

PROJECT WALKTHROUGH

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# END-TO-END SQL DATA ANALYSIS PROJECT

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AHMAD FADLAN AMIN

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ABOUT AUTHOR

REFERENCE LINK



GITHUB  
REPOSITORY



SPREADSHEET  
DATABASE



TABLEAU PUBLIC  
PROFILE



BRIEF SUMMARY AND  
INSIGHTS

# project OVERVIEW

This End-to-End project showcase the the process of data analysis started from designing a relational database of a 'hypothetical' quick-commerce company, until gathering meaningful insights from an interactive dashboards.

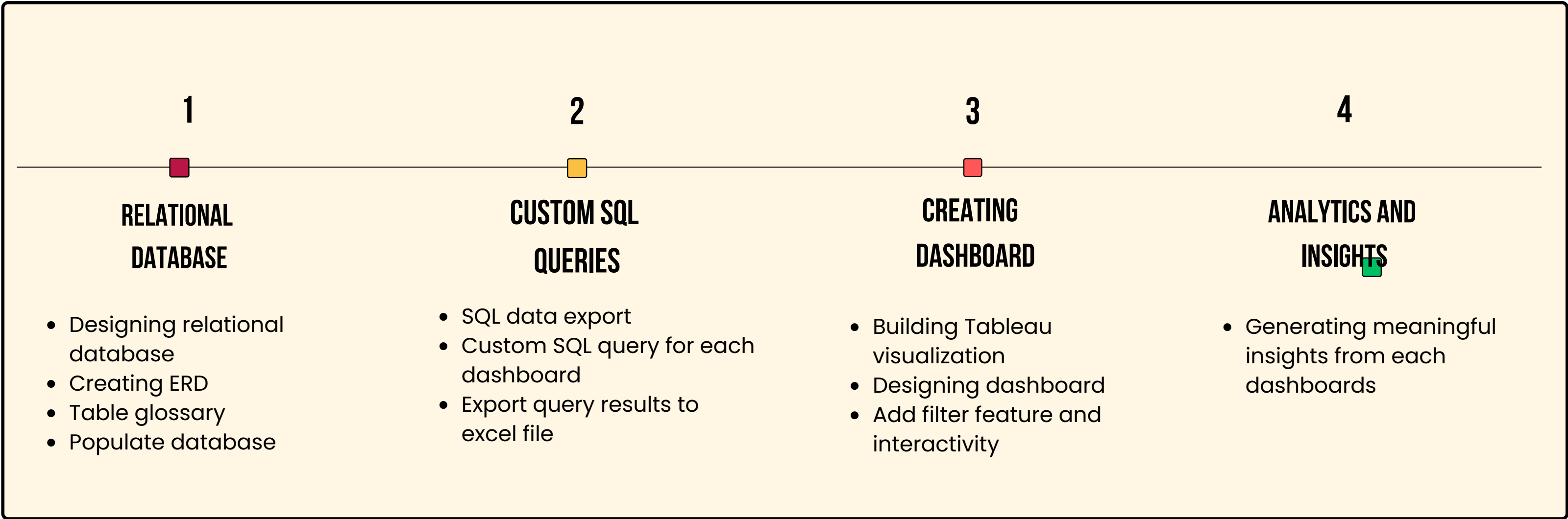
# project OVERVIEW

This project will focused on company's sales performance, customer demographic and database product competitiveness in which 'dummy' database will be creating revolving these fields. Some aspects of the data will be randomize to avoid expected results, with 5 months time frame, from June - October 2023. Each dashboards have filtered feature and interactivity to help better understand the data that are being visualized.

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**Store Dash** is an 'online convenience store' quick-commerce that provides groceries and other retail products, varies from snacks thru electronics products, with 1 hour delivery time , currently available within 5 city in Indonesia.

