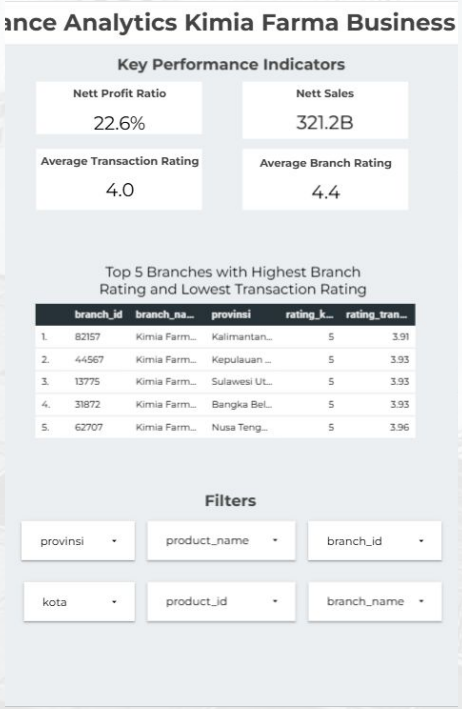
4. Dashboard Performance Analytics



Analysis:

- Overall strong performance throughout 2020-2023
- Nett sales and nett profit remains relatively stable in 4 years
- Differences in nett sales and nett profit between 2020-2023 are negligible

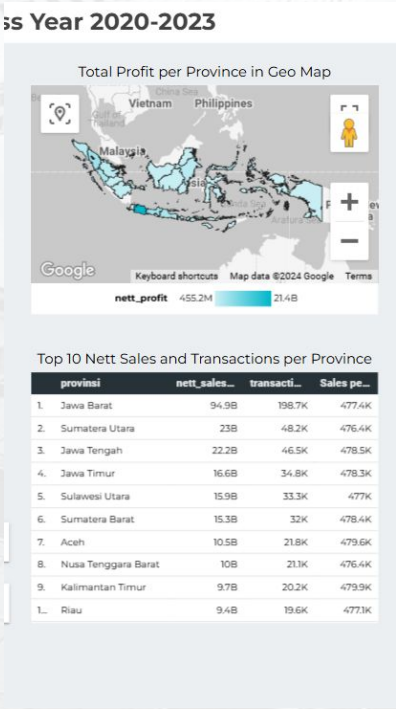
4. Dashboard Performance Analytics



Analysis:

- Key Performance Indicators for business performance analysis summary
- Nett Profit Ratio of 22,6%
- Average Branch Rating higher than Average Transaction Rating, requiring further analysis on the customer experience
- Several branches have excellent branch ratings but < 4 average transaction ratings
- Several filters for specialized analysis, these filters will affect all indicators

