رواد مصر الرقمية

Graduation Project

ONL4-DAT1-G3

About the Project

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E-COMMERCE SALES & CUSTOMER BEHAVIOR ANALYSIS

About the Project

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UNDER SUPERVISION OF:

PROF. DR. AHMED ISMAIL

GROUP #2

Bola Mourise

Amany Aly

Al Zahraa Samir

LEADER: Asmaa Ismail

Project Overview

Analyze customer purchasing behavior and sales performance.

Data collected from United Kingdom, Germany, Canada, and Australia.

Covers transactions from 2023–2024.

Includes customer demographics: Age, Gender, Income Level, and Segmentation.

High Data Volume Challenge:

Discovery: The dataset was exceptionally large, containing **294,438 rows** of transactional records, which required optimized processing to avoid system lag during analysis.

Action Taken: Utilized Power Query's efficient indexing and data loading capabilities to handle the massive volume smoothly, ensuring performance stability while building visualizations.

294,438

Rows

Objectives

Time-Series Analysis: Evaluate sales trends, seasonality, and diagnose the 2023-2024 revenue drop using YoY metrics.

Customer Segmentation: Identify high-value segments (New, Regular, Premium) based on purchase frequency and total spend.

Demographic & Geographic Mapping: Analyze how age, gender, income, and location drive purchasing behavior.

Actionable Recommendations: Deliver interactive dashboards to optimize marketing campaigns and business strategies.

Data Cleaning

Using Excel-Power Query to clean, transform, and handle data anomalies, replacing errors to ensure data integrity and readiness for analysis.

Transactio	Customer_	Name	Email	Phone	Address	City	State	Zipcode	Country	Age	Gender	Income	Customer_	Date	Year	Month	Time	Total_Purc	Amount	Total_Amo	Product_C	Product
8691788	37249	Michelle H	Ebony39@	1.4E+09	3959 Amai	Dortmund	Berlin	77985	Germany	21	Male	Low	Regular	#######	2023	Septembe	22:03:55	3	108.029	324.086	Clothing	Nike
2174773	69749	Kelsey Hill	Mark36@g	6.9E+09	82072 Dav	Nottinghar	England	99071	UK	19	Female	Low	Premium	#######	2023	December	8:42:04	2	403.354	806.708	Electronic	Samsur
6679610	30192	Scott Jens	Shane85@	8.4E+09	4133 Your	Geelong	New South	75929	Australia	48	Male	Low	Regular	#######	2023	April	4:06:29	3	354.478	1063.43	Books	Penguir
7232460	62101	Joseph Mil	Mary34@g	2.8E+09	8148 Thor	Edmonton	Ontario	88420	Canada	56	Male	High	Premium	5/8/2023	2023	May	14:55:17	7	352.408	2466.85	Home Dec	Home D
4983775	27901	Debra Cole	Charles30	9.1E+09	5813 Lori	Bristol	England	48704	UK	22	Male	Low	Premium	#######	2024	January	16:54:07	2	124.277	248.553	Grocery	Nestle
6095326	41289	Ryan Johns	Haley12@	3.3E+09	532 Ashley	Brisbane	New South	74430	Australia	58	Female	Medium	Premium	#######	2023	Septembe	23:24:27	4	296.292	1185.17	Electronic	Apple
5434096	97285	Erin Lewis	Arthur76@	1.6E+09	600 Brian	Kitchener	Ontario	47545	Canada	29	Female	Low	New	#######	2023	June	13:35:51	2	315.058	630.115	Electronic	Samsur
2344675	26603	Angela Fiel	Tanya94@	3.7E+09	237 Young	Munich	Berlin	86862	Germany	29	Male	Medium	Premium	#######	2023	March	10:12:56	1	46.5881	46.5881	Clothing	Zara
4155845	80175	Diane Clar	Martin39@	6.2E+09	8823 Mari	Wollongor	New South	39820	Australia	46	Male	Medium	New	1/6/2024	2024	January	14:38:26	8	328.839	2630.71	Grocery	Nestle
4926148	31878	Lori Bell	Jessica33	6E+09	6225 Willi	Cologne	Berlin	64317	Germany	25	Male	Medium	New	#######	2023	October	22:27:40	10	397.611	3976.11	Home Dec	Home D
8493213	19136	Jonathan E	Mark38@g	3E+09	9772 Sosa	Portsmout	England	59280	UK	64	Female	Low	Regular	#######	2023	July	23:06:51	4	90.9819	363.927	Home Dec	Home D
1609659	66883	Brianna Oc	David47@	9.4E+09	95471 Jerr	Portsmout	England	91253	UK	31	Female	Medium	Regular	#######	2023	June	13:09:58	1	364.831	364.831	Books	Randon
2846832	31930	Kristine Wi	Charles29	1.8E+09	60629 Jon	Portsmout	England	38173	UK	56	Female	Medium	Regular	1/2/2024	2024	January	0:00:47	10	161.879	1618.79	Grocery	Coca-C
3217461	74671	Felicia Bro	Laura72@	8.9E+09	381 Richar	Portsmout	England	32061	UK	53	Female	Medium	Regular	5/7/2023	2023	May	18:49:35	9	350.817	3157.35	Grocery	Nestle
2401331	98300	Andrew Gu	Eric76@gm	2.9E+09	470 Rodrig	Portsmout	England	5259	UK	32	Female	High	Regular	#######	2023	November	23:41:05	6	297.726	1786.36	Clothing	Adidas
4969987	64995	Justin Lara	Jacob26@	2.7E+09	3577 Cole	Portsmout	England	9845	UK	43	Male	Medium	Regular	#######	2023	June	23:24:22	3	23.7239	71.1717	Books	Randon
6681000	69939	Jessica Ha	Anne45@g	2.5E+09	93806 Mu	Portsmout	England	84007	UK	69	Male	Low	Regular	7/1/2023	2023	July	11:12:02	10	14.7272	147.272	Grocery	Pepsi
2430572	71803	Alicia Knig	Jennifer1@	6.3E+09	9856 Meye	Portsmout	England	91967	UK	19	Female	High	Regular	#######	2023	April	5:50:55	3	139.787	419.361	Electronic	Apple
7728099	78376	Ronald Ch	Nicole72@	1.8E+09	6048 Char	Portsmout	England	82975	UK	49	Male	Low	Regular	2/7/2024	2024	February	18:29:59	1	210.138	210.138	Grocery	Coca-C
3489336	40654	Sara Roger	Jeff99@gm	2.7E+09	6048 Char	Portsmout	England	3035	UK	69	Male	Low	Regular	#######	2023	October	13:01:04	2	469.66	939.319	Home Dec	IKEA
6925572	42165	Daniel Hut	Oscar54@	9.6E+09	37402 Wil	Portsmout	England	29119	UK	46	Male	Low	Regular	#######	2023	March	11:51:41	6	420.875	2525.25	Grocery	Nestle
8871554	63914	Joshua No	Diana25@	5.4E+09	7467 Henr	Portsmout	England	16385	UK	61	Male	High	Regular	8/6/2023	2023	August	5:13:31	4	200.287	801.149	Books	HarperC