# PROJECT STAGES :

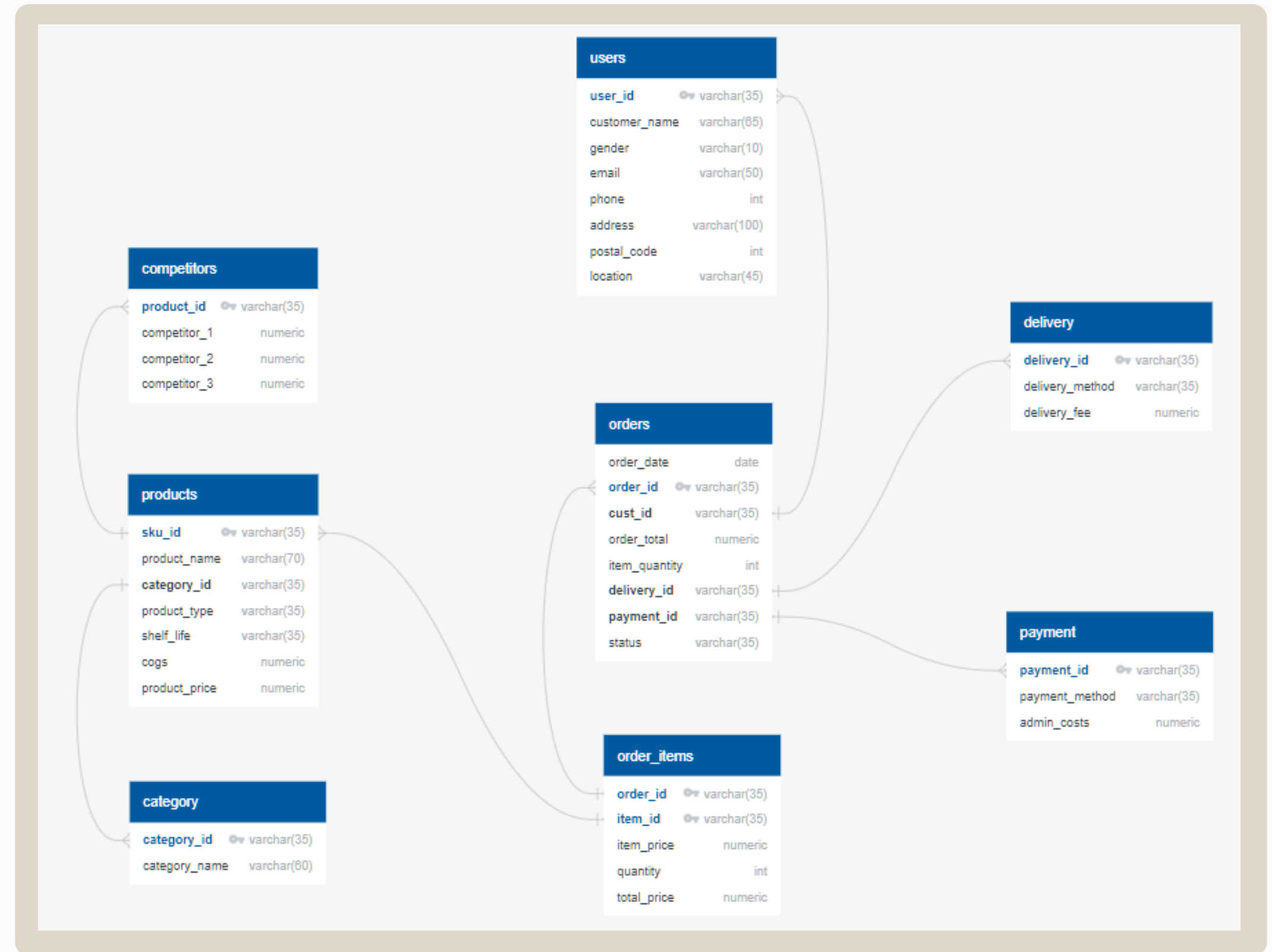


## TOOLS USED :



# RELATIONAL DATABASE

Quick DBD is used to design database  
and defining relationship for each  
table.



# RELATIONAL DATABASE

Data normalization process is used to remove redundancy and increase efficiency on database, with each table stores data varies of different fields that focuses on sales, customer and products. ERD is used as guidance to export SQL code of Quick DBD to create SQL database table that are going to be used for queries.

