

Digital User Churn Dashboard

**Bank Muamalat Business Intelligence Analyst Project Based
Internship Program**

Presented by
Fakhrizal Ahadiat



Fakhrizal Ahadiat

Soreang, Jawa Barat

+62 85156545624

fakhrizal.a.ahadiat@gmail.com

[linkedin.com/in/fakhrizal-ahadiat/](https://www.linkedin.com/in/fakhrizal-ahadiat/)

About Me

Fakhrizal Ahadiat is an Aspiring Data Scientist and Data Analyst. Has 6 years working experience in social security field managed and fostered companies from micro to large companies. He was previously an informatics engineering graduate from Universitas Komputer Indonesia. Has high passion and interest in Data Science and Data Analyst. He has skills in Python programming, Statistical Analysis, Data Cleaning, Data Manipulation, Exploratory Data Analysis, Machine Learning, Data Visualization and SQL Databases

Working Experience

Petugas Pengawas Pemeriksa

BPJS Ketenagakerjaan

Tarakan, North Kalimantan, Indonesia

(September 2022 - June 2023)

- Managed data more than 2000 companies in North Kalimantan to identify non-compliant companies with BPJS Ketenagakerjaan membership
- Supervised and examined companies with indications of irregular BPJS Ketenagakerjaan membership in accordance with laws and regulations. Prepared reports detailing findings of inspections and investigations
- Perform recommendations on law enforcement and compliance with third parties against companies that have not registered and companies that make payments in arrears

Account Representative Khusus

BPJS Ketenagakerjaan

Kebon Sirih, Central Jakarta, Indonesia

(December 2018 - August 2022)

- Managed data and foster more than 1000 MSME companies registered with BPJS Ketenagakerjaan.
- Identified issues with proactive approach and resolved or escalated problems. Supported customer satisfaction through regular follow-up and communication
- Perform acquisition customers from existing companies and new companies that have not been registered BPJS Ketenagakerjaan and achieved revenue targets by developing targeted account strategies

Relationship Officer

BPJS Kesehatan

Soreang, Jawa Barat, Indonesia

(September 2016 - September 2018)

- Perform acquisition customers from existing companies and new companies that have not been registered BPJS Kesehatan
- Socializing BPJS Kesehatan benefits and program to prospective participants
- Maintained and built close relationships with customers through regular contact and visits



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Skills

Techniques :

Data Cleaning, Data Manipulation, Statistical Analytics, Exploring Data Analysis, Hypothesis Testing, Data Visualization, Regression Model, Classification Model, Unsupervised Model, Hyperparameter Tuning, SQL Query, and Web Development

Hard Skills : Python, HTML/CSS, PHP, PostgreSQL, Looker Studio and Tableau

Soft Skills : Communication, teamwork, attention to detail, critical thinking, problem solving, curiosity and desire to continue learning

Language : Bahasa (native), English (intermediate)

Achievement:

2nd place in the BPJS Ketenagakerjaan company profile video competition between branches in Kalimantan region in 2023

Certifications

- Memulai Pemrograman dengan Python by Dicoding Indonesia Oktober 2023
- Belajar Data Science by Dicoding Indonesia Oktober 2023
- Belajar Dasar Structured Query Language (SQL) by Dicoding Indonesia Oktober 2023
- Python Essentials 1 by Cisco Networking Academy September 2023
- Data Analytics Essential certified by Cisco Networking Academy July 2023
- Revou Mini Course Data Analytics by Revou July 2023
- Workshop Google Data Studio by Dilatih.co July 2023

Education

UNIVERSITAS KOMPUTER INDONESIA

Bandung, Indonesia

Bachelor of Informatics Engineering

GPA 3.23

(September 2010 – March 2016)

Relevant Coursework:

Software Engineering (C#, HTML, PHP, CSS), Relational Database Management System (SQL Databases) and Algebra/Calculus

Organization:

Member of Himpunan Mahasiswa Teknik Informatika (HIMAIF in 2011 - 2012) organized a seminar and workshop related to Networking for students of Informatics Engineering.