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2174773	69749	Kelsey Hill	Mark36@g	6.9E+09	82072 Dav	Nottinghar	England	99071	UK	19	Female	Low	Premium	########	2023	December	8:42:04	2	403.354	806.708	Electronic	Samsur
6679610	30192	Scott Jens	Shane85@	8.4E+09	4133 Your	Geelong	New Soutl	75929	Australia	48	Male	Low	Regular	########	2023	April	4:06:29	3	354.478	1063.43	Books	Penguir
7232460	62101	Joseph Mil	Mary34@g	2.8E+09	8148 Thor	Edmonton	Ontario	88420	Canada	56	Male	High	Premium	5/8/2023	2023	May	14:55:17	7	352.408	2466.85	Home Dec	Home D
4983775	27901	Debra Cole	Charles30	9.1E+09	5813 Lori	Bristol	England	48704	UK	22	Male	Low	Premium	########	2024	January	16:54:07	2	124.277	248.553	Grocery	Nestle
6095326	41289	Ryan Johns	Haley12@	3.3E+09	532 Ashley	Brisbane	New Soutl	74430	Australia	58	Female	Medium	Premium	########	2023	Septembe	23:24:27	4	296.292	1185.17	Electronic	Apple
5434096	97285	Erin Lewis	Arthur76@	1.6E+09	600 Brian	Kitchener	Ontario	47545	Canada	29	Female	Low	New	########	2023	June	13:35:51	2	315.058	630.115	Electronic	Samsur
2344675	26603	Angela Fiel	Tanya94@	3.7E+09	237 Young	Munich	Berlin	86862	Germany	29	Male	Medium	Premium	########	2023	March	10:12:56	1	46.5881	46.5881	Clothing	Zara
4155845	80175	Diane Clarl	Martin39@	6.2E+09	8823 Mari	Wollongor	New Soutl	39820	Australia	46	Male	Medium	New	1/6/2024	2024	January	14:38:26	8	328.839	2630.71	Grocery	Nestle
4926148	31878	Lori Bell	Jessica33	6E+09	6225 Willi	Cologne	Berlin	64317	Germany	25	Male	Medium	New	########	2023	October	22:27:40	10	397.611	3976.11	Home Dec	Home D
8493213	19136	Jonathan E	Mark38@g	3E+09	9772 Sosa	Portsmout	England	59280	UK	64	Female	Low	Regular	########	2023	July	23:06:51	4	90.9819	363.927	Home Dec	Home D
1609659	66883	Brianna Oc	David47@	9.4E+09	95471 Jerr	Portsmout	England	91253	UK	31	Female	Medium	Regular	########	2023	June	13:09:58	1	364.831	364.831	Books	Randon
2846832	31930	Kristine Wi	Charles29	1.8E+09	60629 Jon	Portsmout	England	38173	UK	56	Female	Medium	Regular	1/2/2024	2024	January	0:00:47	10	161.879	1618.79	Grocery	Coca-C
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2401331	98300	Andrew Gu	Eric76@gr	2.9E+09	470 Rodrig	Portsmout	England	5259	UK	32	Female	High	Regular	########	2023	November	23:41:05	6	297.726	1786.36	Clothing	Adidas
4969987	64995	Justin Lara	Jacob26@	2.7E+09	3577 Cole	Portsmout	England	9845	UK	43	Male	Medium	Regular	########	2023	June	23:24:22	3	23.7239	71.1717	Books	Randon
6681000	69939	Jessica Har	Anne45@g	2.5E+09	93806 Mur	Portsmout	England	84007	UK	69	Male	Low	Regular	7/1/2023	2023	July	11:12:02	10	14.7272	147.272	Grocery	Pepsi
2430572	71803	Alicia Knigl	Jennifer1@	6.3E+09	9856 Meye	Portsmout	England	91967	UK	19	Female	High	Regular	########	2023	April	5:50:55	3	139.787	419.361	Electronic	Apple
7728099	78376	Ronald Ch	Nicole72@	1.8E+09	6048 Char	Portsmout	England	82975	UK	49	Male	Low	Regular	2/7/2024	2024	February	18:29:59	1	210.138	210.138	Grocery	Coca-C
3489336	40654	Sara Roger	Jeff99@gr	2.7E+09	6048 Char	Portsmout	England	3035	UK	69	Male	Low	Regular	########	2023	October	13:01:04	2	469.66	939.319	Home Dec	IKEA
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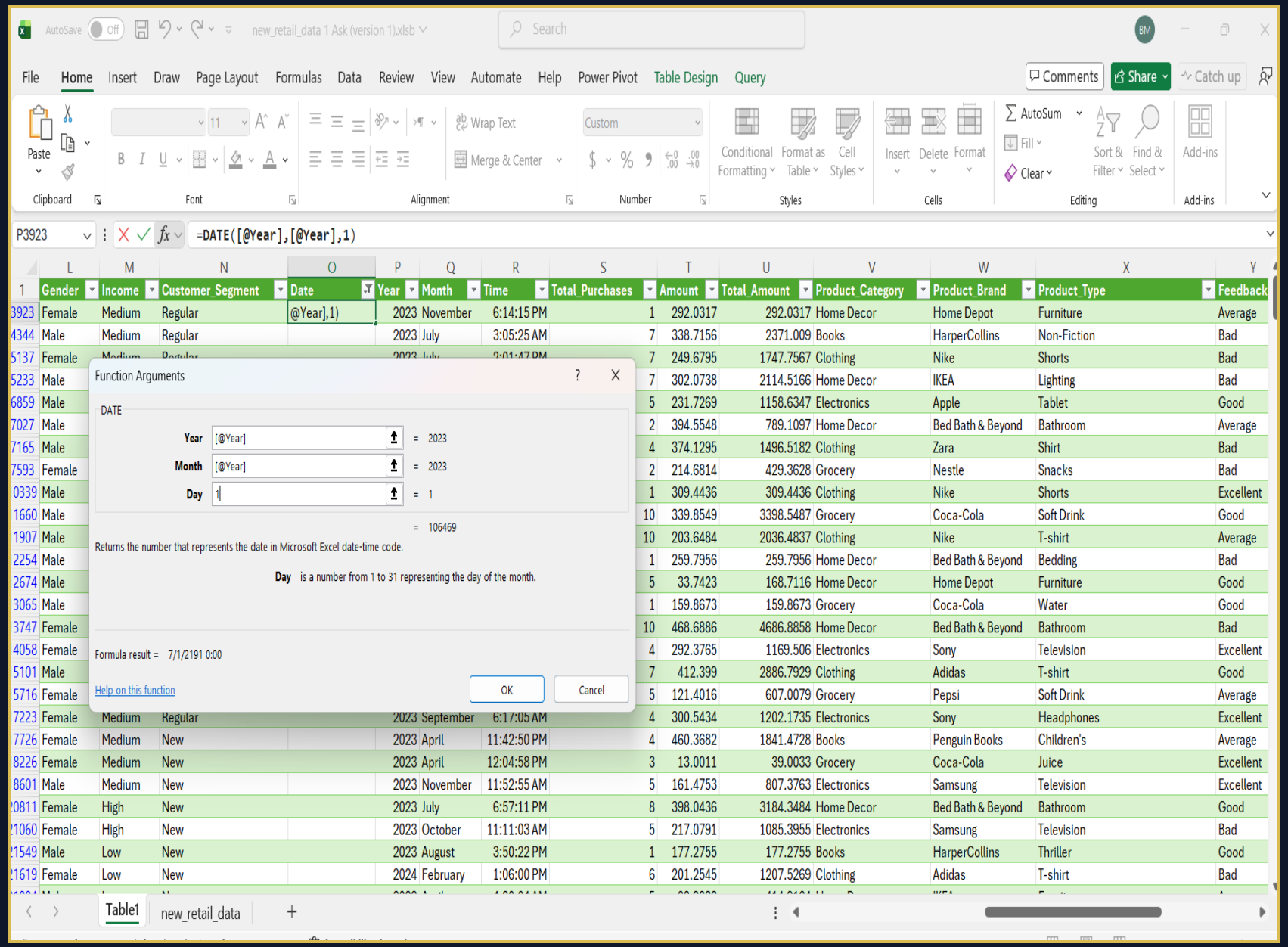
8871554	63914	Joshua No	Diana25@	5.4E+09	7467 Henr	Portsmout	England	16385	UK	61	Male	High	Regular	8/6/2023	2023	August	5:13:31	4	200.287	801.149	Books	Harper(

Extensive Data Gaps & Missing Values:

Discovery: Discovered widespread missing data (**blanks**) across multiple critical columns. Most were found in the **Date, Year, and Month** columns, as well as the **purchases (Order Q) and Total Amount** columns.

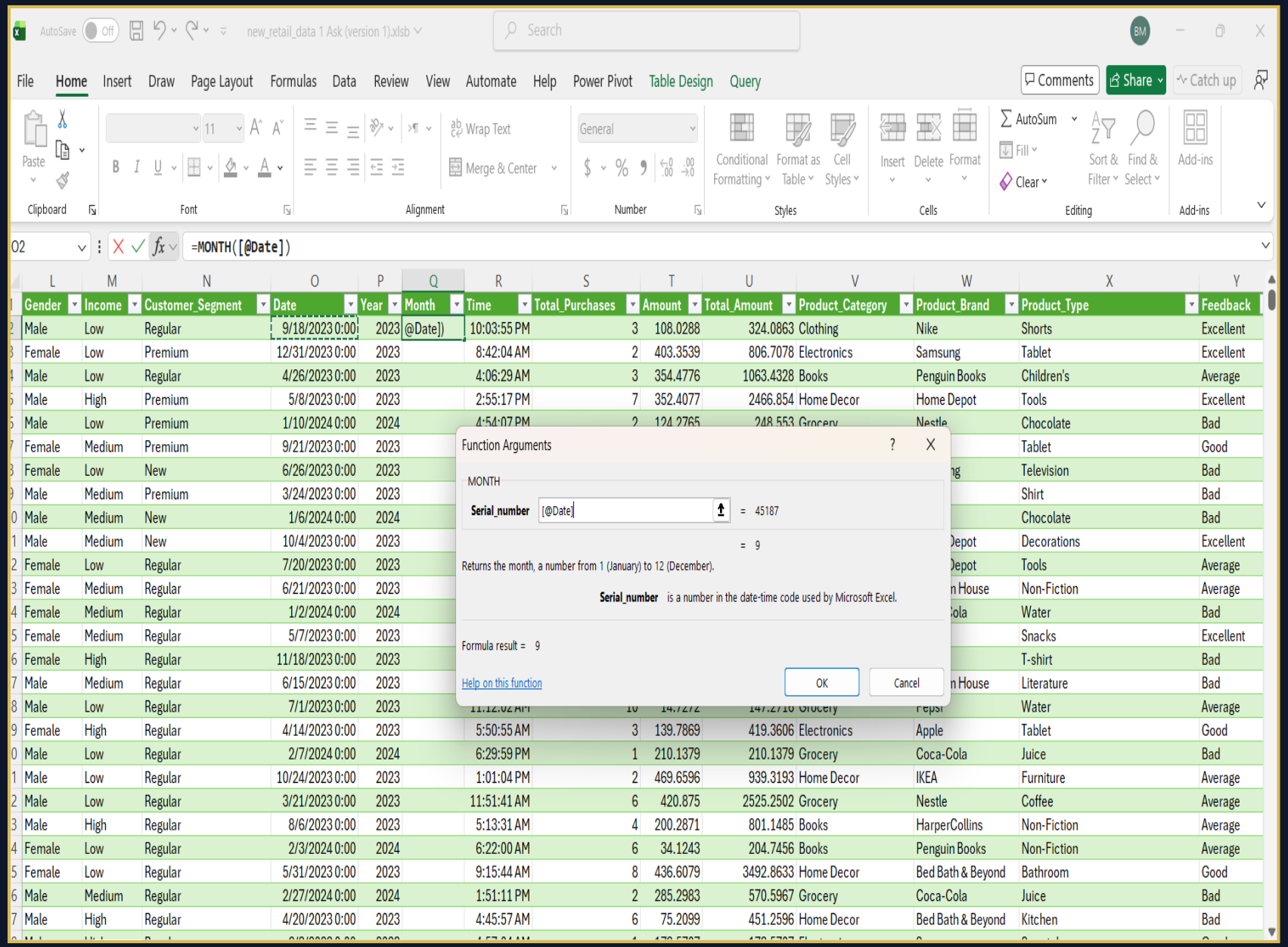
Action Taken: Applied advanced logical formulas to reconstruct the missing timeline elements. Similarly, blank fields in order counts and total amounts were cross-calculated and filled using mathematical dependencies to achieve 100% data completeness and accuracy.