# POPULATE DATABASE

Store Dash database consists of 8 table that stores varying number of data. It consists of 270 unique products with detailed data, 121 customers information and 2785 unique orders with timeframe of June 1 2023 through October 31 2023. Database is populated in spreadsheet, along with table glossary and ERD diagram, and is converted to csv file



# TABLE GLOSSARY

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- Products : Stored data of detailed product information, cogs and selling price.
- Category : Stored data of product categories or group with similar characteristics
- Competitors : Stored data of competitor prices for each products
- Users : Stored data of detailed users information
- Order Items : Stored data of detailed orders information for each item
- Orders : Stored data of detailed orders information of each products sold
- Payment : Stored data of detailed payment information
- Delivery : Stored data of detailed delivery information

Store Dash Database

*\*link to database, table glossary and entity relational  
database in spreadsheet format*

SQL code is exported from ERD of QuickDBD to create tables of SQL database using PostgreSQL. To fill these tables, populated spreadsheet data is converted into the SQL tables through CSV files to fill the tables.

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# CUSTOM SQL QUERIES

# CUSTOM SQL QUERIES

Each dashboard will need visualize the following data :

- Sales Overview Dashboard : KPI (Sales, Gross Profit, Profit Margin, Orders Total), Sales Trend, Top Selling Categories
- Customer Demographic Dashboard : Total Customer, Total Sales, Average Spending, Average Orders grouped by gender and location
- Product Competitiveness Dashboard : Competitiveness Mapping (Quantity Sold over Max Price Gap), Competitiveness Level, Quantity of each product type

# DATA NEEDED FOR EACH DASHBOARD

<i>*link to github repository folder and sql query file</i>		
<ul style="list-style-type: none"><li>• order_date</li><li>• order_id</li><li>• item_id</li><li>• category</li></ul>	<ul style="list-style-type: none"><li>• product_price</li><li>• cogs</li><li>• quantity</li><li>• total_price</li></ul>	<ul style="list-style-type: none"><li>• locations</li></ul>
SALES OVERVIEW		
<ul style="list-style-type: none"><li>• order_id</li><li>• cust_id</li><li>• quantity</li><li>• total_price</li></ul>	<ul style="list-style-type: none"><li>• locations</li><li>• category</li></ul>	
CUSTOMER DEMOGRAPHIC		
<ul style="list-style-type: none"><li>• category</li><li>• product_id</li><li>• prdouct_name</li><li>• product_type</li></ul>	<ul style="list-style-type: none"><li>• cogs</li><li>• <b>product margin</b></li><li>• <b>max comp price</b></li><li>• quantity sold</li></ul>	<ul style="list-style-type: none"><li>• <b>competitiveness gap</b></li></ul>
PRODUCT COMPETITIVENESS		

- product margin :  $(\text{price}/\text{cogs}) - 1$
- max comp price : +20% of competitor\_1
- competitiveness gap :  $(\text{max comp price}/\text{price}) - 1$

# DATA VISUALIZATI- ON

Query results that has been formatted into excel file is used to build a visualization using Tableau Public with filtered feature and interactivity to help better understand the data that are visualized.

