

Business Intelligence

Project Based Internship Program

Presented by
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About Me

Final-year student at Telkom University, majoring in Business Management of Telecommunications and Informatics (MBTI). Interested in business analysis, data, and project management especially how they can help solve real problems and support better decisions.



**Ahmad
Fadliansyah
Rahman**

Rahman's Data Journey

-  **Big Data Analytics coursework**
Telkom University - 2024
-  **Certified in Fundamental Data Science**
DigiTalent - 2025
-  **Certified Data Analyst**
Badan Nasional Sertifikasi Profesi - 2025



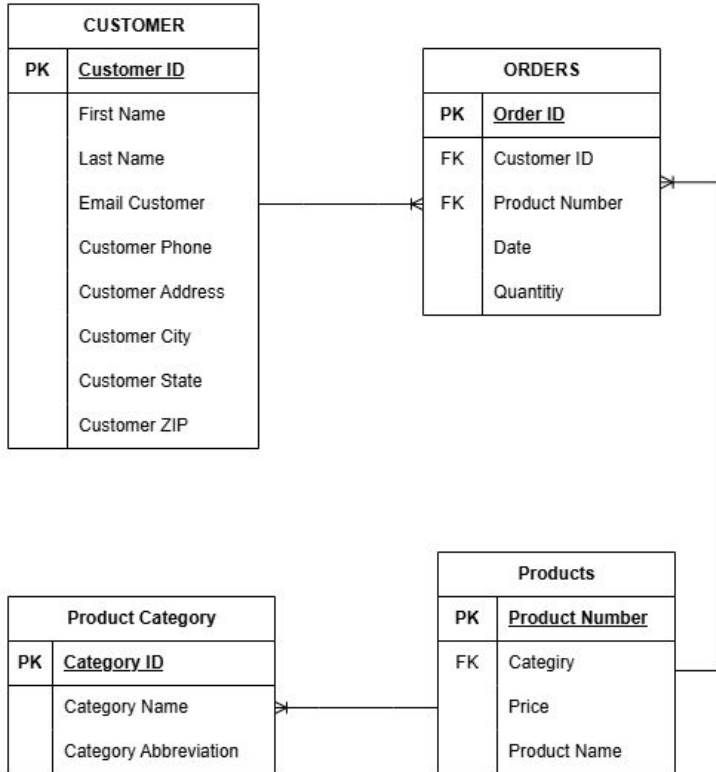
Problem Identification

The Business Challenge : Management requires data-driven strategic insights to formulate policies aimed at maintaining and increasing sales performance.

The Gap : There is currently no centralized analysis of transaction data to identify key trends, revenue-driving products/categories, or top-performing geographical city.

The Project Objective : Develop an interactive Sales Dashboard designed to extract data patterns and provide actionable strategic recommendations for management.

Identified Relation



1. CUSTOMER – ORDERS (1 : N)

➤ One customer can place many orders, but each order belongs to only one customer.

2. ORDERS – PRODUCTS (N : 1)

➤ Many orders can contain the same product, but each order refers to only one product.

3. PRODUCTS – PRODUCT CATEGORY (N : 1)

➤ Many products can belong to one category, but each product only has one category.

Implementing Relations with SQL

```
1  -- Steps 1: Join Orders and Customers
2  SELECT *
3  FROM `muamalatbi-475115.muamalat.orders` AS o
4  JOIN `muamalatbi-475115.muamalat.customer` AS c
5  ON o.CustomerID = c.CustomerID
6  LIMIT 10;
7
8
9  -- Steps 2: Add product data
10 SELECT *
11 FROM `muamalatbi-475115.muamalat.orders` AS o
12 JOIN `muamalatbi-475115.muamalat.customer` AS c
13 ON o.CustomerID = c.CustomerID
14 JOIN `muamalatbi-475115.muamalat.products` AS p
15 ON o.prodnumber = p.prodnumber
16 LIMIT 10;
17
18
19 -- Steps 3: Add Product Category & column total sales
20 SELECT
21   c.CustomerEmail,
22   o.date,
23   p.prodname,
24   p.price,
25   o.quantity,
26   (o.quantity * p.price) AS total_sales,
27   pc.CategoryName
28 FROM `muamalatbi-475115.muamalat.orders` AS o
29 JOIN `muamalatbi-475115.muamalat.customer` AS c
30 ON o.CustomerID = c.CustomerID
31 JOIN `muamalatbi-475115.muamalat.products` AS p
32 ON o.prodnumber = p.prodnumber
33 JOIN `muamalatbi-475115.muamalat.productcategory` AS pc
34 ON p.Category = pc.CategoryID
35 ORDER BY o.date ASC
36 LIMIT 10;
37
38
39
```