Introduction



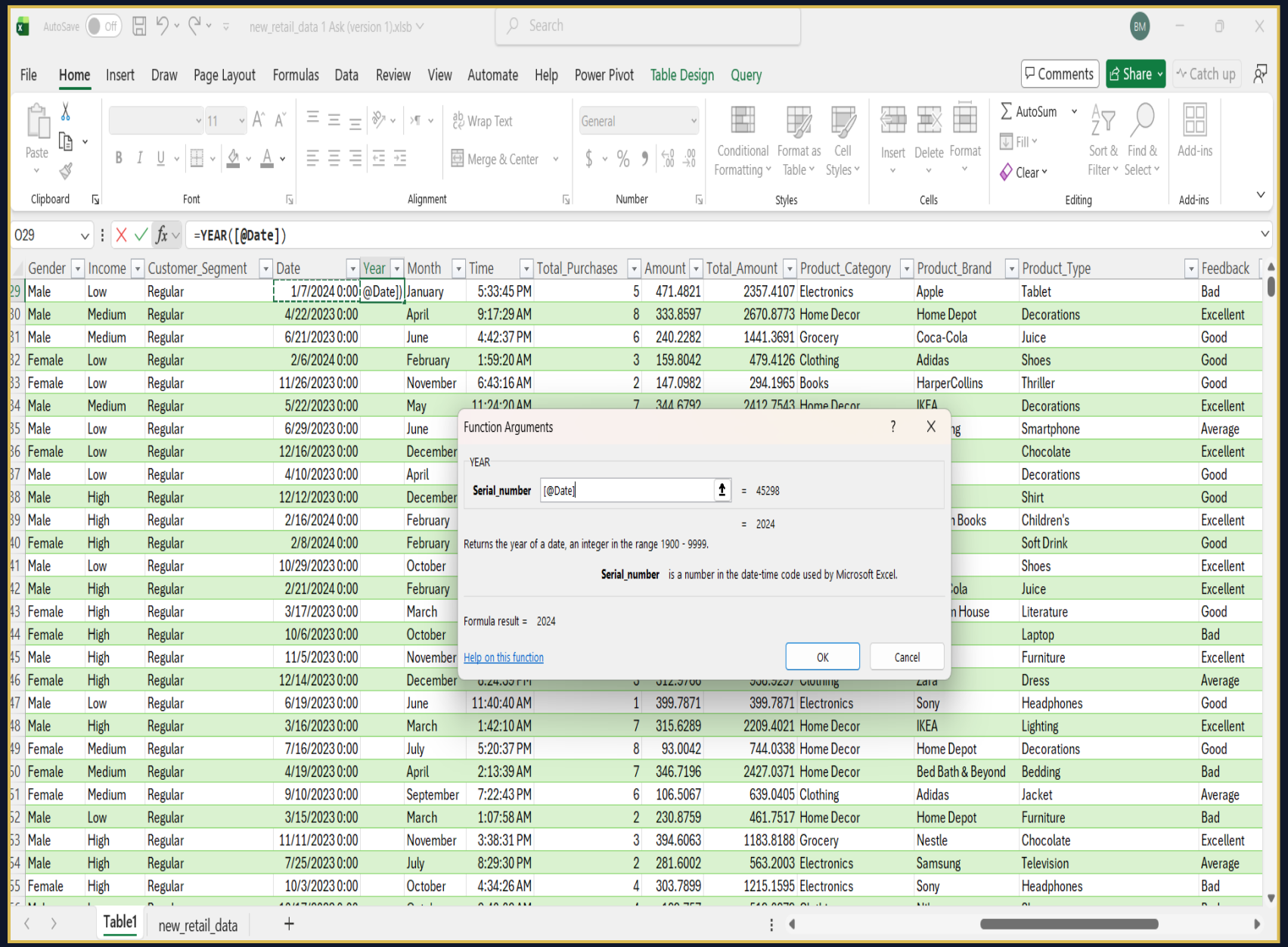
	Gender	Income	Customer_Segment	Date	Year	Month	Time	Total_Purchases	Amount	Total_Amount	Product_Category	Product_Brand	Product_Type	Feedback
3923	Female	Medium	Regular	@Year],1)	2023	November	6:14:15 PM	1	292.0317	292.0317	Home Decor	Home Depot	Furniture	Average
4344	Male	Medium	Regular		2023	July	3:05:25 AM	7	338.7156	2371.009	Books	HarperCollins	Non-Fiction	Bad
5137	Female	Medium	Regular		2023	July	2:01:47 PM	7	249.6795	1747.7567	Clothing	Nike	Shorts	Bad
5233	Male							7	302.0738	2114.5166	Home Decor	IKEA	Lighting	Bad
6859	Male							5	231.7269	1158.6347	Electronics	Apple	Tablet	Good
7027	Male							2	394.5548	789.1097	Home Decor	Bed Bath & Beyond	Bathroom	Average
7165	Male							4	374.1295	1496.5182	Clothing	Zara	Shirt	Bad
7593	Female							2	214.6814	429.3628	Grocery	Nestle	Snacks	Bad
10339	Male							1	309.4436	309.4436	Clothing	Nike	Shorts	Excellent
11660	Male							10	339.8549	3398.5487	Grocery	Coca-Cola	Soft Drink	Good
11907	Male							10	203.6484	2036.4837	Clothing	Nike	T-shirt	Average
12254	Male							1	259.7956	259.7956	Home Decor	Bed Bath & Beyond	Bedding	Bad
12674	Male							5	33.7423	168.7116	Home Decor	Home Depot	Furniture	Good
13065	Male							1	159.8673	159.8673	Grocery	Coca-Cola	Water	Good
13747	Female							10	468.6886	4686.8858	Home Decor	Bed Bath & Beyond	Bathroom	Bad
14058	Female							4	292.3765	1169.506	Electronics	Sony	Television	Excellent
15101	Male							7	412.399	2886.7929	Clothing	Adidas	T-shirt	Good
15716	Female							5	121.4016	607.0079	Grocery	Pepsi	Soft Drink	Average
17223	Female	Medium	Regular		2023	September	6:17:05 AM	4	300.5434	1202.1735	Electronics	Sony	Headphones	Excellent
17726	Female	Medium	New		2023	April	11:42:50 PM	4	460.3682	1841.4728	Books	Penguin Books	Children's	Average
18226	Female	Medium	New		2023	April	12:04:58 PM	3	13.0011	39.0033	Grocery	Coca-Cola	Juice	Excellent
18601	Male	Medium	New		2023	November	11:52:55 AM	5	161.4753	807.3763	Electronics	Samsung	Television	Excellent
20811	Female	High	New		2023	July	6:57:11 PM	8	398.0436	3184.3484	Home Decor	Bed Bath & Beyond	Bathroom	Good
21060	Female	High	New		2023	October	11:11:03 AM	5	217.0791	1085.3955	Electronics	Samsung	Television	Bad
21549	Male	Low	New		2023	August	3:50:22 PM	1	177.2755	177.2755	Books	HarperCollins	Thriller	Good
21619	Female	Low	New		2024	February	1:06:00 PM	6	201.2545	1207.5269	Clothing	Adidas	T-shirt	Bad

Introduction



Gender	Income	Customer_Segment	Date	Year	Month	Time	Total_Purchases	Amount	Total_Amount	Product_Category	Product_Brand	Product_Type	Feedback
Male	Low	Regular	9/18/2023 0:00	2023	@Date])	10:03:55 PM	3	108.0288	324.0863	Clothing	Nike	Shorts	Excellent
Female	Low	Premium	12/31/2023 0:00	2023		8:42:04 AM	2	403.3539	806.7078	Electronics	Samsung	Tablet	Excellent
Male	Low	Regular	4/26/2023 0:00	2023		4:06:29 AM	3	354.4776	1063.4328	Books	Penguin Books	Children's	Average
Male	High	Premium	5/8/2023 0:00	2023		2:55:17 PM	7	352.4077	2466.854	Home Decor	Home Depot	Tools	Excellent
Male	Low	Premium	1/10/2024 0:00	2024		4:54:07 PM	2	124.2765	248.553	Grocery	Nestle	Chocolate	Bad
Female	Medium	Premium	9/21/2023 0:00	2023								Tablet	Good
Female	Low	New	6/26/2023 0:00	2023								Television	Bad
Male	Medium	Premium	3/24/2023 0:00	2023								Shirt	Bad
Male	Medium	New	1/6/2024 0:00	2024								Chocolate	Bad
Male	Medium	New	10/4/2023 0:00	2023								Decorations	Excellent
Female	Low	Regular	7/20/2023 0:00	2023								Tools	Average
Female	Medium	Regular	6/21/2023 0:00	2023								Non-Fiction	Average
Female	Medium	Regular	1/2/2024 0:00	2024								Water	Bad
Female	Medium	Regular	5/7/2023 0:00	2023								Snacks	Excellent
Female	High	Regular	11/18/2023 0:00	2023								T-shirt	Bad
Male	Medium	Regular	6/15/2023 0:00	2023								Literature	Bad
Male	Low	Regular	7/1/2023 0:00	2023								Water	Average
Female	High	Regular	4/14/2023 0:00	2023		5:50:55 AM	3	139.7869	419.3606	Electronics	Apple	Tablet	Good
Male	Low	Regular	2/7/2024 0:00	2024		6:29:59 PM	1	210.1379	210.1379	Grocery	Coca-Cola	Juice	Bad
Male	Low	Regular	10/24/2023 0:00	2023		1:01:04 PM	2	469.6596	939.3193	Home Decor	IKEA	Furniture	Average
Male	Low	Regular	3/21/2023 0:00	2023		11:51:41 AM	6	420.875	2525.2502	Grocery	Nestle	Coffee	Average
Male	High	Regular	8/6/2023 0:00	2023		5:13:31 AM	4	200.2871	801.1485	Books	HarperCollins	Non-Fiction	Average
Female	Low	Regular	2/3/2024 0:00	2024		6:22:00 AM	6	34.1243	204.7456	Books	Penguin Books	Non-Fiction	Average
Female	Low	Regular	5/31/2023 0:00	2023		9:15:44 AM	8	436.6079	3492.8633	Home Decor	Bed Bath & Beyond	Bathroom	Good
Male	Medium	Regular	2/27/2024 0:00	2024		1:51:11 PM	2	285.2983	570.5967	Grocery	Coca-Cola	Juice	Bad
Male	High	Regular	4/20/2023 0:00	2023		4:45:57 AM	6	75.2099	451.2596	Home Decor	Bed Bath & Beyond	Kitchen	Bad

