Rakamin Academy X kimia farma

Kimia Farma Perfomance Analytics 2020-2023

Kimia Farma - Big Data Analytics

Presented by
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Sidoarjo

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Statistics student at Brawijaya University

I have a great enthusiast to all things in data field especially in data analytics, data scientist, and data manager. I had got the chance to improve my skill in data field in personal project, PKM project, EdX online learning, and special training institution.

Courses and Certification

Statistical Learning with R | https://shorturl.at/U7od7

<June-July, 2024>

Python Basics for Data Science | https://shorturl.at/L2QPI

<June-July, 2024>

About Company

Kimia Farma merupakan perusahaan manufaktur farmasi pertama di Indonesia yang didirikan pada tahun 1817 oleh pemerintah Hindia Belanda. Nama asli perusahaan tersebut adalah NV Chemicalien Handle Rathkamp & Co. Selanjutnya pada tanggal 16 Agustus 1971, bentuk hukum PNF diubah menjadi perseroan terbatas dan nama perusahaan diubah menjadi PT Kimia Farma (Persero). PT Kimia Farma Tbk telah berkembang menjadi perusahaan jasa kesehatan yang komprehensif di Indonesia. Didukung oleh kegiatan manufaktur farmasi, penelitian dan pengembangan, penjualan dan perdagangan, pemasaran, ritel farmasi, laboratorium klinik, dan klinik medis.

VISI

Menjadi perusahaan ***Healthcare*** pilihan utama yang terintegrasi dan menghasilkan nilai yang berkesinambungan.

MISI

1. Melakukan aktivitas usaha di bidang-bidang industri kimia dan farmasi, perdagangan dan jaringan distribusi, ritel farmasi dan layanan kesehatan serta optimalisasi aset.
2. Mengelola perusahaan secara ***Good Corporate Governance*** dan ***operational excellence*** didukung oleh Sumber Daya Manusia (SDM) profesional.
3. Memberikan nilai tambah dan manfaat bagi seluruh ***stakeholder***.

Project Portfolio

Using BigQuery and Google Looker to analyze and visualize the result. We analyze about Kimia Farma Perfomance 2020-2023. Looking provinces with the largest nett sale, provinces with the most transactions in Kimia Farma. Calculate total profit in 2020-2023.

Project explanation video here!

GITHUB

1. Importing Dataset to BigQuery

We have 4 data table to import. They are kimia farma final transaction, kimia farma inventory, kimia farma branch office, and kimia farma product. Data table have same column with **each other**, for example branch id in final transaction is same as branch id in brach office dataset.

Preview table and schema in each dataset

Kimia farma final transaction

Row	transaction_id	date	branch_id	customer_name	product_id	price	discount_percen	rating
1	TRX5103706	2021-08-25	93529	Derrick Wright III	KF116	251700	0.1	
2	TRX5388139	2020-12-29	24832	Elizabeth Ramos	KF116	251700	0.12	
3	TRX7251897	2020-02-03	20505	Meghan Warner	KF116	251700	0.09	
4	TRX4943675	2022-09-09	17678	Steven Roberts	KF116	251700	0.1	
5	TRX3469820	2020-06-20	28315	Linda Bruce DDS	KF116	251700	0.07	
6	TRX1213133	2021-09-17	22280	Cory Castro	KF116	251700	0.11	
7	TRX2020131	2020-12-16	40028	Stephanie Boone	KF116	251700	0.03	
8	TRX5015870	2022-08-17	41343	Mary Hughes	KF116	251700	0.03	
9	TRX7064077	2021-06-21	86546	Tamara Bruce	KF116	251700	0.04	
10	TRX5979742	2020-12-31	18235	Aaron Reed	KF116	251700	0.11	
11	TRX2209141	2021-03-20	59571	Nancy Kennedy	KF116	251700	0.1	

Field name	Type	Mode
transaction_id	STRING	NULLABLE
date	DATE	NULLABLE
branch_id	INTEGER	NULLABLE
customer_name	STRING	NULLABLE
product_id	STRING	NULLABLE
price	INTEGER	NULLABLE
discount_percentage	FLOAT	NULLABLE
rating	FLOAT	NULLABLE