Projects:

- Final project: "Implementation Mel-Frequency Cepstrum Coefficients (MFCC) Method In Identification Of Sound Birds Chirping"
- Internship project: "Pembangunan Sistem Informasi Reservasi Hotel Bumi Kartika Asri PT. Padjajaran Mitra"

DIBIMBING.ID

(July 2023 – February 2024)

Data Science

Relevant Coursework:

Statistical Analytics, Data Cleaning, Data Manipulation, Exploratory Data Analysis, Data Visualization, Supervised Machine Learning, Unsupervised Machine Learning, Hyperparameter Tuning, SQL Query and Business Understanding

Projects:

1. Final Project : "Sentiment Analysis Bukalapak Apps on Google Playstore Reviews"
2. Mini Project :
 - Hotel Booking Cancellation Prediction using supervised machine learning with Hyperparameter Tuning
 - Churn Prediction on Telco Customer Churn dataset using supervised machine learning (classification model) with Hyperparameter Tuning
 - Customer Segmentation using unsupervised machine learning (K-means Clustering) and LRFMC metrics model on Airline Customer Analysis dataset
 - Dimensional reduction using PCA method on House Prices Kaggle Dataset
 - Churn Prediction using Regularized Regression (Ridge and Lasso) on Boston House Pricing Kaggle dataset
 - Created a Web Dashboard on Superstore dataset using Looker Studio
 - Performed Hypothesis Testing using Marketing Campaign Kaggle Dataset

Case Study

Soal 1 :

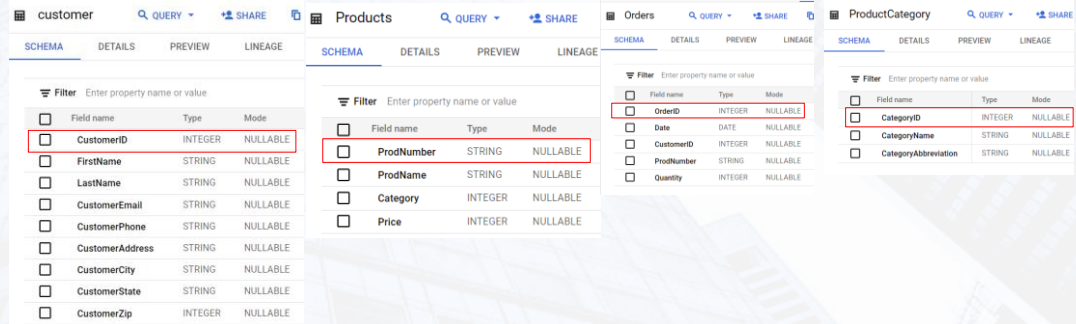
Tentukan masing-masing primary key pada 4 dataset penjualan

Pembahasan :

Primary key (kunci utama) adalah suatu konsep dalam basis data yang merujuk pada satu atau sekelompok kolom dalam sebuah tabel yang memiliki dua karakteristik utama: unik dan tidak dapat bernilai null. Kunci utama digunakan untuk secara unik mengidentifikasi setiap baris atau catatan dalam table.

Adapun primary key pada 4 dataset tersebut yaitu:

1. Tabel Customer : CustomerID
2. Tabel Products : ProdNumber
3. Tabel Orders : OrderID
4. Tabel ProductCategory : CategoryID



Field name	Type	Mode
<input type="checkbox"/> CustomerID	INTEGER	NULLABLE
<input type="checkbox"/> FirstName	STRING	NULLABLE
<input type="checkbox"/> LastName	STRING	NULLABLE
<input type="checkbox"/> CustomerEmail	STRING	NULLABLE
<input type="checkbox"/> CustomerPhone	STRING	NULLABLE
<input type="checkbox"/> CustomerAddress	STRING	NULLABLE
<input type="checkbox"/> CustomerCity	STRING	NULLABLE
<input type="checkbox"/> CustomerState	STRING	NULLABLE
<input type="checkbox"/> CustomerZip	INTEGER	NULLABLE

Field name	Type	Mode
<input type="checkbox"/> ProdNumber	STRING	NULLABLE
<input type="checkbox"/> ProdName	STRING	NULLABLE
<input type="checkbox"/> Category	INTEGER	NULLABLE
<input type="checkbox"/> Price	INTEGER	NULLABLE

Field name	Type	Mode
<input type="checkbox"/> OrderID	INTEGER	NULLABLE
<input type="checkbox"/> Date	DATE	NULLABLE
<input type="checkbox"/> CustomerID	INTEGER	NULLABLE
<input type="checkbox"/> ProdNumber	STRING	NULLABLE
<input type="checkbox"/> Quantity	INTEGER	NULLABLE

Field name	Type	Mode
<input type="checkbox"/> CategoryID	INTEGER	NULLABLE
<input type="checkbox"/> CategoryName	STRING	NULLABLE
<input type="checkbox"/> CategoryAbbreviation	STRING	NULLABLE

Case Study

Soal 2

Tentukan relationship dari ke-4 table tersebut

Pembahasan :

Relationship merupakan hubungan yang terdapat dari beberapa tabel dalam database yang memiliki kesamaan isi dalam kolom tertentu

Adapun relationship pada Customer, Products, Orders, ProductCategory adalah:

1. Terdapat relationship antara table Customers dan Orders yang dihubungkan melalui kolom CustomerID
2. Terdapat relationship antara table Products dan Orders yang dihubungkan melalui kolom ProdNumber
3. Terdapat relationship antara table Products dan ProductCategory yang dihubungkan melalui kolom Category dengan CategoryID