Introduction



	Gender	Income	Customer_Segment	Date	Year	Month	Time	Total_Purchases	Amount	Total_Amount	Product_Category	Product_Brand	Product_Type	Feedback
29	Male	Low	Regular	1/7/2024 0:00	@Date])	January	5:33:45 PM	5	471.4821	2357.4107	Electronics	Apple	Tablet	Bad
30	Male	Medium	Regular	4/22/2023 0:00		April	9:17:29 AM	8	333.8597	2670.8773	Home Decor	Home Depot	Decorations	Excellent
31	Male	Medium	Regular	6/21/2023 0:00		June	4:42:37 PM	6	240.2282	1441.3691	Grocery	Coca-Cola	Juice	Good
32	Female	Low	Regular	2/6/2024 0:00		February	1:59:20 AM	3	159.8042	479.4126	Clothing	Adidas	Shoes	Good
33	Female	Low	Regular	11/26/2023 0:00		November	6:43:16 AM	2	147.0982	294.1965	Books	HarperCollins	Thriller	Good
34	Male	Medium	Regular	5/22/2023 0:00		May	11:24:20 AM	7	344.6792	2412.7543	Home Decor	IKEA	Decorations	Excellent
35	Male	Low	Regular	6/29/2023 0:00		June							Smartphone	Average
36	Female	Low	Regular	12/16/2023 0:00		December							Chocolate	Excellent
37	Male	Low	Regular	4/10/2023 0:00		April							Decorations	Good
38	Male	High	Regular	12/12/2023 0:00		December							Shirt	Good
39	Male	High	Regular	2/16/2024 0:00		February						Books	Children's	Excellent
40	Female	High	Regular	2/8/2024 0:00		February							Soft Drink	Good
41	Male	Low	Regular	10/29/2023 0:00		October							Shoes	Excellent
42	Male	High	Regular	2/21/2024 0:00		February						Cola	Juice	Excellent
43	Female	High	Regular	3/17/2023 0:00		March						House	Literature	Good
44	Female	High	Regular	10/6/2023 0:00		October							Laptop	Bad
45	Male	High	Regular	11/5/2023 0:00		November							Furniture	Excellent
46	Female	High	Regular	12/14/2023 0:00		December	6:24:55 PM	5	312.9766	996.9297	Clothing	Zara	Dress	Average
47	Male	Low	Regular	6/19/2023 0:00		June	11:40:40 AM	1	399.7871	399.7871	Electronics	Sony	Headphones	Good
48	Male	High	Regular	3/16/2023 0:00		March	1:42:10 AM	7	315.6289	2209.4021	Home Decor	IKEA	Lighting	Excellent
49	Female	Medium	Regular	7/16/2023 0:00		July	5:20:37 PM	8	93.0042	744.0338	Home Decor	Home Depot	Decorations	Good
50	Female	Medium	Regular	4/19/2023 0:00		April	2:13:39 AM	7	346.7196	2427.0371	Home Decor	Bed Bath & Beyond	Bedding	Bad
51	Female	Medium	Regular	9/10/2023 0:00		September	7:22:43 PM	6	106.5067	639.0405	Clothing	Adidas	Jacket	Average
52	Male	Low	Regular	3/15/2023 0:00		March	1:07:58 AM	2	230.8759	461.7517	Home Decor	Home Depot	Furniture	Bad
53	Male	High	Regular	11/11/2023 0:00		November	3:38:31 PM	3	394.6063	1183.8188	Grocery	Nestle	Chocolate	Excellent
54	Male	High	Regular	7/25/2023 0:00		July	8:29:30 PM	2	281.6002	563.2003	Electronics	Samsung	Television	Average
55	Female	High	Regular	10/3/2023 0:00		October	4:34:26 AM	4	303.7899	1215.1595	Electronics	Sony	Headphones	Bad

Absence of Profit Margin Data:
Discovery: The original dataset lacked a dedicated column for profit margins.

Action Taken: Established a calculated parameter assuming an estimated profit margin of **20% of Total Amount**.

Introduction

= [@[Total_Amount]]*20%

O	P	Q	R	S	T	U	V	W	X
Date	Year	Month	Time	Total_Purchases	Amount	Total_Amount	Estimated profit (20%)	Product_Category	Product_Brand
10/3/2023 0:00	2023	10	6:31:16 AM	8	$ 424.62	$ 3,396.99	$679.40	Books	HarperCollins
12/24/2023 0:00	2023	12	3:53:12 AM	5	$ 210.38	$ 1,051.90	$210.38	Grocery	Coca-Cola
8/5/2023 0:00	2023	8	10:20:29 PM	4	$ 289.33	$ 1,157.31	$231.46	Home Decor	IKEA
12/3/2023 0:00	2023	12	1:17:50 AM	9	$ 403.84	$ 3,634.55	$726.91	Electronics	Samsung
4/3/2023 0:00	2023	4	11:03:12 AM	6	$ 227.37	$ 1,364.23	$272.85	Grocery	Pepsi
3/18/2023 0:00	2023	3	9:57:49 PM	10	$ 215.92	$ 2,159.23	$431.85	Home Decor	IKEA
7/19/2023 0:00	2023	7	7:39:46 PM	3	$ 438.61	$ 1,315.82	$263.16	Electronics	Sony
12/2/2023 0:00	2023	12	12:29:35 PM	7	$ 486.13	$ 3,402.92	$680.58	Clothing	Zara
9/10/2023 0:00	2023	9	8:58:12 PM	2	$ 383.27	$ 766.54	$153.31	Grocery	Pepsi
3/6/2023 0:00	2023	3	5:35:27 AM	5	$ 432.69	$ 2,163.47	$432.69	Clothing	Zara
12/18/2023 0:00	2023	12	5:39:50 AM	9	$ 300.89	$ 2,708.02	$541.60	Books	HarperCollins
4/6/2023 0:00	2023	4	11:23:34 AM	10	$ 342.01	$ 3,420.06	$684.01	Home Decor	IKEA
10/16/2023 0:00	2023	10	10:36:04 AM	4	$ 129.46	$ 517.84	$103.57	Electronics	Samsung
10/9/2023 0:00	2023	10	6:12:36 AM	4	$ 361.68	$ 1,446.72	$289.34	Electronics	Sony
5/29/2023 0:00	2023	5	9:03:51 AM	8	$ 418.83	$ 3,350.65	$670.13	Grocery	Coca-Cola
1/16/2024 0:00	2024	1	9:10:53 PM	1	$ 170.99	$ 170.99	$34.20	Clothing	Nike
4/28/2023 0:00	2023	4	2:08:16 AM	2	$ 447.69	$ 895.37	$179.07	Electronics	Samsung
3/14/2023 0:00	2023	3	2:44:53 PM	5	$ 360.40	$ 1,802.02	$360.40	Clothing	Nike
9/30/2023 0:00	2023	9	11:52:59 PM	3	$ 410.28	$ 1,230.85	$246.17	Grocery	Pepsi
10/8/2023 0:00	2023	10	11:20:04 PM	10	$ 195.92	$ 1,959.17	$391.83	Electronics	Samsung
9/23/2023 0:00	2023	9	5:44:37 PM	4	$ 15.73	$ 62.93	$12.59	Grocery	Nestle

Data Cleaning

Now, the data is ready to be used in analysis

Transaction_ID	Customer_ID	Name	Email	Phone	Address	City	State	Zipcode	Country	Age	Gender
2096454	86001	Joshua Lee	Jesse17@gmail.com	9146189634	76477 Alexander Fall	Calgary	Ontario	66868	Canada	20	Male
7439591	14457	John Baker	Dylan57@gmail.com	2247579320	56381 Kevin Mews	St. John's	Ontario	12180	Canada	20	Female
4189818	20896	Sarah Riggs	Ethan10@gmail.com	6471817388	2531 Pamela Spring	London	Ontario	63574	Canada	20	Male
1932343	76837	Jimmy Davis	Rachel24@gmail.com	1439350936	380 William Trafficway Suite 285	Sheffield	England	6242	UK	20	Female
1924566	29688	David Burke	Cody38@gmail.com	8167038857	666 Taylor Rapid	Dallas	Delaware	19892	USA	20	Male
2141993	28913	Madison Mills	Anthony87@gmail.com	2895629823	72080 Stephanie Highway Suite 461	Chicago	Connecticut	9514	USA	20	Male
7331794	64037	Courtney James	Melissa7@gmail.com	9487749883	99058 Linda Lane Apt. 803	Chicago	Connecticut	72065	USA	20	Male
3356679	94535	Phillip Curtis	Megan74@gmail.com	2239095139	27165 Smith Parkways	Chicago	Connecticut	37344	USA	20	Male
5097745	83050	Brianna Manning	Richard1@gmail.com	9387580173	9239 Smith Spurs Apt. 165	Chicago	Connecticut	23801	USA	20	Female
9735343	68271	Sarah Weaver	Darrell25@gmail.com	6511668162	57003 Wagner Courts Apt. 814	Chicago	Connecticut	35095	USA	40	Female
1990447	64958	Teresa Conrad	Harry97@gmail.com	9044575879	2718 Erik Ridges	Chicago	Connecticut	22856	USA	34	Male
3828749	60986	Angela Schwartz	Lisa22@gmail.com	8996788867	81206 Armstrong Park	Chicago	Connecticut	36242	USA	34	Female
9881924	53639	Diana Martin	Laura20@gmail.com	4338835156	2809 Wood Estates Suite 953	Chicago	Connecticut	40263	USA	34	Female
6573000	78073	Heather Juarez	Travis92@gmail.com	5089075413	902 Christian Unions Suite 340	Chicago	Connecticut	72785	USA	34	Female
5581220	29236	Wayne Kemp	Katherine100@gmail.com	2525347069	4486 Christopher Roads	Chicago	Connecticut	32361	USA	34	Female
6140966	63569	Jason Ray	Daniel98@gmail.com	4862956167	522 Michael Spurs Suite 280	Chicago	Connecticut	27655	USA	34	Female
4313154	94804	Mark Thompson	Mark5@gmail.com	1904797799	60192 Bond Trail	Chicago	Connecticut	19715	USA	34	Male
3777308	57217	Barbara Fry	Angela50@gmail.com	5005785472	11557 Melanie Island	Chicago	Connecticut	37220	USA	34	Female
8318151	24233	Angela Castro	Tammy5@gmail.com	6285029667	6253 Bonnie Drive	Chicago	Connecticut	31066	USA	34	Female
6810146	99539	Javier Pacheco	Adam28@gmail.com	9017077334	61240 Keith Viaduct Apt. 087	Chicago	Connecticut	65603	USA	34	Male
2840220	39019	Kelly Turner	Jessica94@gmail.com	8191171197	58877 Black Overpass Suite 515	Chicago	Connecticut	90428	USA	34	Male
7569832	33482	Diane Lopez	Alicia7@gmail.com	2249828057	02042 Randall Mountains	Chicago	Connecticut	55030	USA	34	Male
1135694	43106	Brian Thompson	Thomas94@gmail.com	7921818673	3389 Erica Bypass Apt. 989	Chicago	Connecticut	19774	USA	34	Female
7953987	11472	Jessica Barnett	Melissa20@gmail.com	4525077572	427 Clay Lodge	Chicago	Connecticut	34045	USA	34	Male
2988348	30496	Ronald Cole	Don35@gmail.com	1723927552	26119 Torres Neck Apt. 060	Chicago	Connecticut	75663	USA	34	Male
5929057	99920	Sandra Young	Jose74@gmail.com	5273684309	5095 Anthony Forges	Chicago	Connecticut	30854	USA	34	Male
5997455	23605	James Jones	Edward89@gmail.com	8214158600	1421 Johnny Overpass Apt. 297	Chicago	Connecticut	47902	USA	34	Female
6473464	41019	Pamela Franklin	Matthew1@gmail.com	5076390122	4983 Meyer Parkway	Chicago	Connecticut	92736	USA	34	Male
6096537	26139	Edward Gonzales	Andrea69@gmail.com	5740550120	7781 Thomas Isle Suite 164	Chicago	Connecticut	59414	USA	34	Female
2521057	78137	Jordan Cook	Michelle76@gmail.com	5828413413	895 Devon Summit	Chicago	Connecticut	73081	USA	34	Male

