

Final Task - Digital User Churn Dashboard

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

Presented by
Melody Priscilla Tan



Melody Priscilla Tan

About You

A fresh graduate of Mathematics from Brawijaya University. I have a great enthusiasm in machine learning and data related fields. Throughout my study, I had the opportunity to be a practicum assistant and joined bootcamp class which gave me a chance to work with several software such as Python, SQL, R, and Matlab. Based on these experiences, I am able to delve deeper in data analysis, data visualization, and machine learning,

Experience



Project-based Virtual Intern : Big Data Analytics –
Kimia Farma x Rakamin Academy (Mar 2025)



melodyprs08@gmail.com



[linkedin.com/in/melodyprs](https://www.linkedin.com/in/melodyprs)

Case Study

As a Business Intelligence Analyst Intern at Bank Muamalat, I was assigned to analyze the sales performance of PT Sejahtera Bersama. This project required me to perform several steps, including:

- Identifying the primary key of each given table
- Determining the relationships between the tables
- Creating a master table that consolidates information from the four source tables
- Building a dashboard to visualize sales performance
- Extracting insights and providing recommendations to improve performance

Dataset Preview

Table Products

ProdNumber	ProdName	Category	Price
BP101	All Eyes Drone Blueprint	1	9.99
BP102	Bsquare Robot Blueprint	1	8.99
BP104	Cat Robot Blueprint	1	4.99
BP105	Creature Robot Arms Blueprint	1	12.0
BP106	Hexacopter Drone Blueprint	1	8.99
BP107	Ladybug Robot Blueprint	1	12.0
BP108	Panda Robot Blueprint	1	7.99
BP109	QuadroCopter Blueprint	1	10.99

Table Orders

OrderID	Date	CustomerID	ProdNumber	Quantity
1	1/1/2020	1866	EB514	2
2	1/1/2020	1567	RS706	3
3	1/1/2020	2064	TV804	6
4	1/1/2020	287	DK203	1
5	1/1/2020	422	EB517	5
6	1/1/2020	954	EB519	5
7	1/2/2020	726	RK604	2
8	1/2/2020	1740	TV810	1
9	1/2/2020	1652	TV804	2
10	1/2/2020	1431	DS304	2

Table ProductCategory

CategoryID	CategoryName	CategoryAbbreviation
1	Blueprints	BP
2	Drone Kits	DK
3	Drones	DS
4	eBooks	EB
5	Robot Kits	RK
6	Robots	RS
7	Training Videos	TV

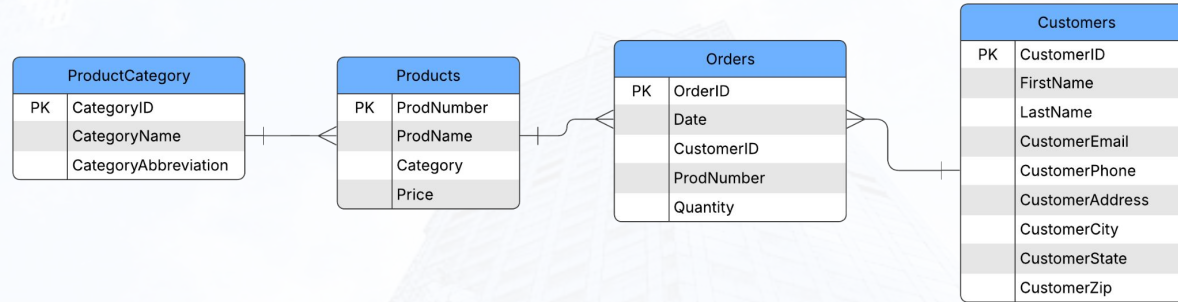
Table Customers

CustomerID	FirstName	LastName	CustomerEmail	CustomerPhone	CustomerAddress	CustomerCity	CustomerState	CustomerZip
1	Grazia	Rasmus	grasmusas@i2.jp#mailto:gras...	(202) 577-2595	628 Buhler Junction	Washington	District of Colum...	20029
2	Bunny	Trean	btreanmj@wordpress.org#ma...	917-903-2827	52 Cascade Drive	Jamaica	New York	11436
3	Tracie	Grayston	tgrayston7k@pagesperso-orange.fr#mailto:tgrayston7k@pagesperso-orange.fr#	404-868-2391	672 Comanche Way	Atlanta	Georgia	30343
4	Amerigo	Garrelts	agarrelts6e@oalc.gov.au#mail...	415-190-3290	8252 Village Green Hill	San Francisco	California	94177
5	Shea	Stronghill	sstronghillc1@google.nl#mailt...	432-775-7828	542 3rd Point	Midland	Texas	79705
6	Geoffry	Bonde	gbonde90@vimeo.com#mailto...	415-176-9919	781 Larry Place	San Francisco	California	94159
7	Noelle	Carlile	ncarlile37@mit.edu#mailto:nca...	405-745-9826	539 Crowley Parkway	Oklahoma City	Oklahoma	73114
8	Binny	Whetson	bwhetsonio@amazon.de#mailt...	585-968-0566	579 Sugar Circle	Rochester	New York	14619