4. Dashboard Performance Analytics

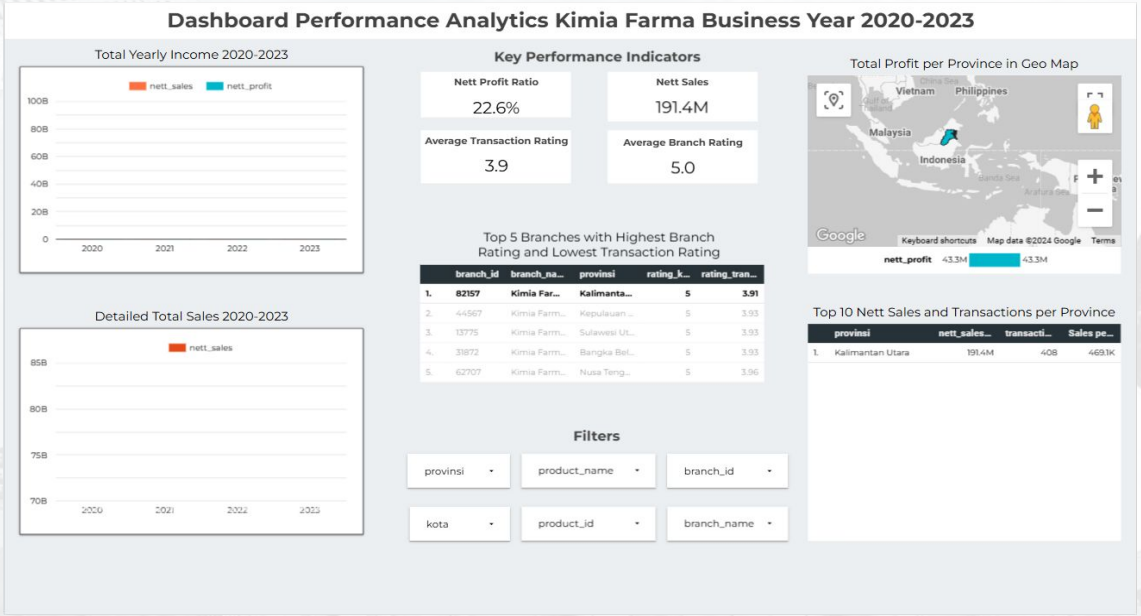


	provinsi	nett_sales...	transacti...	Sales pe...
1.	Jawa Barat	94.9B	198.7K	477.4K
2.	Sumatera Utara	23B	48.2K	476.4K
3.	Jawa Tengah	22.2B	46.5K	478.5K
4.	Jawa Timur	16.6B	34.8K	478.3K
5.	Sulawesi Utara	15.9B	33.3K	477K
6.	Sumatera Barat	15.3B	32K	478.4K
7.	Aceh	10.5B	21.8K	479.6K
8.	Nusa Tenggara Barat	10B	21.1K	476.4K
9.	Kalimantan Timur	9.7B	20.2K	479.9K
1...	Riau	9.4B	19.6K	477.1K

Analysis:

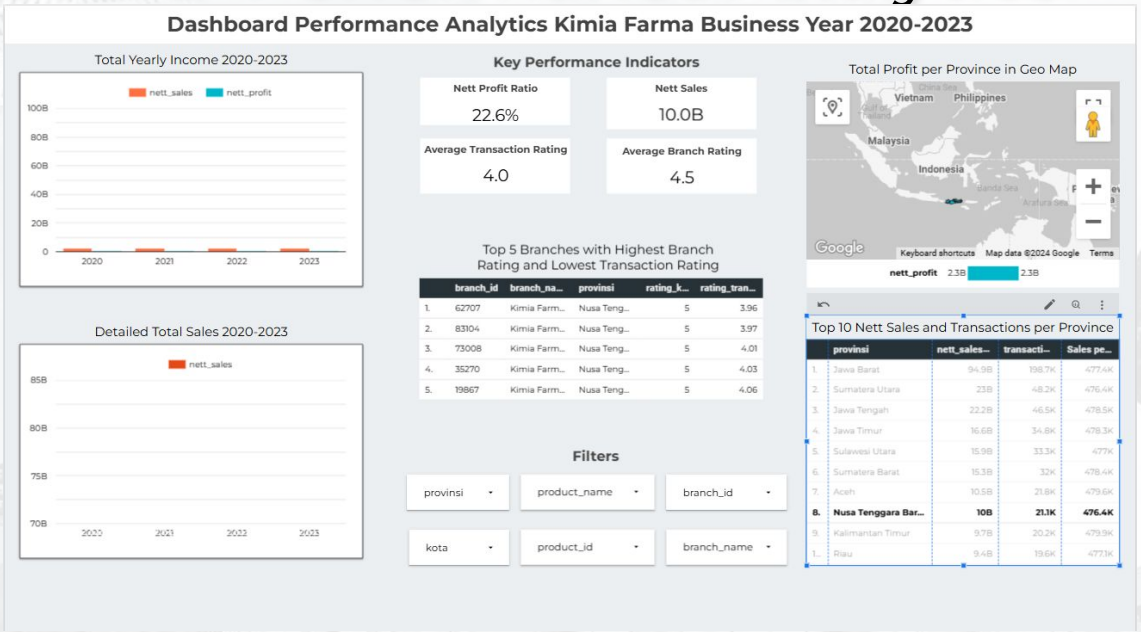
- Geo Map helps fast analysis on the areas with highest total profit for the company
- Jawa Barat has both the highest nett sales and transaction frequency, remains a strong market for Kimia Farma
- Nett sales and transaction frequency are linked together, with almost uniform sales per transaction