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2141993	28913	Madison Mills	Anthony87@gmail.com	289562982	72080 Stephanie Highway Suite 461	Chicago	Connecticut	9514	USA	20	Male
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3356679	94535	Phillip Curtis	Megan74@gmail.com	223909513	27165 Smith Parkways	Chicago	Connecticut	37344	USA	20	Male
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6140966	63569	Jason Ray	Daniel98@gmail.com	486295616	522 Michael Spurs Suite 280	Chicago	Connecticut	27655	USA	34	Female
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2988348	30496	Ronald Cole	Don35@gmail.com	172392755	26119 Torres Neck Apt. 060	Chicago	Connecticut	75663	USA	34	Male
5929057	99920	Sandra Young	Jose74@gmail.com	527368430	5095 Anthony Forges	Chicago	Connecticut	30854	USA	34	Male
5997455	23605	James Jones	Edward89@gmail.com	821415860	1421 Johnny Overpass Apt. 297	Chicago	Connecticut	47902	USA	34	Female
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ent	Date	Year	Month	Time	Total_Purchases	Amount	Total_Amount	Product_Category	Product_Brand	Product_Type	Feedback	Shipping_Method	Payment_Method	Order_Status
	10/3/2023 0:00	2023	10	6:31:16 AM	8	$ 424.62	$ 3,396.99	Books	HarperCollins	Fiction	Excellent	Express	PayPal	Processing
	12/24/2023 0:00	2023	12	3:53:12 AM	5	$ 210.38	$ 1,051.90	Grocery	Coca-Cola	Juice	Good	Same-Day	Cash	Shipped
	8/5/2023 0:00	2023	8	##########	4	$ 289.33	$ 1,157.31	Home Decor	IKEA	Furniture	Bad	Same-Day	Debit Card	Processing
	12/3/2023 0:00	2023	12	1:17:50 AM	9	$ 403.84	$ 3,634.55	Electronics	Samsung	Television	Average	Express	Cash	Processing
	4/3/2023 0:00	2023	4	##########	6	$ 227.37	$ 1,364.23	Grocery	Pepsi	Soft Drink	Excellent	Express	PayPal	Processing
	3/18/2023 0:00	2023	3	9:57:49 PM	10	$ 215.92	$ 2,159.23	Home Decor	IKEA	Furniture	Bad	Same-Day	Debit Card	Shipped
	7/19/2023 0:00	2023	7	7:39:46 PM	3	$ 438.61	$ 1,315.82	Electronics	Sony	Television	Bad	Same-Day	Credit Card	Pending
	12/2/2023 0:00	2023	12	##########	7	$ 486.13	$ 3,402.92	Clothing	Zara	Jeans	Excellent	Express	Cash	Shipped
	9/10/2023 0:00	2023	9	8:58:12 PM	2	$ 383.27	$ 766.54	Grocery	Pepsi	Water	Average	Standard	Debit Card	Pending
	3/6/2023 0:00	2023	3	5:35:27 AM	5	$ 432.69	$ 2,163.47	Clothing	Zara	Dress	Good	Same-Day	Credit Card	Pending
	12/18/2023 0:00	2023	12	5:39:50 AM	9	$ 300.89	$ 2,708.02	Books	HarperCollins	Thriller	Good	Standard	Cash	Shipped
	4/6/2023 0:00	2023	4	##########	10	$ 342.01	$ 3,420.06	Home Decor	IKEA	Furniture	Good	Unknown	Debit Card	Delivered
	10/16/2023 0:00	2023	10	##########	4	$ 129.46	$ 517.84	Electronics	Samsung	Television	Excellent	Express	PayPal	Shipped
	10/9/2023 0:00	2023	10	6:12:36 AM	4	$ 361.68	$ 1,446.72	Electronics	Sony	Television	Excellent	Standard	PayPal	Shipped
	5/29/2023 0:00	2023	5	9:03:51 AM	8	$ 418.83	$ 3,350.65	Grocery	Coca-Cola	Soft Drink	Bad	Same-Day	Cash	Delivered
	1/16/2024 0:00	2024	1	9:10:53 PM	1	$ 170.99	$ 170.99	Clothing	Nike	Shorts	Good	Express	Credit Card	Processing
	4/28/2023 0:00	2023	4	2:08:16 AM	2	$ 447.69	$ 895.37	Electronics	Samsung	Tablet	Bad	Express	PayPal	Processing
	3/14/2023 0:00	2023	3	2:44:53 PM	5	$ 360.40	$ 1,802.02	Clothing	Nike	Shorts	Good	Standard	Cash	Delivered
	9/30/2023 0:00	2023	9	##########	3	$ 410.28	$ 1,230.85	Grocery	Pepsi	Juice	Excellent	Unknown	Debit Card	Pending
	10/8/2023 0:00	2023	10	##########	10	$ 195.92	$ 1,959.17	Electronics	Samsung	Smartphone	Excellent	Express	Credit Card	Processing
	9/23/2023 0:00	2023	9	5:44:37 PM	4	$ 15.73	$ 62.93	Grocery	Nestle	Coffee	Bad	Same-Day	Credit Card	Pending
	10/3/2023 0:00	2023	10	1:23:14 AM	9	$ 430.54	$ 3,874.88	Clothing	Adidas	T-shirt	Good	Same-Day	Debit Card	Processing
	4/4/2023 0:00	2023	4	2:23:00 AM	8	$ 337.67	$ 2,701.38	Books	HarperCollins	Thriller	Average	Express	Debit Card	Delivered
	7/8/2023 0:00	2023	7	5:45:39 AM	6	$ 439.84	$ 2,639.03	Home Decor	Bed Bath & Beyond	Bedding	Average	Standard	Credit Card	Shipped
	8/20/2023 0:00	2023	8	##########	4	$ 213.41	$ 853.62	Grocery	Coca-Cola	Water	Excellent	Express	Debit Card	Shipped
	11/10/2023 0:00	2023	11	1:09:13 PM	10	$ 19.38	$ 193.83	Grocery	Pepsi	Water	Good	Express	Debit Card	Delivered
	11/25/2023 0:00	2023	11	1:08:48 PM	8	$ 384.54	$ 3,076.35	Grocery	Pepsi	Water	Good	Same-Day	Cash	Shipped
	5/20/2023 0:00	2023	5	3:48:46 PM	3	$ 478.16	$ 1,434.49	Grocery	Pepsi	Water	Good	Standard	PayPal	Delivered
	10/14/2023 0:00	2023	10	##########	1	$ 145.98	$ 145.98	Grocery	Pepsi	Water	Good	Same-Day	Debit Card	Delivered
	2/27/2024 0:00	2024	2	8:28:36 AM	5	$ 96.71	$ 483.54	Grocery	Pepsi	Water	Good	Express	Cash	Pending

