

E-COMMERCE BA



P4 E-Commerce BA - Customer & Purchase Analytics for Enhanced Business Growth

A Capstone Project for Associate Data Analysts

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Date: June 1, 2025

Course/Project: Capstone Project - Data Analysis Training

Agenda

- Objective of the Project
- Data Information & Overview
- General Process: Problem Statement, Research Objective, Data Understanding & Preparation, Report Creation, Conclusion
- Key Findings & Insights
- Recommendations
- Future Scope
- Q&A

Project Objective

- Integrate & apply data analysis knowledge and skills.
- Demonstrate understanding of methodologies & best practices.
- Foster professional development (time management, teamwork, problem-solving).

Business Problem Statement

- Company aims to create a robust customer base.
- Enhance overall customer experience.
- Recommend relevant products.
- Ultimately increase revenue based on available data.

Research Objective

- Generate a comprehensive report to understand customers.
- Explore dataset thoroughly.
- Develop practical and insightful solutions.

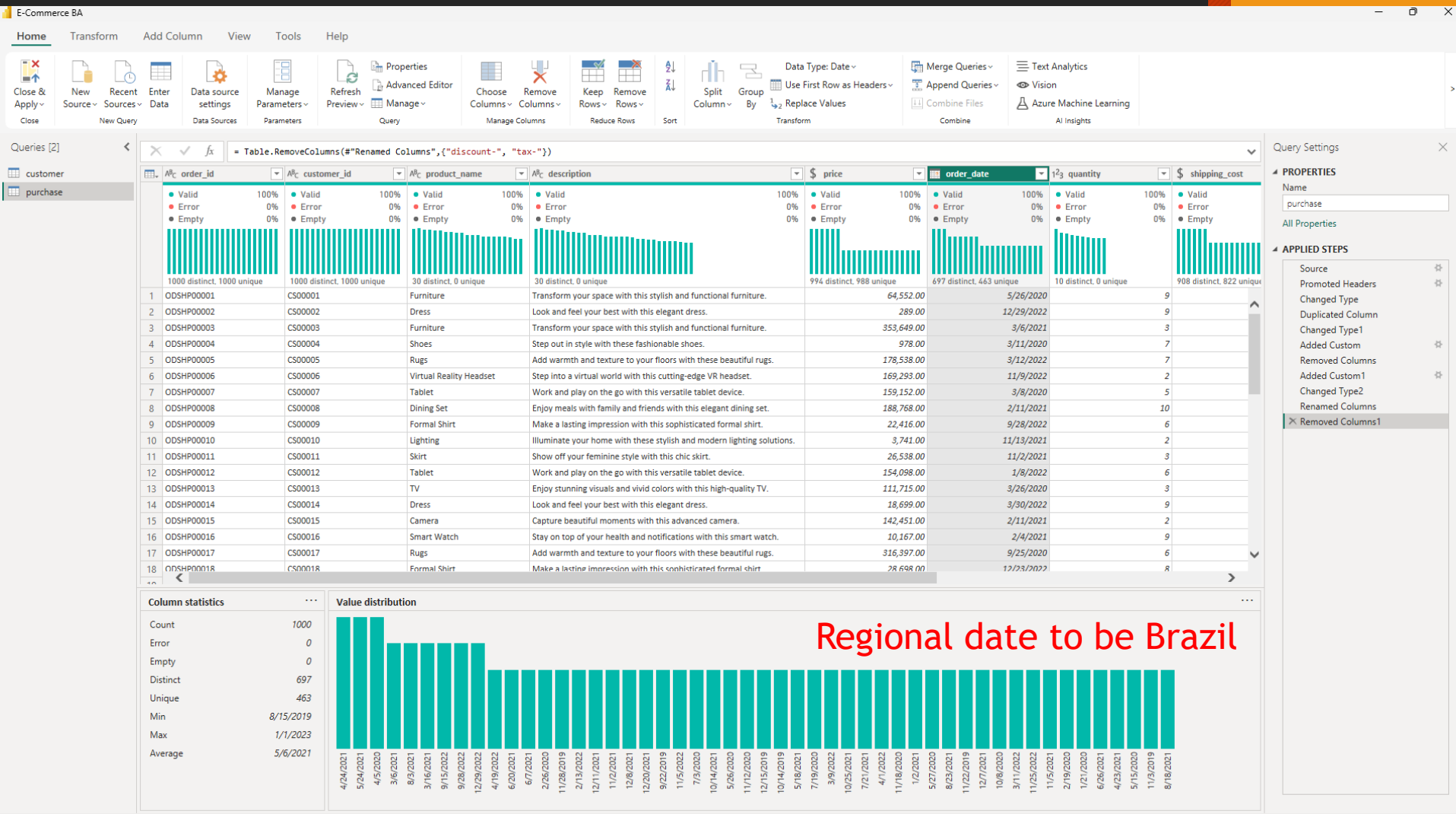
Data Information Overview

- Dataset is a subset from a Shopee, Brazil project.
- Certain columns removed for privacy.
- Contains necessary details: orders, customer demographics, products, segments, quantity, shipping costs.
- All features described in Data_Dictionary.pdf.

Data Understanding & Preparation - The Foundation

- Grasping features & relationships.
- Transforming raw data into clean, usable format.
- Crucial tasks: imputing missing values, correcting data types, deriving new custom columns.