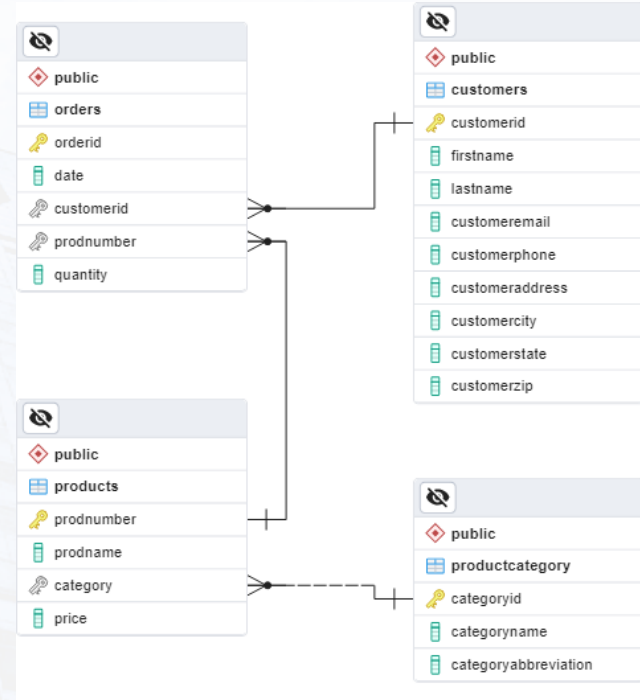


Table Master

Soal 3

Google Cloud | PIB-rakamin | Search (/) for resources, docs, products, and more | Search

SANDBOX Set up billing to upgrade to the full BigQuery experience. [Learn more](#)

Explorer | + ADD | IK

Table Master | RUN | SAVE QUERY | SHARE | SCHEDULE | MORE

```
1 WITH product_detail AS (
2   SELECT
3     p.ProdNumber,
4     p.ProdName,
5     p.Category,
6     pc.CategoryName,
7     p.Price
8   FROM `pib-rakamin.final_task_rakamin.Products` AS p
9   LEFT JOIN `pib-rakamin.final_task_rakamin.ProductCategory` AS pc
10  ON p.Category = pc.CategoryID
11 )
12
13 full_label AS (
14   SELECT
15     o.OrderID AS order_id,
16     o.Date AS date,
17     o.CustomerID AS customer_id,
18     REGEXP_SUBSTR(c.CustomerEmail, '.*[!@#]*') AS email,
19     c.CustomerCity AS city,
20     c.CustomerState AS state,
21     o.ProdNumber AS prod_number,
22     pd.ProdName AS prod_name,
23     pd.CategoryName AS prod_category,
24     pd.Price AS price,
25     o.Quantity AS qty,
26     (o.Quantity * pd.Price) AS total_sales
27   FROM `pib-rakamin.final_task_rakamin.Orders` AS o
28   LEFT JOIN `pib-rakamin.final_task_rakamin.customer` AS c
29   ON o.CustomerID = c.CustomerID
30   LEFT JOIN product_detail AS pd
31   ON o.ProdNumber = pd.ProdNumber
32 )
33
34 SELECT
35   date AS order_date,
36   prod_category AS category_name,
37   prod_name AS product_name,
38   price AS product_price,
39   qty AS order_qty,
40   total_sales,
41   email AS cust_email,
42   city AS cust_city
43 FROM full_label
44 ORDER BY date ASC;
```

SUMMARY | Table Master | pib-rakamin | Visibility personal

Dengan menggunakan BigQuery semua kolom diberikan alias lalu dihubungkan menggunakan LEFT JOIN untuk menggabungkan table yang terpisah sesuai dengan Relationship masing-masing table

Hasil Data yang telah tergabung menjadi Table Master di simpan dalam bentuk file CSV yang dapat digunakan untuk melakukan visualisasi data dengan menggunakan Looker Studio/Google Data Studio