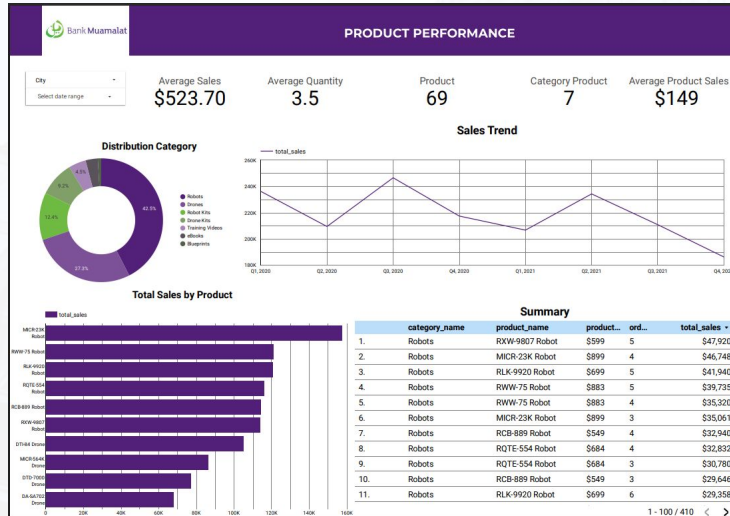
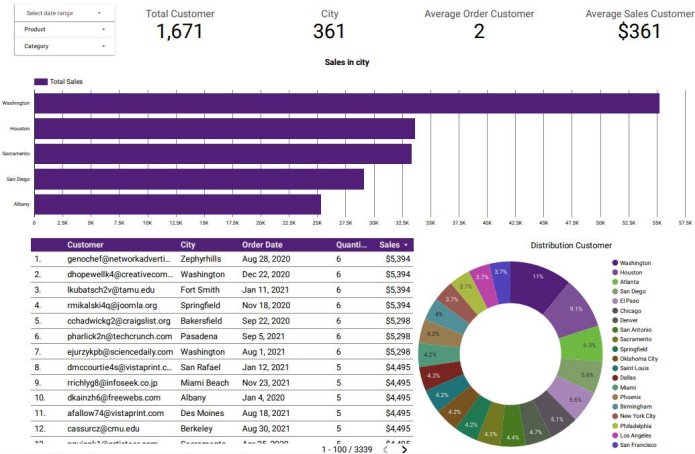
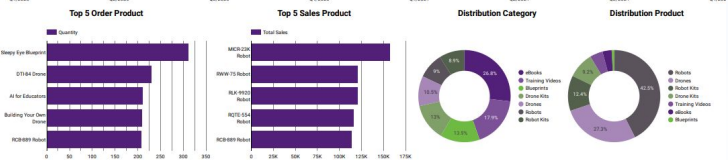
Step 1 : Joins order data with customer data to identify who made the purchase.

Step 2 : Adds product data to see what was purchased in each transaction.

Step 3 : Finalizes the report by adding categories, calculating total sales, and sorting the results by date.