Data Cleaning Process in Detail



Feature Engineering with DAX

Created new calculated columns & measures for deeper insights.

- Key DAX Measures & Columns:

- Total Price = Purchase[price] * Purchase[quantity]
- Discount Amount = Purchase[Total Price] * Purchase[discount]
- Tax Amount = Purchase[Total Price] * Purchase[tax]
- Net Revenue (per item) = Purchase[Total Price] - Purchase[Discount Amount] + Purchase[Tax Amount] + Purchase[shipping_cost]
- Order Year = YEAR('Purchase'[order_date])
- Order Month = FORMAT('Purchase'[order_date], "MMM")
- Delivery Days = DATEDIFF('Purchase'[order_date], 'Purchase'[shipping_date], DAY)
- Age Group and Income Level (for customer segmentation).
- Product Category (derived from product_name using SWITCH(TRUE(), CONTAINSSTRING())).
- Total Revenue = SUM(Purchase[Net Revenue])
- Total Orders = DISTINCTCOUNT(Purchase[order_id])
- Total Customers = DISTINCTCOUNT(Customer[customer_id])
- Average Order Value = DIVIDE([Total Revenue], [Total Orders], 0)
- Total Quantity Sold = SUM(Purchase[quantity])
- Number of Repeat Customers
- Average Orders Per Customer

Feature Engineering with DAX

E-Commerce BA • Last saved: Today at 5:32 PM

FileHomeHelpTable toolsColumn tools

Name

Net Revenue

Data type

Fixed decimal nu...

\$%

Format

Currency

\$%

Format

Auto

Σ

Summarization

Sum

Σ

Summarization

Uncategorized

Sort by column

Sort

Data groups

Groups

Manage relationships

Relationships

New column

Calculations

1 Net Revenue = 'Purchase'[Total Price] - 'Purchase'[Discount Amount] + 'Purchase'[Tax Amount] + 'Purchase'[shipping_cost]