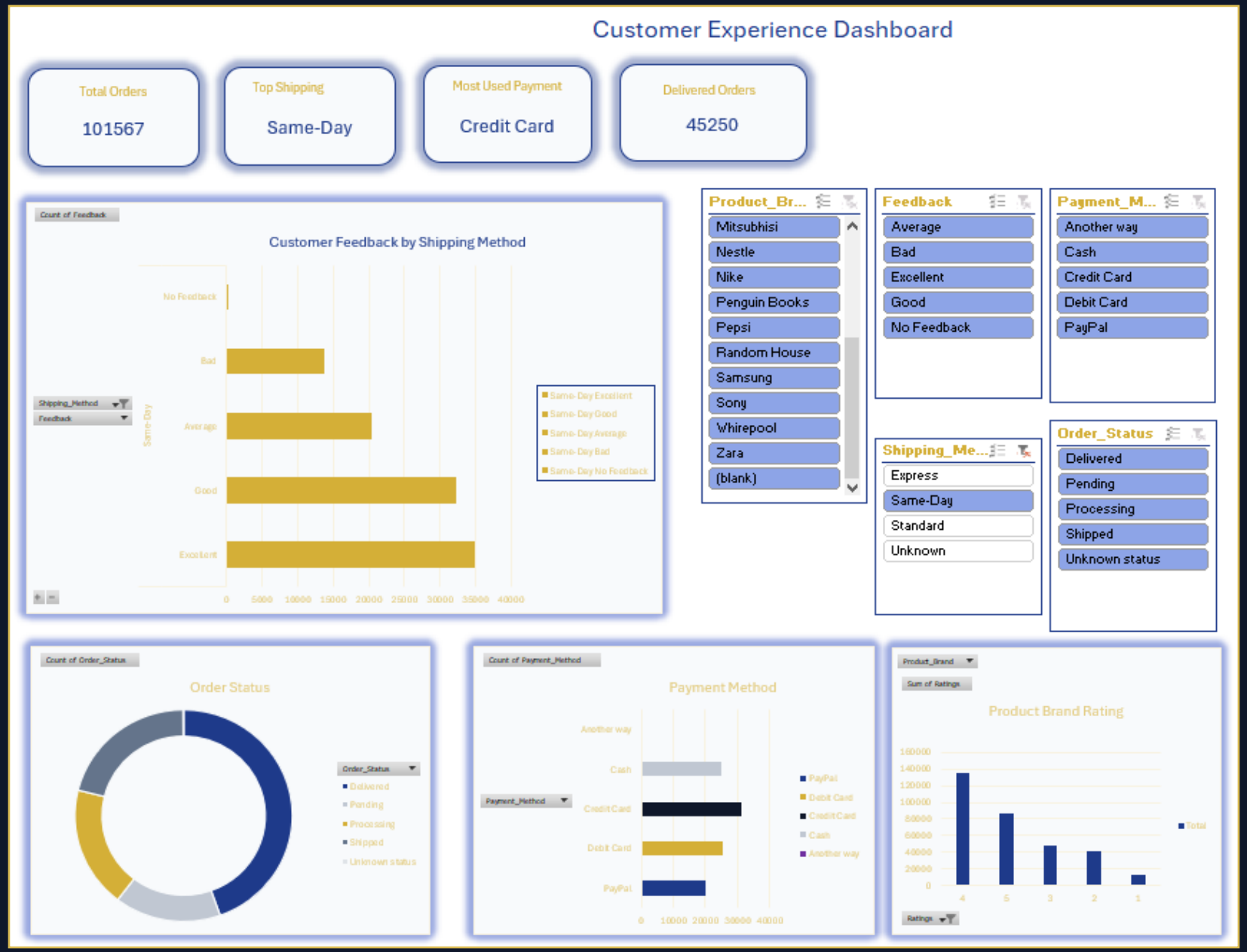
Visualizations
& Insights

Dashboards

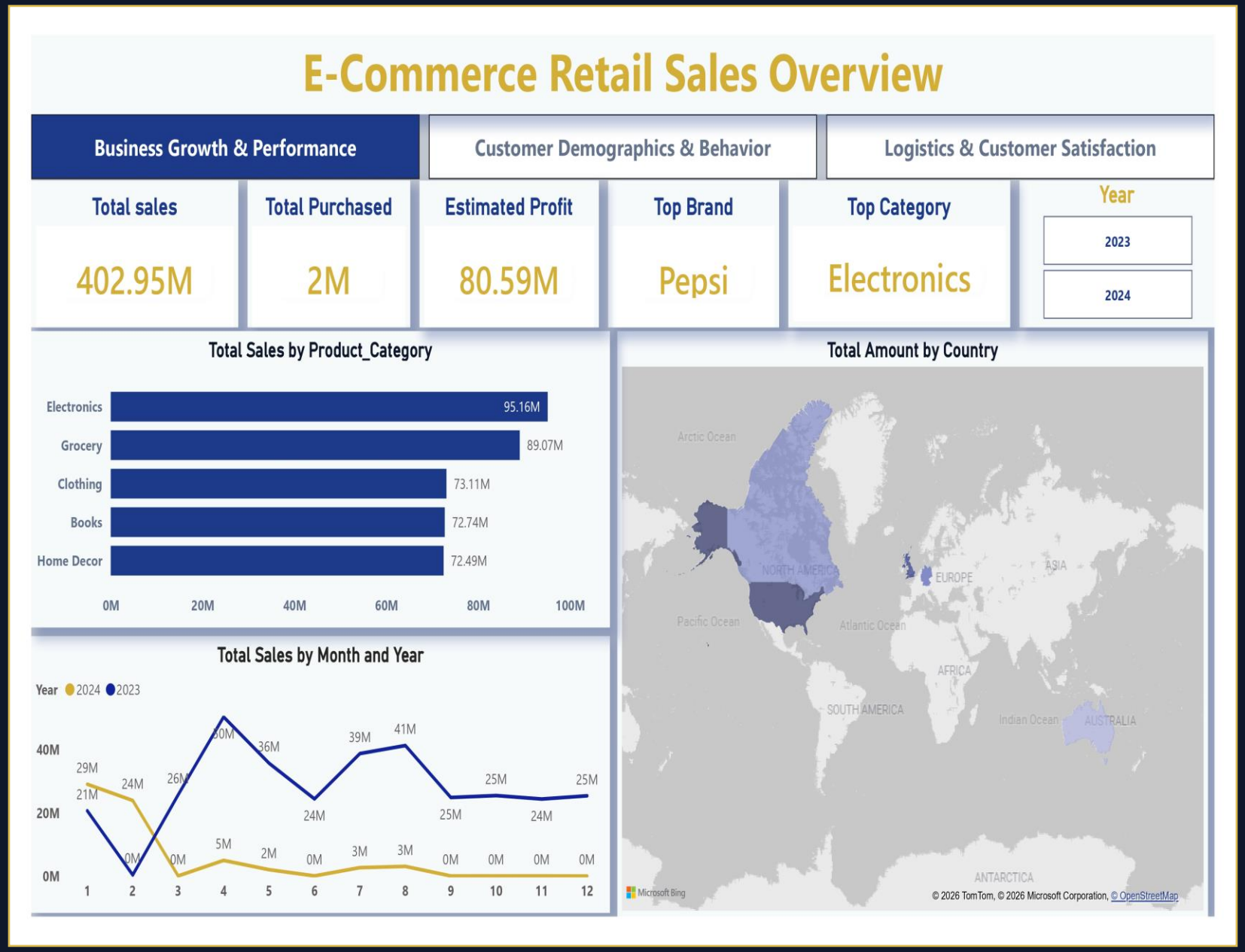
Visualizations & Insights

Visualizations & Insights

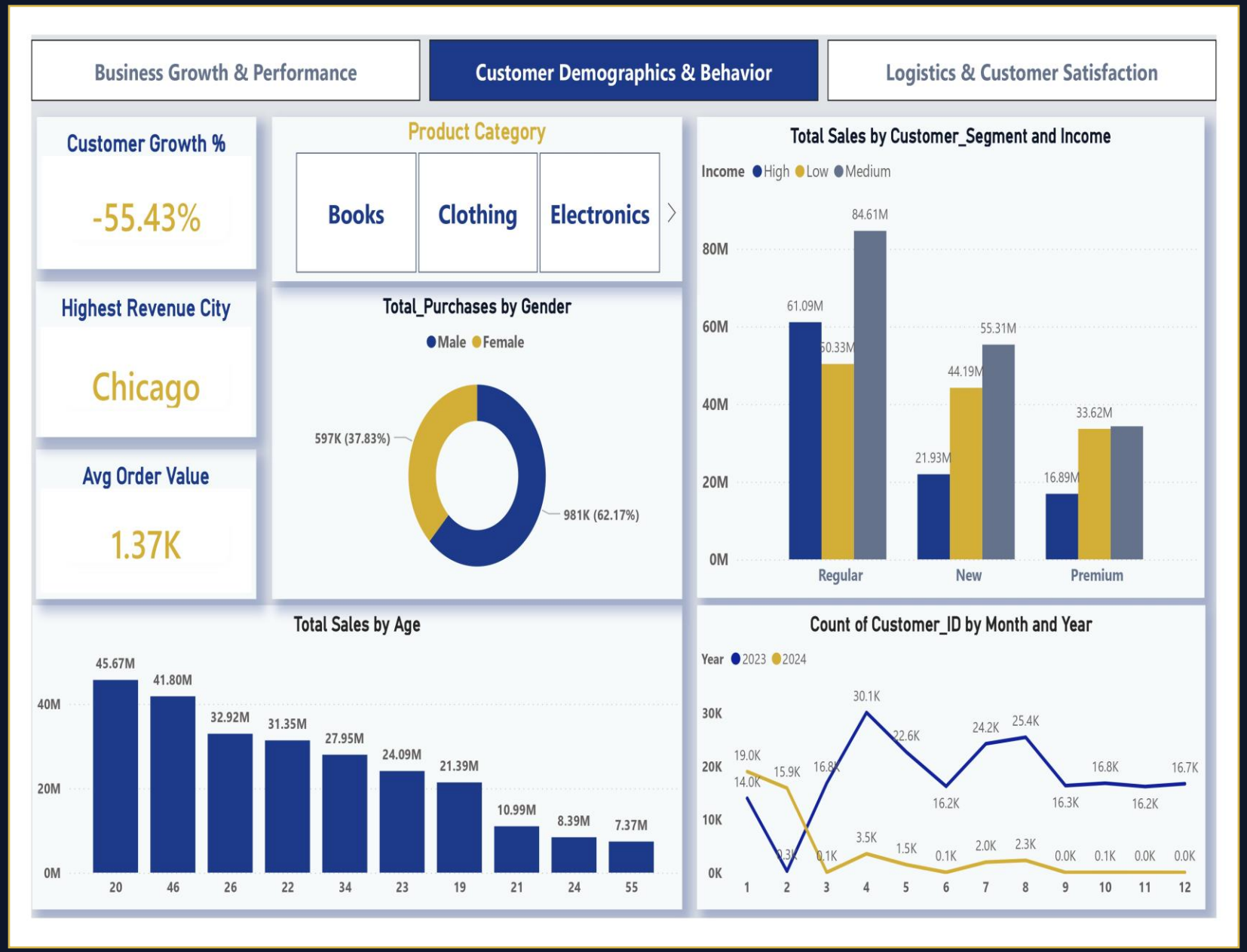
Visualizations & Insights



Visualizations & Insights



Visualizations & Insights



Visualizations & Insights

Business Growth & Performance | Customer Demographics & Behavior | Logistics & Customer Satisfaction

No of Total Orders

294,462

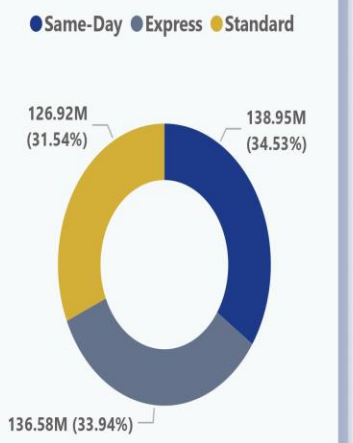
Average Rating

3.16

Product Brand by Average Rating

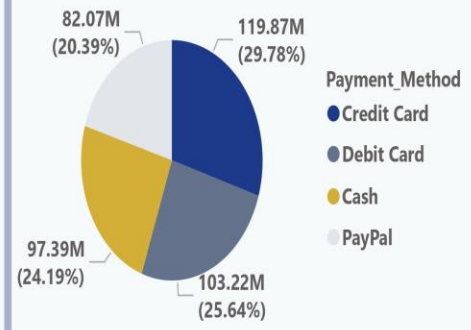
Product_Brand	Average of Ratings
BlueStar	4.39
Mitsubhisi	3.87
Whirepool	3.47
Pepsi	3.27
Samsung	3.13
Sony	3.12
HarperCollins	3.12
IKEA	3.12
Bed Bath & Beyond	3.11
Penguin Books	3.11
Random House	3.11
Nike	3.11
Nestle	3.11
Apple	3.11
Adidas	3.10
Home Depot	3.10
Avg Rating	**3.16**