Creating Master Table

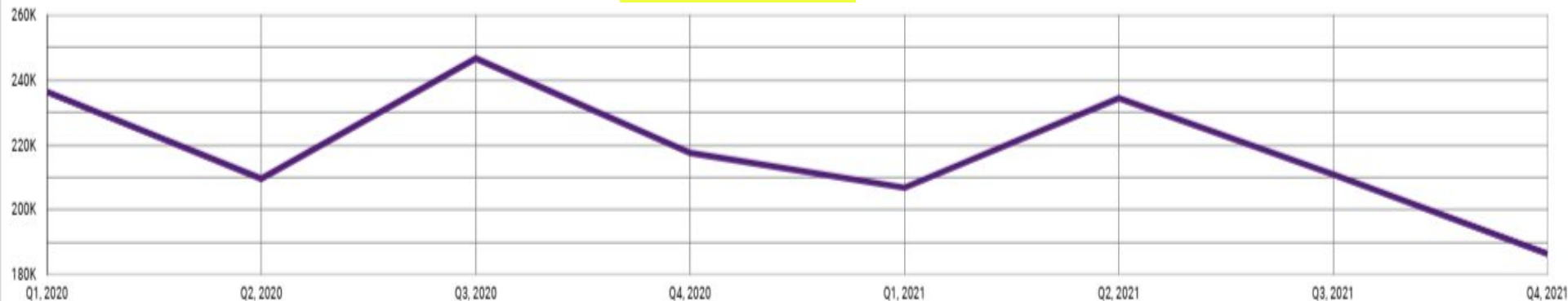
```
1  -- 📄 steps 4: Save the query result into master table
2  CREATE OR REPLACE TABLE `muamalatbi-475115.muamalat.master_table` AS
3  SELECT
4      c.CustomerEmail AS cust_email,
5      c.CustomerCity AS cust_city,
6      o.date AS order_date,
7      o.quantity AS order_qty,
8      p.prodname AS product_name,
9      p.price AS product_price,
10     pc.CategoryName AS category_name,
11     (o.quantity * p.price) AS total_sales
12 FROM `muamalatbi-475115.muamalat.orders` AS o
13 JOIN `muamalatbi-475115.muamalat.custommer` AS c
14     ON o.CustomerID = c.CustomerID
15 JOIN `muamalatbi-475115.muamalat.products` AS p
16     ON o.prodnumber = p.prodnumber
17 JOIN `muamalatbi-475115.muamalat.productcategory` AS pc
18     ON p.Category = pc.CategoryID
19 ORDER BY order_date ASC;
20
```



Dashboard Creation

Key Findings

Total Revenue



2020

Total Revenue
\$910.04K

vs

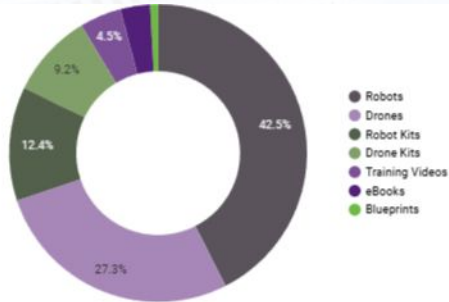
2021

Total Revenue
\$838.59K

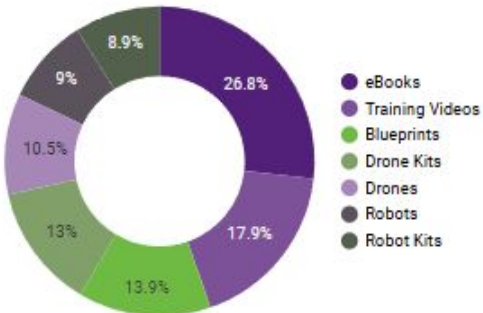
→ Total sales decreased by 7.8%, marking the lowest quarterly performance in Q4 2021 with \$187,063