order_date	quantity	shipping_cost	shipping_date	Total Price	Discount Amount	Tax Amount	Net Revenue	Order Year	Order Month	Delivery Days	Delivery Days (bins)	Product Category	discount	tax
Tuesday, April 19, 2022	2	\$2,303	Friday, April 22, 2022	\$28,666	\$2,579.94	\$286.66	\$28,675.72	2022	Apr	3		3 Apparel	0.09	0.01
Monday, January 23, 2022	2	\$2,615	Monday, February 7, 2022	\$453,384	\$63,473.76	\$4,533.84	\$397,059.08	2022	Jan	15		15 Home & Living	0.14	0.01
Friday, April 3, 2020	2	\$3,415	Friday, April 17, 2020	\$238,810	\$11,940.5	\$2,388.1	\$232,672.6	2020	Apr	14		12 Electronics	0.05	0.01
Friday, November 5, 2021	2	\$4,058	Tuesday, November 16, 2021	\$57,922	\$4,054.54	\$579.22	\$58,504.68	2021	Nov	11		9 Apparel	0.07	0.01
Friday, October 14, 2022	2	\$4,234	Thursday, October 20, 2022	\$323,246	\$38,789.52	\$3,232.46	\$291,922.94	2022	Oct	6		6 Electronics	0.12	0.01
Monday, December 15, 2019	2	\$2,349	Wednesday, December 25, 2019	\$308,052	\$38,529.88	\$3,080.52	\$254,951.64	2019	Dec	10		9 Electronics	0.19	0.01
Saturday, July 30, 2022	2	\$3,993	Friday, August 12, 2022	\$46,842	\$5,152.62	\$468.42	\$46,150.8	2022	Jul	13		12 Electronics	0.11	0.01
Thursday, October 8, 2020	2	\$4,545	Friday, October 23, 2020	\$158,122	\$41,111.72	\$1,581.22	\$123,136.5	2020	Oct	15		15 Electronics	0.26	0.01
Friday, July 23, 2021	2	\$2,467	Saturday, July 24, 2021	\$32,458	\$11,035.72	\$324.58	\$24,213.86	2021	Jul	1		0 Electronics	0.34	0.01
Monday, June 1, 2020	2	\$698	Tuesday, June 9, 2020	\$59,054	\$12,401.34	\$590.54	\$47,941.2	2020	Jun	8		6 Apparel	0.21	0.01
Monday, November 27, 2022	2	\$598	Monday, December 5, 2022	\$42,432	\$19,943.04	\$424.32	\$23,511.28	2022	Nov	8		6 Apparel	0.47	0.01
Saturday, June 11, 2022	2	\$3,923	Tuesday, June 21, 2022	\$39,328	\$12,978.24	\$393.28	\$30,666.04	2022	Jun	10		9 Electronics	0.33	0.01
Monday, December 26, 2022	2	\$788	Sunday, January 8, 2023	\$25,184	\$1,259.2	\$251.84	\$24,964.64	2022	Dec	13		12 Home & Living	0.05	0.01
Friday, October 18, 2019	2	\$2,684	Thursday, October 24, 2019	\$85,346	\$35,845.32	\$853.46	\$53,038.14	2019	Oct	6		6 Electronics	0.42	0.01
Friday, October 30, 2020	2	\$3,763	Monday, November 2, 2020	\$304,348	\$127,826.16	\$3,043.48	\$183,328.32	2020	Oct	3		3 Electronics	0.42	0.01
Tuesday, October 4, 2022	2	\$4,376	Saturday, October 15, 2022	\$17,292	\$4,668.84	\$172.92	\$17,172.08	2022	Oct	11		3 Electronics	0.27	0.01
Wednesday, May 25, 2022	2	\$3,013	Wednesday, June 1, 2022	\$49,344	\$17,270.4	\$493.44	\$35,580.04	2022	May	7		6 Apparel	0.35	0.01
Thursday, March 3, 2022	2	\$1,628	Sunday, March 6, 2022	\$59,302	\$15,418.52	\$593.02	\$46,104.5	2022	Mar	3		3 Apparel	0.26	0.01
Monday, December 29, 2022	2	\$1,044	Wednesday, January 11, 2023	\$379,866	\$68,375.88	\$3,798.66	\$316,332.78	2022	Dec	13		12 Electronics	0.18	0.01