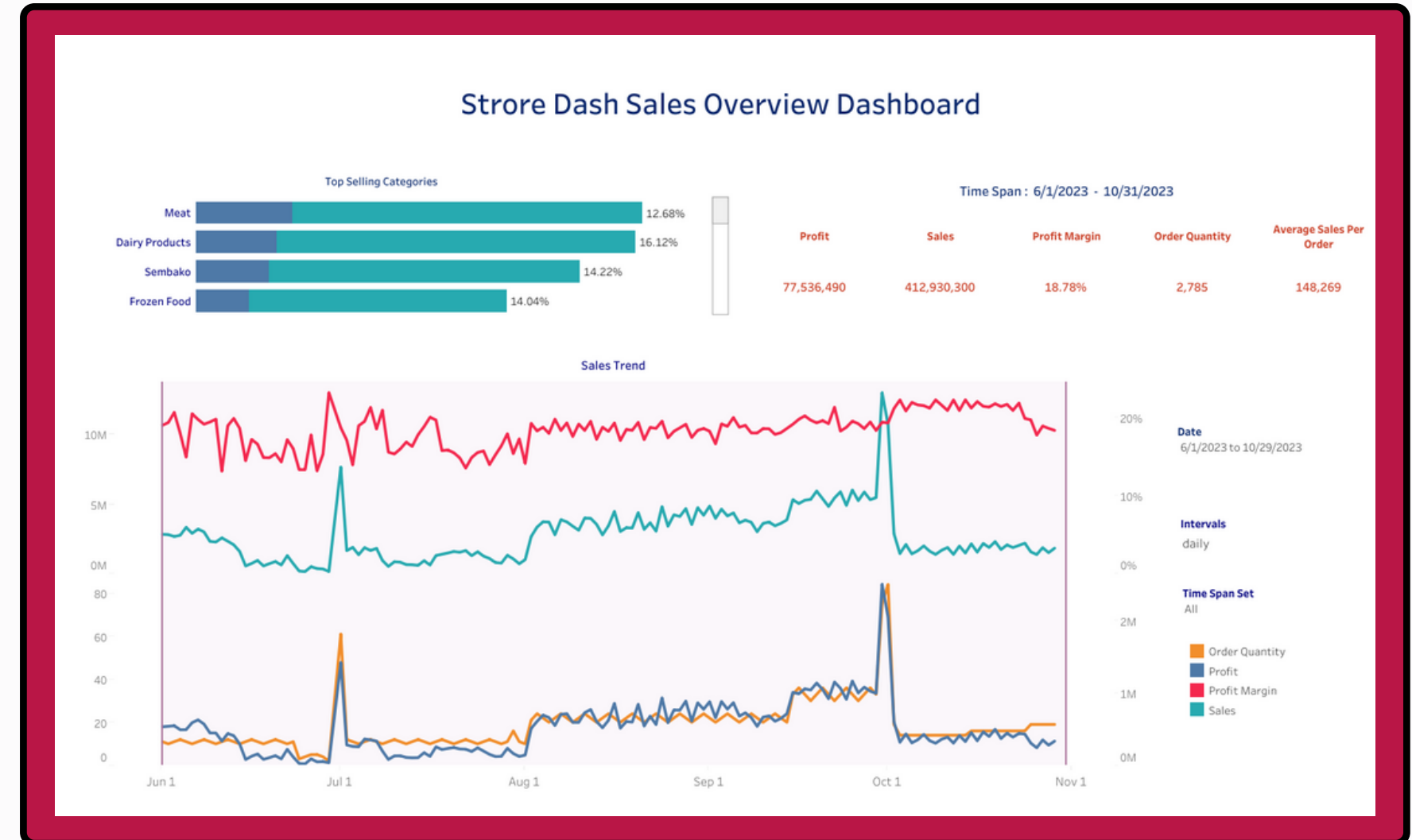
Tableau Public Profile

# SALES OVERVIEW *dashboard*

Sales Overview Dashboard present the overall sales performance, company's profitability and sales trends and of Store Dash over the span of 5 months

Information that are visualized consists of

- Key Performance Indicator : Sales, Gross Profit, Profit Margin and Orders quantity
- Sales Trend
- Top Selling Categories



[dashboard link](#)