Total Sales by Shipping_Method

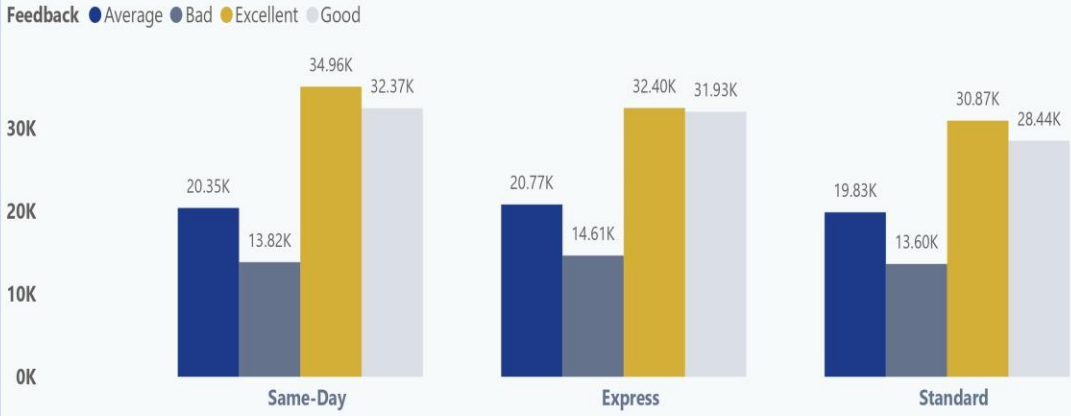


Total_Purchases by Order_Status

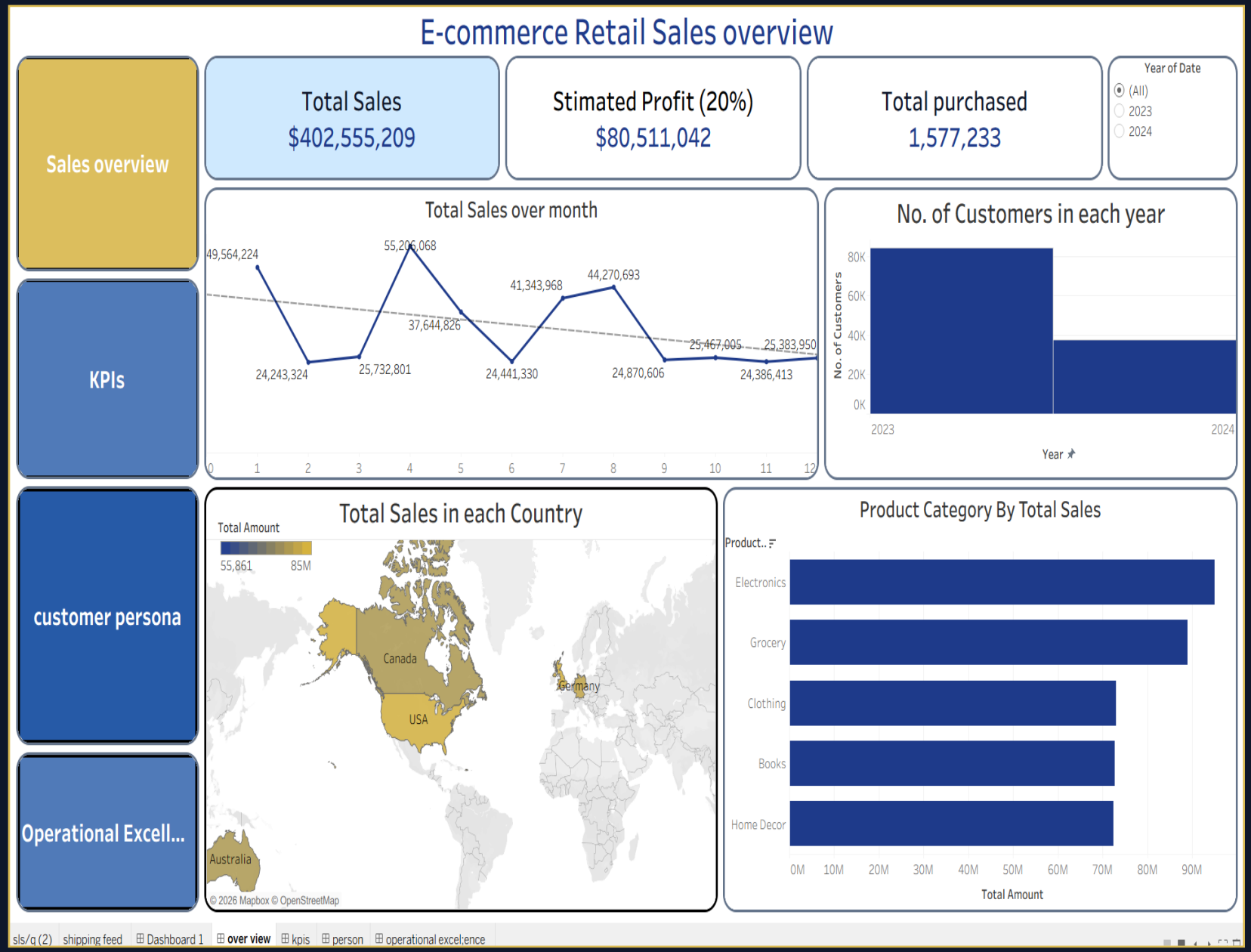
Total Sales by Payment_Method



No of Feedback by Shipping_Method



Visualizations & Insights



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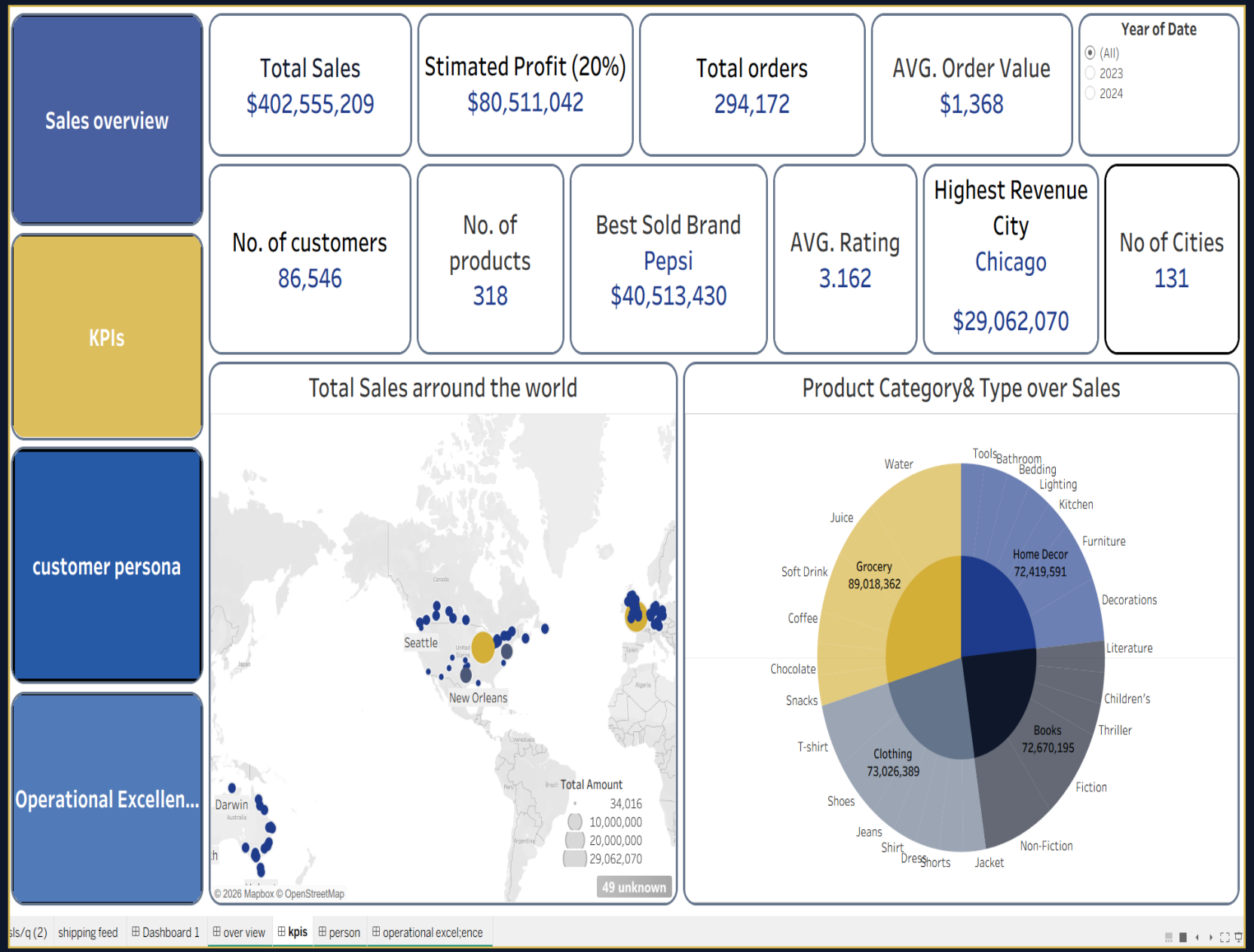