Challenge 1 : Primary Key

Table	Primary Key
Customers	CustomerID
Products	ProdNumber
Orders	OrderID
ProductCategory	CategoryID

Challenge 2 : Table Relationship



1. ProductCategory → Products : One-to-Many
One product category can have many products, but each product belongs to one category.
2. Products → Orders : One-to-Many
One product can appear in many orders, but each order references only one product.
3. Customers → Orders : One-to-Many
One customer can place many orders, but each order is placed by only one customer.

Challenge 3 : Master Table

```
CREATE TABLE `pt_sejahtera_bersama.tabel_master` AS
SELECT
  -- Mengubah datatype Date yang berupa STRING menjadi DATE
  PARSE_DATE('%m/%d/%Y', o.Date) AS order_date,
  pc.CategoryName AS category_name,
  p.ProdName AS product_name,
  p.Price AS product_price,
  o.Quantity AS order_qty,
  -- Menghitung total_sales
  o.Quantity * p.Price AS total_sales,
  c.CustomerEmail AS cust_email,
  c.CustomerCity AS cust_city
FROM `pt_sejahtera_bersama.Orders` o
JOIN `pt_sejahtera_bersama.Customers` c
  ON o.CustomerID = c.CustomerID -- Menggabungkan tabel Orders
  (o) dengan tabel Customers (c)
JOIN `pt_sejahtera_bersama.Products` p
  ON o.ProdNumber = p.ProdNumber -- Menggabungkan tabel Orders
  (o) dengan tabel Products (p)
JOIN `pt_sejahtera_bersama.ProductCategory` pc
  ON p.Category = pc.CategoryID -- Menggabungkan tabel
  Products (p) dengan tabel ProductCategory (pc)
ORDER BY order_date ASC; -- Mengurutkan data dari tanggal
transaksi paling awal sampai tanggal paling akhir
```

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#mailto:edew...	Honolulu
2	2020-01-01	eBooks	SCARA Robots	19.5	5	97.5	llespercx@com.com#mailto:lle...	Des Moines
3	2020-01-01	eBooks	Spherical Robots	16.75	5	83.75	lfromonte9@de.vu#mailto:lfr...	Birmingham
4	2020-01-01	Robots	RWW-75 Robot	883.0	3	2649.0	tmckernot@tinyurl.com#mailto...	Katy
5	2020-01-01	eBooks	Polar Robots	23.99	2	47.98	fvaslerqt@comsenz.com#mailt...	Jackson
6	2020-01-01	Training Videos	Drone Video Techniques	37.99	6	227.94	gstiggersdd@eventbrite.com#mailto:gstiggersdd@eventbrite.com#	Saint Petersburg
7	2020-01-02	eBooks	Fixed Wing Drones	15.5	3	46.5	ohalbardv@booking.com#mailt...	Birmingham
8	2020-01-02	Blueprints	Ladybug Robot Blueprint	12.0	2	24.0	akingaby78@deviantart.com#...	West Palm Beach
9	2020-01-02	Robot Kits	BYOR-2640S	189.0	2	378.0	gmirlees4v@state.tx.us#mailt...	Washington
10	2020-01-02	Robot Kits	BYOR-2640S	189.0	2	378.0	aguiongo@behance.net#mailto...	Houston
11	2020-01-02	Drone Kits	BYOD-100	54.0	5	270.0	jzcllick84@ustream.tv#mailto:j...	Washington
12	2020-01-02	Robot Kits	BYOR-3000	214.0	2	428.0	croyled@dot.gov#mailto:croyl...	Virginia Beach
13	2020-01-02	Drones	DTE-QFN20 Drone	250.0	2	500.0	jcolhurstgu@cbsnews.com#m...	Sacramento