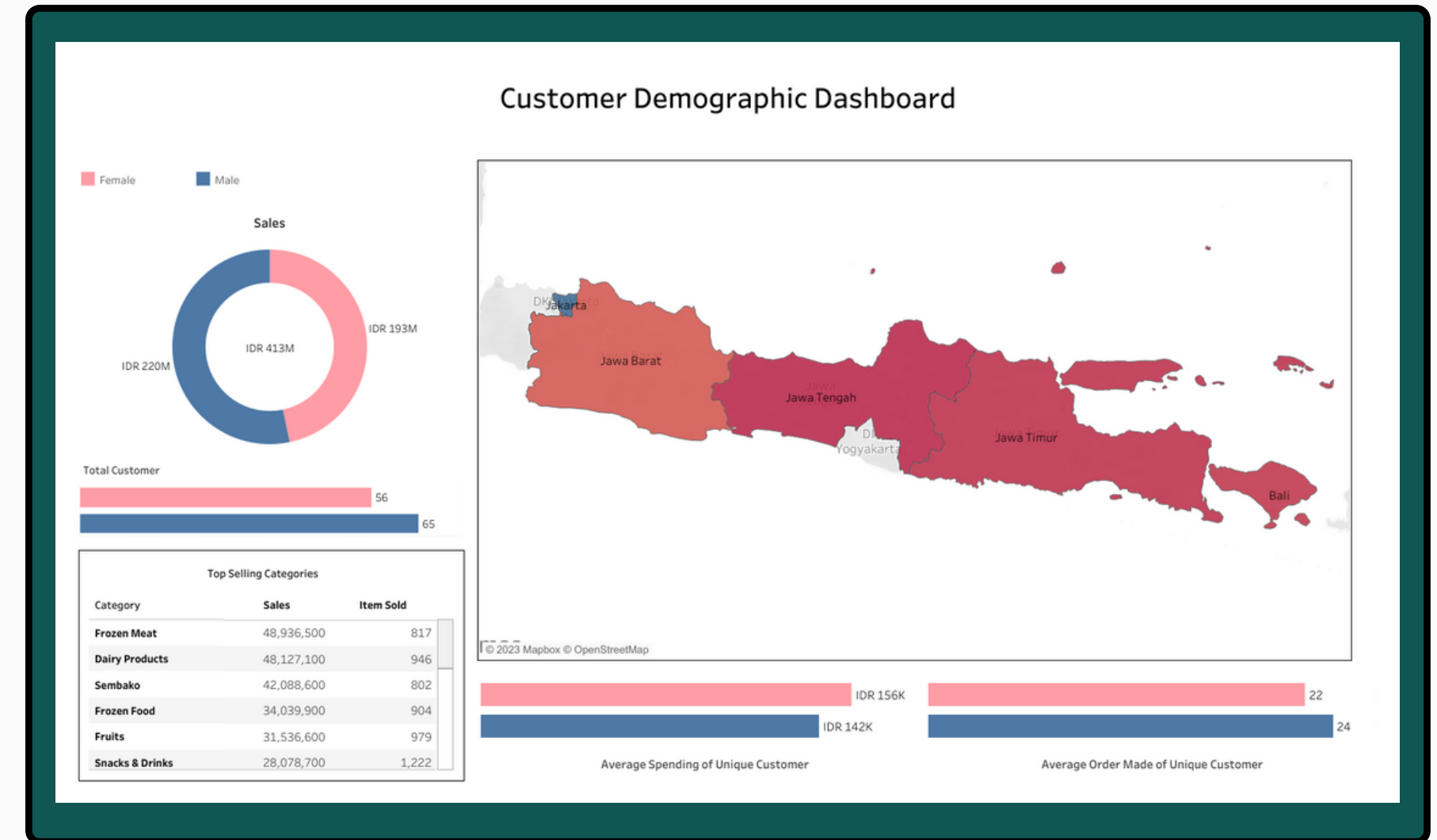
# CUSTOMER DEMOGRAPHIC *dashboard*

Customer Demographic Dashboard showcase number of customers, spending behavior and total sales based off gender and locations over the span of 5 months.

Information that are visualized consists of

- Number of customer
- Customer average spending and orders
- Total sales

Each information is grouped by gender and location.