Monday, March 23, 2022	2	\$2,679	Tuesday, April 5, 2022	\$25,562	\$1,533.72	\$255.62	\$26,962.9	2022	Mar	13		12 Apparel	0.06	0.01
Monday, June 28, 2021	2	\$3,991	Monday, July 5, 2021	\$17,348	\$2,949.16	\$173.48	\$18,563.32	2021	Jun	7		6 Apparel	0.17	0.01
Sunday, August 16, 2020	2	\$4,911	Monday, August 17, 2020	\$373,354	\$18,667.7	\$3,733.54	\$363,330.84	2020	Aug	1		0 Electronics	0.05	0.01
Monday, January 21, 2021	2	\$491	Friday, January 22, 2021	\$247,030	\$81,519.9	\$2,470.3	\$168,471.4	2021	Jan	1		0 Electronics	0.33	0.01
Monday, September 28, 2019	2	\$2,689	Friday, October 11, 2019	\$55,112	\$551.12	\$551.12	\$57,801	2019	Sep	13		12 Apparel	0.01	0.01
Monday, December 8, 2021	2	\$2,848	Wednesday, December 22, 2021	\$311,092	\$136,880.48	\$3,110.92	\$180,170.44	2021	Dec	14		12 Electronics	0.44	0.01
Monday, March 17, 2021	2	\$3,709	Sunday, March 21, 2021	\$837,428	\$16,748.56	\$8,374.28	\$832,762.72	2021	Mar	4		3 Electronics	0.02	0.01
Monday, March 17, 2021	2	\$3,039	Wednesday, March 31, 2021	\$207,026	\$84,880.66	\$2,070.26	\$127,254.6	2021	Mar	14		12 Electronics	0.41	0.01
Saturday, July 9, 2022	2	\$1,031	Monday, July 18, 2022	\$388,596	\$15,543.84	\$3,885.96	\$377,969.12	2022	Jul	9		9 Home & Living	0.04	0.01
Monday, January 5, 2022	2	\$2,471	Sunday, January 9, 2022	\$179,364	\$34,079.16	\$1,793.64	\$149,549.48	2022	Jan	4		3 Electronics	0.19	0.01
Thursday, April 9, 2020	2	\$3,849	Monday, April 20, 2020	\$18,732	\$8,054.76	\$187.32	\$14,713.56	2020	Apr	11		9 Apparel	0.43	0.01
Monday, February 1, 2020	2	\$3,709	Saturday, February 1, 2020	\$2,750	\$1,155	\$27.5	\$5,331.5	2020	Feb	0		0 Apparel	0.42	0.01
Monday, May 24, 2021	2	\$4,614	Wednesday, June 2, 2021	\$34,142	\$1,365.68	\$341.42	\$37,731.74	2021	May	9		9 Apparel	0.04	0.01
Friday, January 1, 2021	2	\$4,915	Tuesday, January 5, 2021	\$151,802	\$65,274.86	\$1,518.02	\$92,960.16	2021	Jan	4		3 Home & Living	0.43	0.01
Friday, May 14, 2021	2	\$2,071	Sunday, May 23, 2021	\$53,742	\$2,149.68	\$537.42	\$54,200.74	2021	May	9		9 Apparel	0.04	0.01
Monday, November 8, 2019	2	\$1,882	Thursday, November 14, 2019	\$301,450	\$102,493	\$3,014.5	\$203,853.5	2019	Nov	6		6 Home & Living	0.34	0.01
Monday, December 9, 2019	2	\$2,345	Thursday, December 12, 2019	\$240,468	\$16,832.76	\$2,404.68	\$228,384.92	2019	Dec	3		3 Electronics	0.07	0.01
Friday, October 9, 2020	2	\$4,205	Wednesday, October 21, 2020	\$17,624	\$704.96	\$176.24	\$21,300.28	2020	Oct	12		12 Home & Living	0.04	0.01
Friday, May 1, 2020	2	\$265	Tuesday, May 5, 2020	\$634,490	\$272,830.7	\$6,344.9	\$368,269.2	2020	May	4		3 Home & Living	0.43	0.01
Monday, February 17, 2021	2	\$931	Thursday, March 4, 2021	\$72,824	\$26,944.88	\$728.24	\$47,538.36	2021	Feb	15		15 Electronics	0.37	0.01