1. Importing Dataset to BigQuery

Kimia farma invetory

Row	Inventory_ID	branch_id	product_id	product_name	opname_stock
1	INV1828570	14724	KF116	Psycholeptics drugs, Hypnotics...	0
2	INV6358449	30475	KF116	Psycholeptics drugs, Hypnotics...	0
3	INV8727436	24294	KF116	Psycholeptics drugs, Hypnotics...	0
4	INV9842687	81965	KF116	Psycholeptics drugs, Hypnotics...	0
5	INV6215728	67373	KF116	Psycholeptics drugs, Hypnotics...	0
6	INV7363800	35354	KF116	Psycholeptics drugs, Hypnotics...	0
7	INV3163646	15943	KF116	Psycholeptics drugs, Hypnotics...	0
8	INV5179715	37402	KF116	Psycholeptics drugs, Hypnotics...	0
9	INV5094212	22494	KF116	Psycholeptics drugs, Hypnotics...	0
10	INV2346003	88089	KF116	Psycholeptics drugs, Hypnotics...	0

Field name	Type	Mode
Inventory_ID	STRING	NULLABLE
branch_id	INTEGER	NULLABLE
product_id	STRING	NULLABLE
product_name	STRING	NULLABLE
opname_stock	INTEGER	NULLABLE

Kimia farma branch office

Row	branch_id	branch_category	branch_name	kota	provinsi	rating
1	36121	Apotek	Kimia Farma - Apotek	Bima	Nusa Tenggara Barat	4.9
2	32325	Apotek	Kimia Farma - Apotek	Bima	Nusa Tenggara Barat	4.4
3	37191	Apotek	Kimia Farma - Apotek	Bima	Nusa Tenggara Barat	3.9
4	23248	Apotek	Kimia Farma - Apotek	Bima	Nusa Tenggara Barat	4.1
5	46468	Apotek	Kimia Farma - Apotek	Bima	Nusa Tenggara Barat	4.7
6	49606	Apotek	Kimia Farma - Apotek	Palu	Sulawesi Tengah	4.6
7	99669	Apotek	Kimia Farma - Apotek	Palu	Sulawesi Tengah	4.2
8	76351	Apotek	Kimia Farma - Apotek	Palu	Sulawesi Tengah	4.4
9	82636	Apotek	Kimia Farma - Apotek	Palu	Sulawesi Tengah	4.7

Field name	Type	Mode
branch_id	INTEGER	NULLABLE
branch_category	STRING	NULLABLE
branch_name	STRING	NULLABLE
kota	STRING	NULLABLE
provinsi	STRING	NULLABLE
rating	FLOAT	NULLABLE

1. Importing Dataset to BigQuery

Kimia farma product

Row	product_id	product_name	product_category	price
1	KF378	Drugs for obstructive airway di...	R03	283100
2	KF141	Drugs for obstructive airway di...	R03	221100
3	KF957	Psycholeptics drugs, Anxiolytic...	R03	953000
4	KF557	Psycholeptics drugs, Anxiolytic...	R03	411900
5	KF460	Psycholeptics drugs, Anxiolytic...	R03	334300
6	KF933	Psycholeptics drugs, Anxiolytic...	R03	86500
7	KF513	Psycholeptics drugs, Hypnotics...	R03	665800
8	KF132	Psycholeptics drugs, Hypnotics...	R03	6400

Field name	Type	Mode
product_id	STRING	NULLABLE
product_name	STRING	NULLABLE
product_category	STRING	NULLABLE
price	INTEGER	NULLABLE

How to import dataset in BigQuery?

1. Make sure you have project to create dataset
2. Click create table in dataset
3. If you already have the data, choose upload or other according to conditions in “create table from”
4. Give name for new table
5. Turn on “schema” to read your table header name
6. Click “create table” and new table is ready

2. Tabel Analisa

Use CTE (Common Table Expression) is feature in BigQuery that allow user to define temporary tables in larger query. In this case we define the requested columns :

1. Transaction_id
2. Date
3. Branch_id
4. Branch_name
5. Kota
6. Provinsi
7. Rating
8. Customer_name
9. Product_name
10. Price
11. Discount_percentage

If **the column in request is in two table**, can **take one of them** by stating the table name.