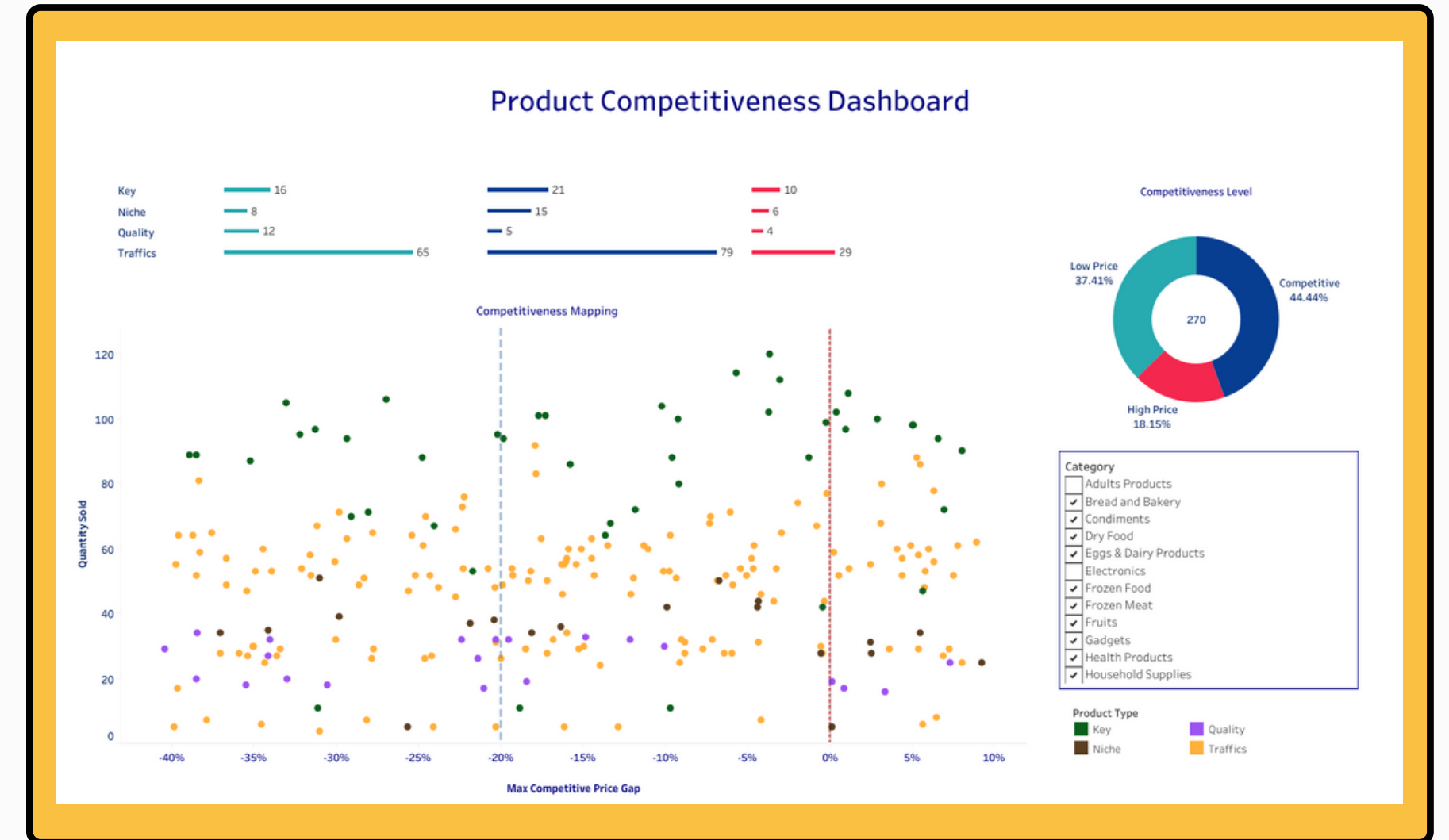
dashboard link

# PRODUCT COMPETITIVENESS *dashboard*

Product Competitiveness Dashboard illustrate competitiveness mapping of each product based off quantity sold and **\*max competitive price** and competitiveness level.

Information that are visualized consists of :

- Competitiveness Mapping
- Competitiveness Level
- Number of product for each type and its competitive level



dashboard link

*\*max comp price : +20% of competitor\_1*

*\*competitiveness gap : (max comp price/ price) - 1*

*\*Competitive Price : product price below max comp price, higher than lower threshold*

*\*High Price Products : product price higher than max comp price*

*\*Low Price Products : product price < -0.2 than max comp price*



# *project* **ANALYSIS**

## **AND**

## **INSIGHTS**

**01**

**Sales Overview  
Dashboard**

**02**

**Customer  
Demographic  
Dashboard**

**03**

**Product  
Competitiveness  
Dashboard**

413M

**Total  
Sales**

77M

**Gross  
Profit***\*in Indonesian Rupiahs*

18.78%

**Profit  
margin**

2785

**Total Order  
Quantity**

- Meat (11.85%) , Dairy Products (11.66%) and Sembako (10.22%) are the top selling categories, that cumulatively contribute to 33% of total sales
- Electronics (1.19%), Pet Care (1.03%) and Adult Products (0.97%) are the bottom of selling categories with cumulatively contributes around around 3% of total sales
- Sep 30 is the most profitable day, with total sales peak in 13M, 75 orders total and gross margin at 19.35%
- Lowest sales date is on June 29, with sales of 156K with 4 orders total.
- Highest sales increase happened in June 29 – Jul 1 with around 4400% sales increase (from 158K to 7.6M in total sales)
- Total Orders peaked in Oct 1 with 84 orders, and total sales of 10.7M