Data

Search

customer_id

Σ NumberOfOrders

Dates

purchase

customer_id

DAX measure

Average Orders Per Custo...

Customer Count

Orders per Customer

Total Orders

Total Quantity Sold

Total Revenue

Total Unique Customers

DAX new column purchase

Discount Amount

Net Revenue

Order Month

Order Year

Product Category

Tax Amount

Total Price

Delivery Days

Delivery Days (bins)

description

discount

order_date

order_id

price

product_name

quantity

shipping_cost

shipping_date

tax

Data	
Search	
customer_id	
NumberOfOrders	
Dates	
purchase	
customer_id	
DAX measure	
Average Orders Per Custo...	
Customer Count	
Orders per Customer	
Total Orders	
Total Quantity Sold	
Total Revenue	
Total Unique Customers	
DAX new column purchase	
Discount Amount	
Net Revenue	
Order Month	
Order Year	
Product Category	
Tax Amount	
Total Price	
Delivery Days	
Delivery Days (bins)	
description	
discount	
order_date	
order_id	
price	
product_name	
quantity	
shipping_cost	
shipping_date	
tax	

Report Creation & Key Performance Indicators (KPIs)

- Created professional report with clear client findings.
- Included important KPIs for actionable information.
- Focused on intuitive and informative Power BI dashboards.

Dashboard 1: Executive Summary - Overall Performance

E-Commerce – Business Analytics

Monthly Revenue Trend



\$31.88bn

Total Revenue

101M

Total Orders

1001

Total Customers

2.02K

Average Order Value

275K

Total Quantity Sold

Top 10 Products by Revenue



Order Year

2019

2023

Order Month

Select all

Apr

Aug

Dec

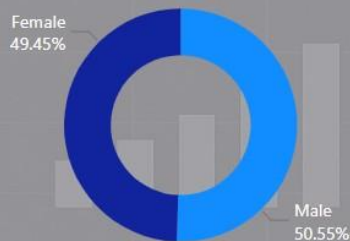
Feb

Jan

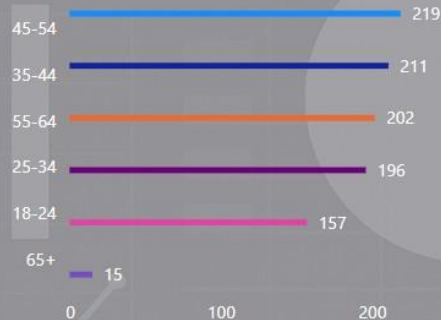
Dashboard 2: Customer Demographics and Behavior

E-Commerce – Business Analytics

Number of Customers by Gender



Number of Customers by Age Group



Customers by Country



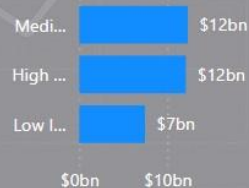
41.34

Average Age of Cust

\$84.63K

Average of income

Total Revenue by Gender



Total Revenue by Gender



Total Rev by Income Level

- ☒ Select all
- ☒ Brazil
- ☒ Chile
- ☒ Female
- ☒ Male

Dashboard 3: Product Performance and Insights

E-Commerce – Business Analytics

Top N Products by Quantity Sold



Revenue by Product Category



50.00K

Total Unique Products ...

\$637.5K

Average Price of Produ...

Total Rev by Incom...