4. Dashboard Performance Analytics



- Possible direct filtering in clicking the desired indicator
- In this example, the branch ID 82517 was clicked
- Returning to default state would only require a click on the same field

4. Dashboard Performance Analytics



- Possible direct filtering in clicking the desired indicator
- In this example, the province Nusa Tenggara Barat was clicked
- Returning to default state would only require a click on the same field

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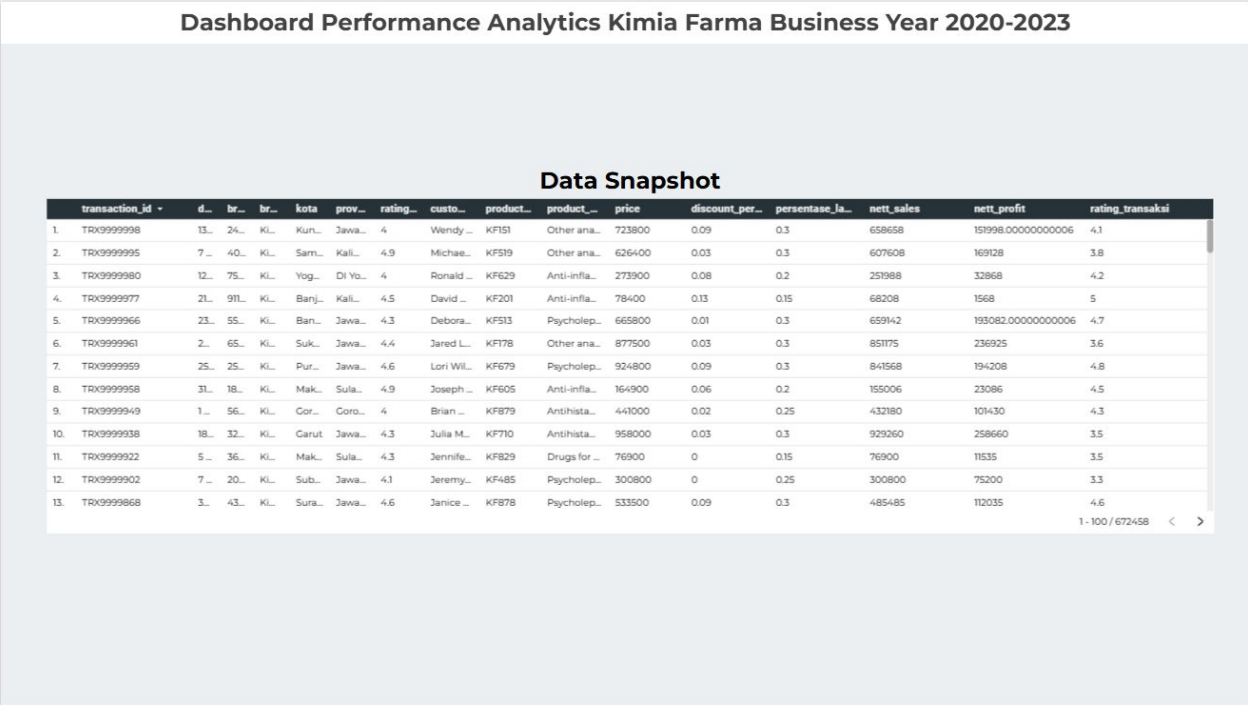

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13.	TRX9999868	3...	43...	Ki...	Sura...	Jawa...	4.6	Janice ...	KF878	Psycholep...	533500	0.09	0.3	485485	112035	4.6

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Links

Google Drive Video

https://drive.google.com/drive/folders/1j_6FW-HAMFqZ1d6TCoH66eOAbkQJMn5E?usp=sharing

Github

nandosian/Big-Data-Analytics-Challenge-: Dibuat untuk tugas akhir Project Bashed Internship Data Analytics Kimia Farma di Rakamin Academy. (github.com)

Dahsboard

https://lookerstudio.google.com/reporting/d6cc51ed-6255-4b55-84a4-f50a87ec0bb8

Thank You

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