Key Findings

Product Distribution



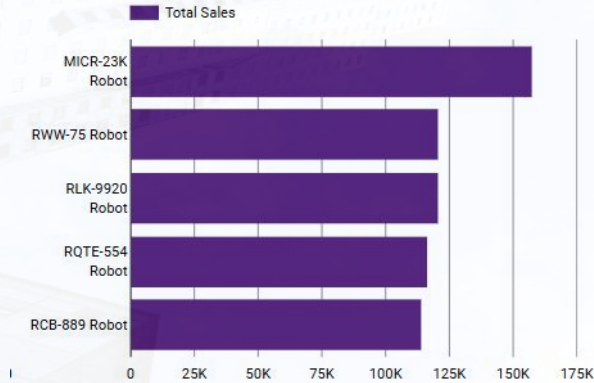
Revenue is dominated by two categories 'Robots' \$743,505 and 'Drones' \$477,447.



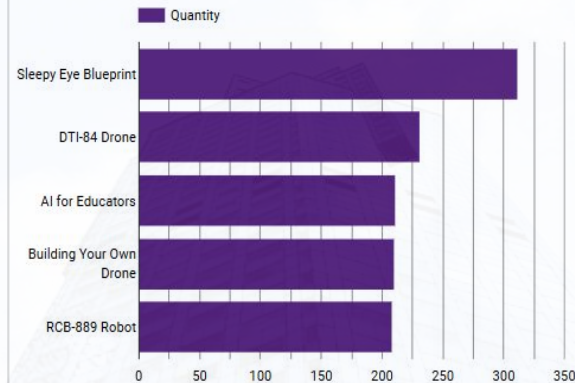
Despite being the top-selling category by quantity 26.8% or 3,123 units, 'eBooks' account for only 3.4% of total revenue (\$58.9K).

Key Findings

Best Sales Performance



Most Order Product



Sales quantity does not drive revenue as top selling items like 'Blueprint' have low financial impact.

Top City Sales



Washington is the most Top sales and have a huge gap in top 2

Key Findings

Customer Behaviour

Average Order Customer

2

Average Quantity

3.5

Average Sales

\$523.70

Average Product Sales

\$149

Average customer places **only two orders**. This low frequency is the key problem, as the average sales value (AOV) per transaction is high at \$523.70. This healthy AOV is driven by an average order quantity of 3.5 units , composed of high-value items with an average product sales price of \$149.

Summary Key Findings

Core Problem

The core business problem is not customer purchasing power, but rather a structural failure to drive repeat purchases (retention). The 7.8% revenue decline in 2021 is a symptom of this fundamental problem, which is exposed in the following key findings.

1. Core Problem - Retention Failure : Average customer orders only 2 times (avg Order customer: 2).
2. High Order Value (AOV) : Average transaction value is healthy at \$523.70 (avg sales).
3. High Risk Dependency : Revenue is concentrated in 2 categories ('Robots' & 'Drones') and 1 city (Washington D.C.).
4. Quantity vs. Revenue Paradox : The highest quantity category ('eBooks') contributes the least revenue (3.4%).
5. Slowing Trend : The lowest sales performance occurred in Q4 2021.

Action's Plan

Customer Retention Reinforcement

Drive repeat purchases and reduce churn

1. Launch a loyalty and reward program (points or cashback system)
2. Apply RFM segmentation for targeted reactivation

Expected Impact : +20% repeat orders reduced churn rate.

Product & Market Diversification

Reduce category and geographic revenue dependency

1. Introduce cross-category bundles
2. Develop mid-tier product lines for broader affordability.
3. Run geo-targeted campaigns in high-potential cities.

Expected Impact : Balanced revenue mix (<50% from top 2 categories).

Predictive Retention Analytics

Use data to predict and prevent customer churn.

1. Build a churn prediction model using transaction behavior data.
2. Set up automated alerts for high-risk customers.
3. Enable proactive outreach by personalized email or offers.

Expected Impact: Identify 80% of at-risk customers before churn occurs.

Personalized Marketing & Upselling

Increase engagement and average transaction value.

1. Recommend products based on previous purchases.
2. Automated upselling at checkout.
3. Deliver personalized email content

Expected Impact: +10% AOV increase and stronger customer engagement.

Thank You