Result

Query results | SAVE RESULTS

JOB INFORMATION		RESULTS	CHART	PREVIEW	JSON	EXECUTION DETAILS		EXECUTION GRAPH	
Row	order_date	category_name	product_name	product_price	order_qty	total_sales	cust_email	cust_city	
1	2020-01-01	Drone Kits	BYOD-220	69.0	1	69.0	edew@nba.com	Honolulu	
2	2020-01-01	eBooks	Polar Robots	23.99	2	47.98	fraserd@consenz.com	Jackson	
3	2020-01-01	eBooks	SCARA Robots	19.5	5	97.5	llesper@comcast.net	Des Moines	
4	2020-01-01	eBooks	Spherical Robots	16.75	5	83.75	lfromont@ide.vu	Birmingham	
5	2020-01-01	Robots	RWW-75 Robot	883.0	3	2649.0	trmcnamot@tennyuri.com	Katy	
6	2020-01-01	Training Videos	Drone Video Techniques	37.99	6	227.94	gstiggersod@eventbrite.com	Saint Petersburg	
7	2020-01-02	Blueprints	Ladybug Robot Blueprint	12.0	2	24.0	akirguy78@deviantart.com	West Palm Beach	
8	2020-01-02	Drone Kits	BYOD-100	54.0	5	270.0	jzeilick84@ustream.tv	Washington	
9	2020-01-02	Drones	DTE-GFN23 Drone	250.0	2	500.0	jcothurst@gbnews.com	Sacramento	

Sales Dashboard

Soal 4

Sales Performance Dashboard

PT Sejahtera Bersama

Year

- ☒ 2020
- ☒ 2021

category_name

- ☒ eBooks
- ☒ Training Videos
- ☒ Robots
- ☒ Robot Kits
- ☒ Drones
- ☒ Drone Kits
- ☒ Blueprints

City Name

Total Sales
\$1,754,751

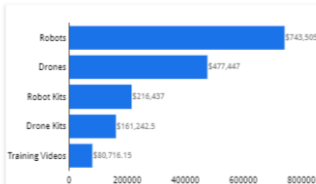
Total Items Sold
11,654

Total Customers
1,671

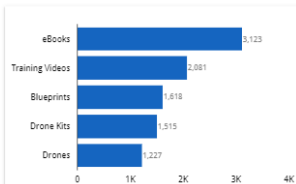
Total Order
3,339

Cities
361

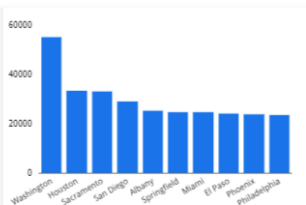
Sales by Product Category



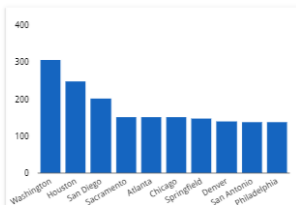
Item Sold by Product Category



Sales by City



Item Sold by City



Top 5 Product by Sales

	Product Name	Category Name	Total Sales
1.	MICR-23K Robot	Robots	157,325
2.	RWV-75 Robot	Robots	120,971
3.	RLK-9520 Robot	Robots	120,927
4.	RQTE-554 Robot	Robots	116,280
5.	RCB-889 Robot	Robots	114,192

Top 5 Product by Order Quantity

	Product Name	Category Name	Order Quantity
1.	Sleepy Eye Blueprint	Blueprints	312
2.	DTI-84 Drone	Drones	231
3.	AI for Educators	Training Videos	211
4.	Building Your Own D...	eBooks	210
5.	RCB-889 Robot	Robots	208

Visualisasi pada Looker Studio:

- Total keseluruhan sales
- Total keseluruhan sales berdasarkan kategori produk
- Total keseluruhan qty berdasarkan kategori produk
- Total sales berdasarkan kota
- Total qty berdasarkan kota
- Top 5 kategori produk yang paling tinggi salesnya
- Top 5 kategori produk yang paling tinggi qtynya

Business Recommendation

- Maksimalkan penjualan produk sesuai target segmen pelanggan.
- Meluncurkan iklan pemasaran yang berfokus pada produk Robot dan Ebook. Apabila pemasaran menggunakan metode direct marketing, mungkin bisa berfokus pada kota Washington karena memiliki tingkat penjualan paling tinggi.
- Membuat strategi campaign yang sesuai untuk meningkatkan kesadaran pelanggan terhadap brand value dengan tujuan untuk meningkatkan retensi sehingga tidak terjadi churn.
- Membuat penawaran khusus untuk produk dengan penjualan tertinggi dan jumlah pembelian terbanyak seperti (Robot MICR-23K dan Sleepy Eye Blueprint) untuk menarik lebih banyak pelanggan.
- Perlu dilakukan analisis lebih lanjut harus dilakukan terhadap produk dengan penjualan yang lebih rendah untuk mengidentifikasi kelemahan dan hal-hal yang harus diperbaiki untuk meningkatkan jumlah penjualan.

Repository Github

https://github.com/Rizal-A/PBI-BI_Analyst_Bank_Muamalat

Looker Studio

<https://lookerstudio.google.com/reporting/55720840-85fd-4d8c-bb35-0284dd3344a8>

Video Presentation

<https://drive.google.com/file/d/1de5moufzdss3ushAm0IAEjU1-C7ECsnz/view?usp=sharing>

Thank You



Rakamin
Academy



Bank
Muamalat