Challenge 4 : Dashboard

Sales Performance Dashboard

Product Category ▾

Product ▾

City ▾

Year ▾

Total Sales
\$1,754,750.57

Total Order Quantity
11,654

Total Order
3,339

Total Sales and Order Quantity by City

City	Total Sales ▾	Order Quantity
1. Washington	\$55,381.94	308
2. Houston	\$33,761.49	249
3. Sacramento	\$33,380.2	153
4. San Diego	\$29,228.59	203
5. Albany	\$25,405.88	109
6. Springfield	\$25,060.65	149
7. Miami	\$24,833.45	138
8. El Paso	\$24,457.14	137
9. Phoenix	\$24,085.28	124
10. Philadelphia	\$23,845.26	139

1 - 10 / 361 < >

Monthly Total Sales Trend



Total Sales by Product

Product	Total Sales ▾
1. MICR-23K Robot	\$157,325
2. RWW-75 Robot	\$120,971
3. RLK-9920 Robot	\$120,927
4. RQTE-554 Robot	\$116,280
5. RCB-889 Robot	\$114,192

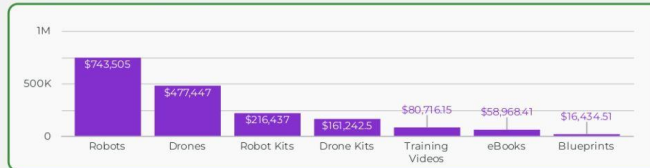
1 - 5 / 69 < >

Order Quantity by Product

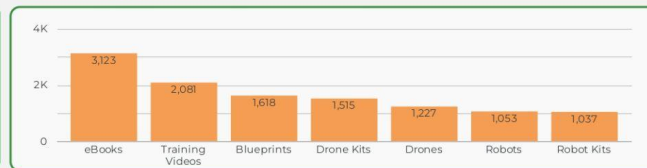
Product	Order Quantity ▾
1. Sleepy Eye Blueprint	312
2. DTI-84 Drone	231
3. AI for Educators	211
4. Building Your Own Drone	210
5. RCB-889 Robot	208

1 - 5 / 69 < >

Product Category by Total Sales



Product Category by Order Quantity



Insights

- The total sales recorded from 2020 until 2021 is \$1,754,750.57, with a total of 11,654 items sold across 3,339 orders.
- There is a negative year-over-year growth rate of -7.85%, indicating that overall sales have declined compared to the previous year.
- Washington is the top-performing city, generating the highest total sales of \$55,381.94 and also leading in order quantity with 308 items. It is followed by Houston, with \$33,769.49 total sales and 249 items sold.
- The top 5 product categories by total sales are Robots, Drones, Robot Kits, Drone Kits, and Training Videos. Robots contribute the most, generating \$743,505, which is significantly higher than the next category, Drones, at \$477,447.
- Robots dominate the product sales with all of Robots products are the highest total sales products.
- On the other hand, the top 5 product categories by order quantity are eBooks, Training Videos, Blueprints, Drone Kits, and Drones. eBooks lead with 3,123 items sold, with Training Videos in the second position with 2,081 items, and followed by Blueprints with 1,618 items.
- The highest-selling product by order quantity is Sleepy Eye Blueprint with 312 items sold, followed by DTI-84 Drone and AI for Educators training video.
- Monthly total sales trends reveal inconsistent performance throughout the year, suggesting seasonal influences or fluctuating demand.

Recommendations

- Maintain inventory availability. Ensure that top-performing products are consistently well-stocked to avoid missed sales opportunities and maximize revenue potential during high-demand periods.
- Launch Strategic Product Bundles. Several product categories show lower order volumes but deliver decent returns. Creating bundles that pair high-demand products with lower-volume, high-margin items can drive upselling opportunities and increase overall basket size.
- Introduce Targeted Promotions for High-Value Products. Products like robots generate substantial revenue but have relatively low order quantities. Introducing limited-time promotions or discounts can help stimulate customer interest and drive more frequent purchases.
- Leverage High-Performing Cities for Marketing Initiatives. Cities such as Washington and Houston demonstrate strong sales performance. Use these locations for exclusive product launches, localized campaigns, or pilot promotions to maximize impact.
- Implement Seasonal Campaigns. Tailor promotions around seasonal trends or events to maintain momentum during off-peak periods. A well-planned seasonal calendar can help stabilize monthly sales and reduce revenue dips.

Dashboard and GitHub

Looker : <https://lookerstudio.google.com/reporting/bf6841be-7228-41ea-9272-543a3aec5bf7>

GitHub : https://github.com/meeeeeeeel/VIX_BIAnalyst_BankMuamalat

Video Presentation Here

YouTube : <https://youtu.be/3F-Fe6wTIZw>

Thank You



Rakamin
Academy



Bank
Muamalat