3. BigQuery Syntax

```
# Menggunakan CTE sebagai tabel sementara dengan memasukkan kolom-kolom yang berhubungan dengan analisa yang dibutuhkan #
WITH kebutuhan AS (
  SELECT
  kf_final_transaction.transaction_id,
  kf_final_transaction.date,
  kf_final_transaction.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,
```

First thing to do is make CTE as temporary table with requested column. There are some columns renamed. As we can see rating was renamed to rating_cabang and price was renamed to actual_price.

3. BigQuery Syntax

After defined all requested columns, we create profit syntax based on price range. We also calculate price after discount and we see customers rating during transactions. Using **JOIN** function to solve this case

```
17  # Menentukan laba dengan ketentuan rentang harga yang sudah ditetapkan #
18  CASE
19  WHEN kf_product.price < 50000 THEN kf_product.price*0.10
20  WHEN kf_product.price BETWEEN 50000 AND 100000 THEN kf_product.price*0.15
21  WHEN kf_product.price BETWEEN 100000 AND 300000 THEN kf_product.price*0.2
22  WHEN kf_product.price BETWEEN 300000 AND 500000 THEN kf_product.price*0.25
23  WHEN kf_product.price > 500000 THEN kf_product.price*0.3
24  END AS presentase_gross_laba,
25
26  # Menghitung harga setelah diskon #
27  kf_product.price*(1-kf_final_transaction.discount_percentage) AS nett_sales,
28
29  # Melihat penilaian konsumen terhadap transaksi yang dilakukan #
30  kf_final_transaction.rating AS rating_transaksi
```

```
32    FROM kimia_farma.kf_final_transaction AS kf_final_transaction
33    LEFT JOIN kimia_farma.kf_kantor_cabang AS kf_kantor_cabang
34    ON kf_final_transaction.branch_id=kf_kantor_cabang.branch_id
35    LEFT JOIN kimia_farma.kf_product AS kf_product
36    ON kf_final_transaction.product_id=kf_product.product_id
37  )
38  SELECT*FROM kebutuhan;
```

Hasil Tabel Analisa

actual_price	discount_percentage	presentase_gross_la	nett_sales	rating_transaksi
251700	0.1	50340.0	226530.0	3.0
251700	0.12	50340.0	221496.0	3.0
251700	0.09	50340.0	229047.0	3.0
251700	0.1	50340.0	226530.0	3.0
251700	0.07	50340.0	234080.9999999...	3.0
251700	0.11	50340.0	224013.0	3.0
251700	0.03	50340.0	244149.0	3.0
251700	0.03	50340.0	244149.0	3.0
251700	0.04	50340.0	241632.0	3.0

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4
Dashboard Performance Analytics

Kimia Farma Performance Analytics 2020-2023

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Top 10 Total Transactions and Nett Sales Based on Provincial Branches

	Provinsi	Total Transaksi
1.	Jawa Barat	10,980
2.	Sumatera Utara	2,777
3.	Jawa Tengah	2,619
4.	Jawa Timur	1,944
5.	Sulawesi Utara	1,819
6.	Sumatera Barat	1,790

1 - 31 / 31

	Provinsi	Nett Sale
1.	Jawa Barat	5,246,600,847
2.	Sumatera Utara	1,276,246,691
3.	Jawa Tengah	1,244,529,249
4.	Jawa Timur	922,882,611
5.	Sulawesi Utara	894,140,343
6.	Sumatera Barat	862,225,934

1 - 31 / 31

Performance Information

Transaction ID

provinsi

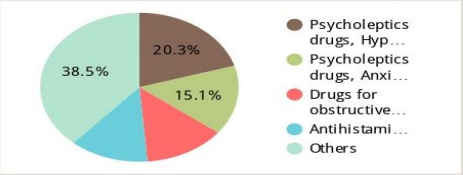
Kota

Top 5 Branch with Highest Rating but Lowest Transactions

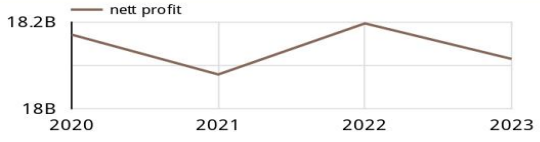
	bran...	kota	ratin...	rating_c...
1.	85716	Malang	3	5
2.	21754	Pontianak	3	5
3.	27968	Pontianak	3	5
4.	16158	Subang	3	5
5.	41085	Padang Sidem...	3	5