☒ Select all

☒ Activewear Set

Price vs. Quantity Sold



Product Performance

Product name	Total quantity	Total Revenue
Activewear Set	9342	\$114,890,532.69
Appliance Set	9195	\$1,745,259,549.94
Bedding	9007	\$1,657,819,433.2
Camera	9354	\$771,834,857.48
Curtains	9329	\$1,870,202,866.57
Dining Set	8947	\$1,765,339,205.76
Dress	8709	\$105,916,969.52
Formal Shirt	9084	\$109,718,197.11
Furniture	9442	\$1,773,389,795.73
Gaming Console	9253	\$759,693,085.07
Total	274878	\$26,245,798,658.56

Dashboard 4: Shipping and Logistics Performance

E-Commerce – Business Analytics

\$2.5K

Average Shipping Cost ...

7.49

Average of Delivery Days

Average Shipping Cost
by Country

[Brazil](#)

[Chile](#)

\$2.51K

\$2.5K

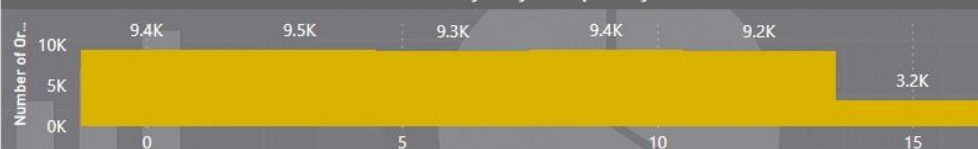
[Colombia](#)

[Mexico](#)

\$2.51K

\$2.49K

Delivery Day Frequency



Average Delivery Days Over Time



Orders with longest delivery times

Delivery Days	product_name	Net Revenue	country
3878	Curtains	\$566,594,867.01	Colombia
3396	Lighting	\$523,720,803.19	Colombia
3525	Kitchen Appliances	\$514,846,497.12	Colombia
3642	Wall Art	\$514,654,122.78	Colombia
3589	Rugs	\$513,487,241.37	Colombia
374434		\$26,245,798,658.56	

country, order_date, ship...

☒ Brazil

☒ Chile

☒ Colombia

☒ Mexico

Dashboard 5: Customer Segmentation and Recommendation Opportunities

E-Commerce – Business Analytics

Top Customers by Total Revenue

first_name	last_name	country	Total Revenue
Daniela	Cardoso	Brazil	\$27,319,154.93
Daniela	da Rocha	Brazil	\$26,761,977.14
Juan	Araújo	Brazil	\$25,159,308.14
Juan	da Rocha	Brazil	\$24,068,778.65
Pedro	Carvalho	Brazil	\$31,211,081.32
Pedro	Dias	Brazil	\$31,249,005.87
Total			\$2,718,121,528.3

49.95

Average Orders Per Customer

1001

Number of Repeat Customers

Customer Count by Number of Orders



product_name

- ☒ Select all
- ☒ Activewear Set
- ☒ Appliance Set
- ☒ Bedding
- ☒ Camera
- ☒ Curtains
- ☒ Dining Set
- ☒ Dress
- ☒ Formal Shirt
- ☒ Furniture
- ☒ Gaming Console
- ☒ Headphones
- ☒ Home Decor
- ☒ Jacket
- ☒ Jeans

Conclusion & Key Insights

- Majority customers within [Age Group] and [Income Level] segments (target audience).
- Product X consistently drives highest revenue (focus promotion).
- Noticeable increase in delivery days during [specific period] (investigate logistics).

Recommendations

- Develop targeted marketing campaigns for [Age Group] segment promoting frequently purchased products.
- Investigate supply chain optimizations for [Product X] to ensure consistent availability & reduce shipping costs.
- Implement loyalty program for high-income customers to foster repeat purchases.

Future Scope

- Conduct deeper market basket analysis for product bundling opportunities.
- Implement predictive analytics to forecast demand for specific products.
- Integrate customer feedback data for enhanced customer experience.
- Explore geo-spatial analysis for optimizing shipping routes & inventory.

Questions & Discussion