## Number of Customer

65 56

## Total Sales

*\*in Indonesian Rupiahs*

220M 193M

## Average Spending

142K 156K

• MALE • FEMALE

- On Average, male customers made around 5 orders and female customers made 4 orders monthly
- Jawa Tengah have the least number of customer 16, with total sales of 36M of around 300 orders
- Jakarta have the highest number of customer 41, with total sales of 225M of around 1200 orders, which around 4 times higher than Jawa Tengah
- Jakarta has the highest average spending with 182K per order, and Jawa Timur has the lowest average spending with 109.5K per order
- Fruits, Frozen Food and Frozen Meat are top 3 best selling categories for male customers
- Dairy Products, Frozen Meat and Sembako are top 3 best selling categories for female customers

## Total Products

270

## Competitive Products

44%

## Low Price Products

38%

## High Price Products

18%

- 
- Buah Naga Merah 1 kg (-39%) , Telur Ayam Negeri (-38%) , Indomie Kari Ayam (-35%) are 3 Key products with lowest competitiveness gap, meaning there's a potential selling price increase to raise margin
  - Chicken Nugget 250gr (8%), Pepsodent Gentle Soft (7%), Indonmie Soto (7%) are 3 key products with highest competitive gap, meaning it's recommended to lower the price to increase sales
- Sembako (70%), vegetables (61%) and frozen foods are category with most competitive products
  - Bread and Bakery category has no competitive products, have the highest high price product percentage, therefore it's recommended to decrease the price to increase sales
  - Pet Care and Frozen Meat has the highest low price product, therefore has the most potential to raise its selling price to increase margin

*competitor price for electronic products are same as price, therefore always competitive*

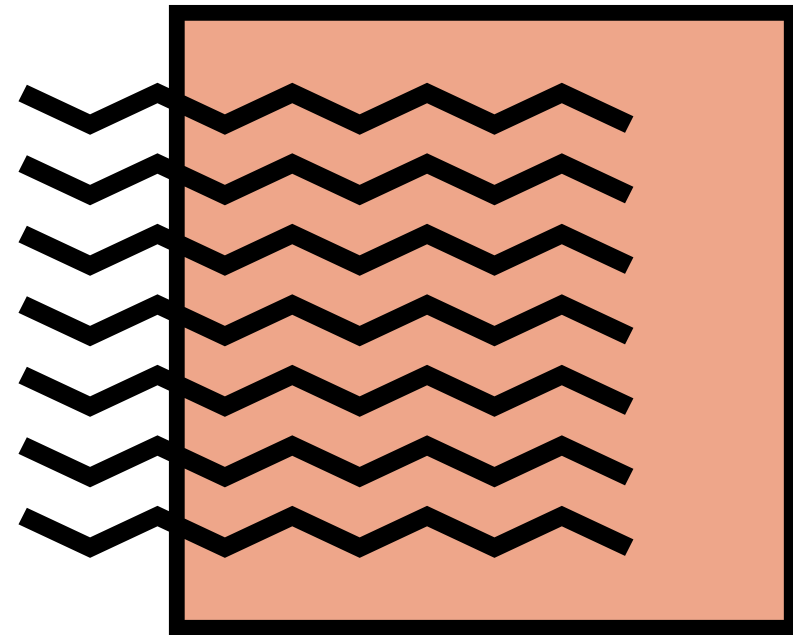
# *introduction* **ABOUT ME**

Graduated cumlaude from Bakrie University with Business Management Major and experienced working in a dynamic e-commerce environment.

With Data Analysts certification from Binar Academy and personal projects, i aspire to pursue a career in Data Analytics field.



**AHMAD  
FADLAN  
AMIN**



# THANK YOU



## LET'S GET IN TOUCH!

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