1 - 100 / 1725

Top 5 of Best Seller Product



Total Profit Each Year



Total Profit Based on City

Nett Profit 86,059,112 — 4,821,999,494

nett profit 72.6B

Total Transaksi 672,458

Type Product 150

Customers 264,601

Nett Sales 321.2B

Avg Rating 4

4. Dashboard Performance Analytics

Top 10 Total Transactions and Nett Sales Based on Provincial Branches

	Provinsi	Total Transaksi
1.	Jawa Barat	10,980
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1 - 31 / 31

Information about 10 provinces with the most transactions and 10 provinces with the largest net sales. We can scroll down to see provinces from largest to smallest

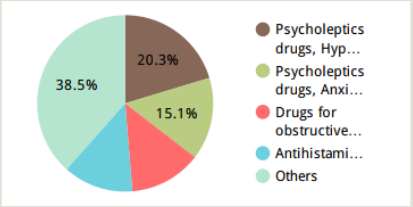
Information about 5 branch with highest rating but lowest transactions and we can see what best seller product during 2020-2023.

Top 5 Branch with Highest Rating but Lowest Transactions

	bran...	kota	ratin...	rating_c...
1.	85716	Malang	3	5
2.	21754	Pontianak	3	5
3.	27968	Pontianak	3	5
4.	16158	Subang	3	5
5.	41085	Padang Sidem...	3	5

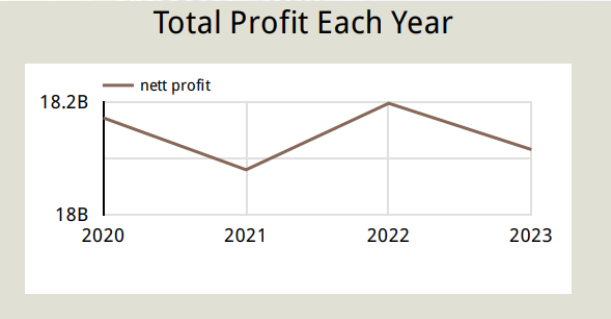
1 - 100 / 1725

Top 5 of Best Seller Product



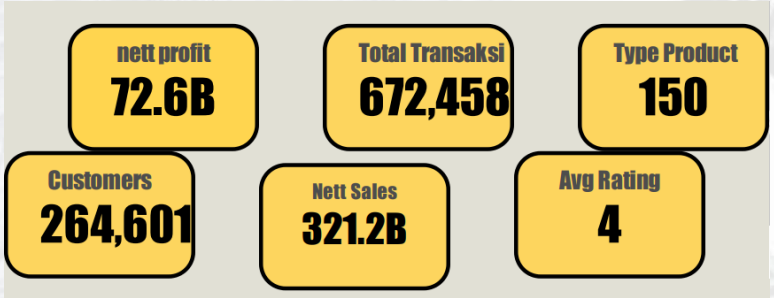
Total Profit Base

4. Dashboard Performance Analytics

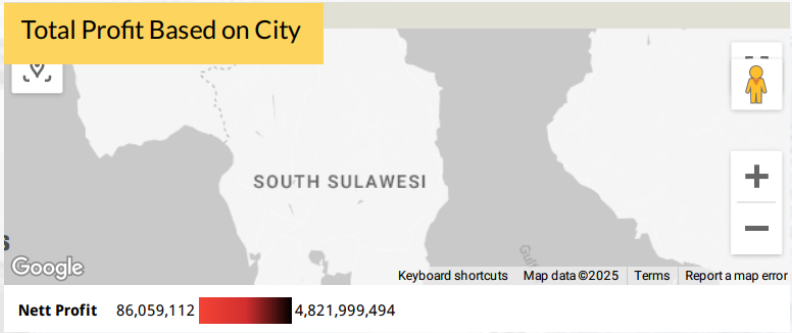


The company's net profit fluctuates, not stable from year to year. 2022 is the best year for year perfomance. For 2023, the company needs to evaluate the factors causing the decline and find strategies to maintain or increase profitability.

Information about total profit, total transactions, type product, total customers, branch type, and average rating transaction



4. Dashboard Performance Analytics



Information total profit with fieldmap. If the color is darker so total profit is more than others.

Thank You