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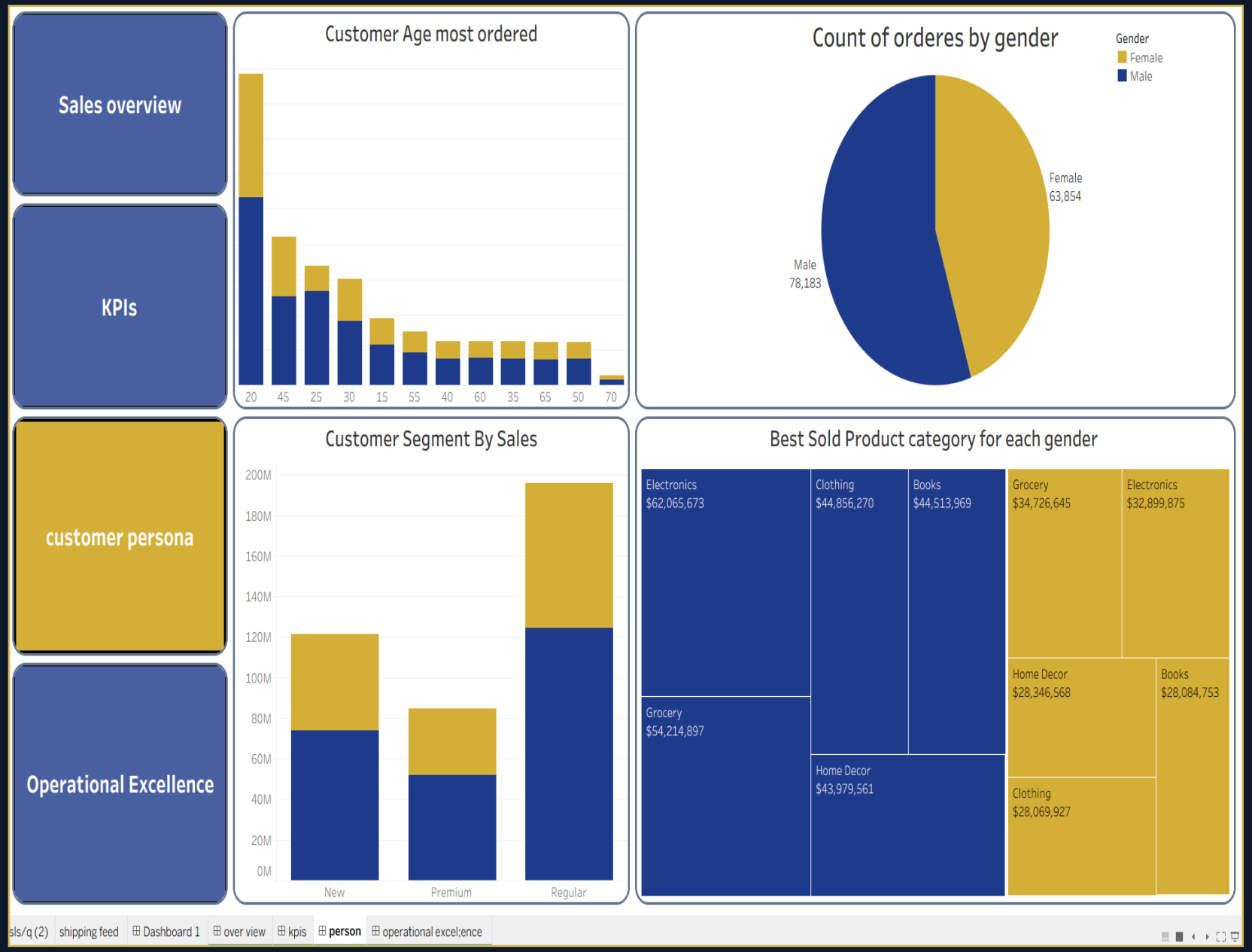

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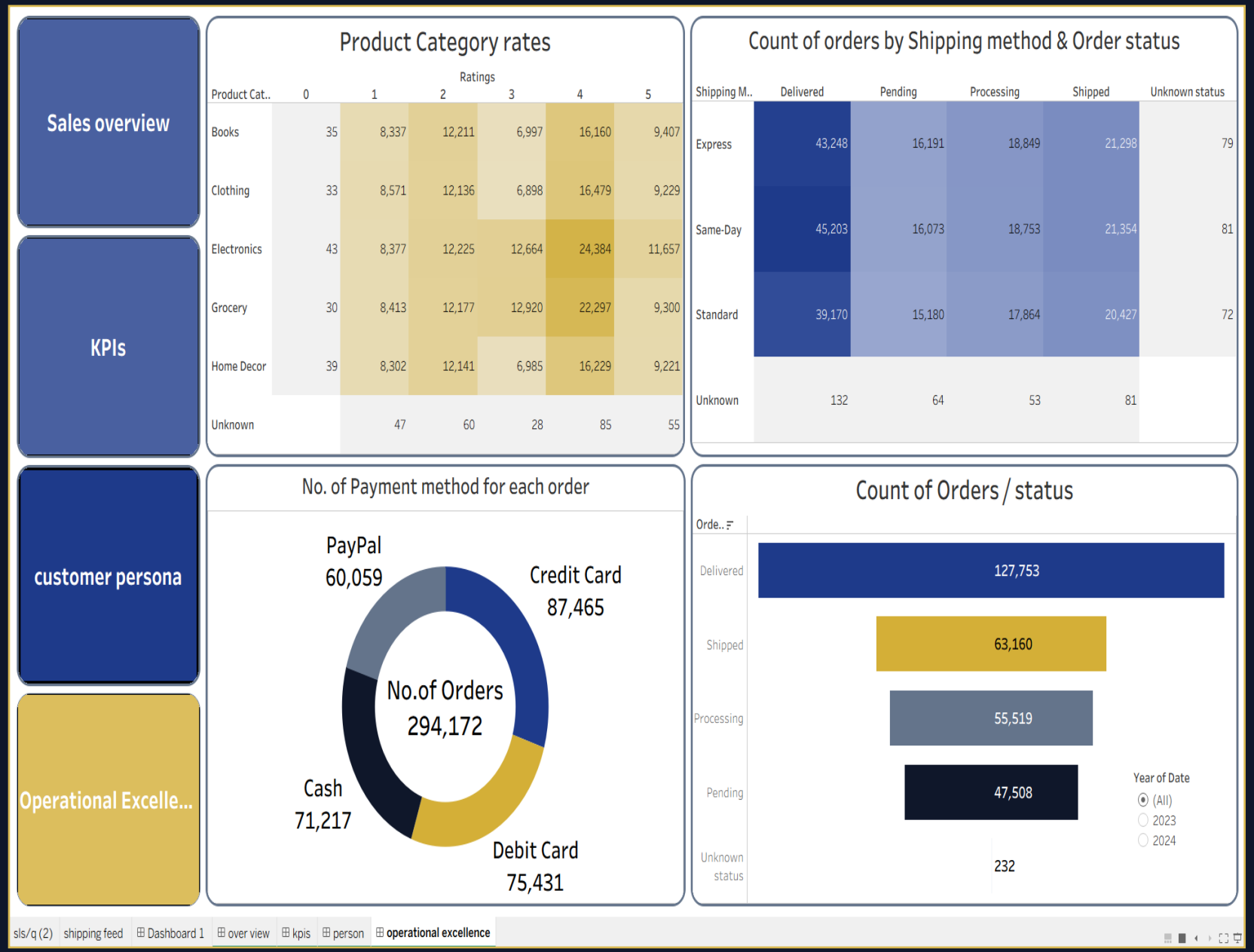


Insights & Recommendations

“ Based on the data insights, we are presenting 4 actionable recommendations to the business owner to secure data integrity, minimize operational bottlenecks, and maximize profitability. ”

Insights & Recommendations

Sales Performance & Temporal Gaps

Total Amount in:

2023
$366M

2024
$66M

“ Sudden, sharp revenue drop in 2024 compared to 2023, causing cash-flow instability. ”

Strategic Recommendations for the Business Owner

1. Data Governance & Reporting

The Advice:
Implement a **Real-Time Data Sync** and fix Customer Relationship Management (CRM) entity resolution.

The Reason: Your 2024 revenue looks like it dropped by 80%, but our technical audit proved it's just **incomplete data collection**. Fixing this prevents you from making panicked business decisions based on lagging or distorted reports.

Insights & Recommendations

Customer Persona & Demographic Analysis

Total Customers

Males: 78.2K

Females: 63.8K

Unknown: 310

Core Segment

Young adults aged 20 – 45

“ Low sales from older demographics >50 ”

2. Marketing & Revenue Optimization

The Advice: Allocate **70% of your ad budget** to target young adults (aged 20–45) with Medium/High incomes in the UK and Germany.

The Reason: This demographic is your core revenue engine. Shifting away from generalized campaigns will instantly maximize your **Return on Ad Spend (ROAS)**.

Insights & Recommendations

Customer Persona & Demographic Analysis

"**Regular**" segment drives the bulk of sales.

Premium: $85M
Regular: $196M

“ low revenue contribution from the "Premium" segment. ”

3. Customer Retention Strategy

The Advice: Launch an exclusive **VIP / Premium Loyalty Program** to convert "Regular" buyers into "Premium" ones.
The Reason: The Premium segment yields your highest **Customer Lifetime Value (CLV)**. Retaining these high-value assets is **5 times cheaper** than acquiring new ones.

Insights & Recommendations

Operational Excellence & Fulfillment

Total Orders:
294,462

Order Status:
Shipped **63.2K**
Processing **55.5K**
Delivered **127.8K**

2023 83%
2024 16%

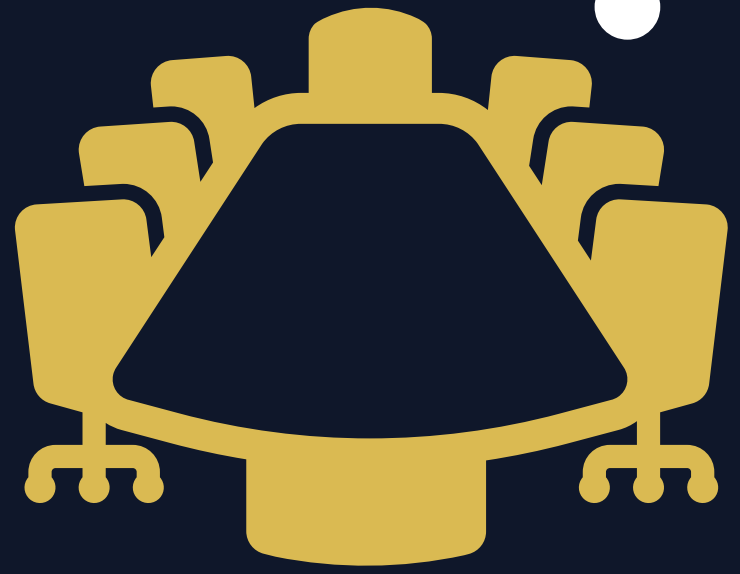
“ The Problem: High backlog of orders stuck in Shipped, Processing, and Pending statuses, indicating shipping bottlenecks. ”

4. Supply Chain & Logistics Overhaul

The Advice: Audit and review current shipping vendors to accelerate order fulfillment.

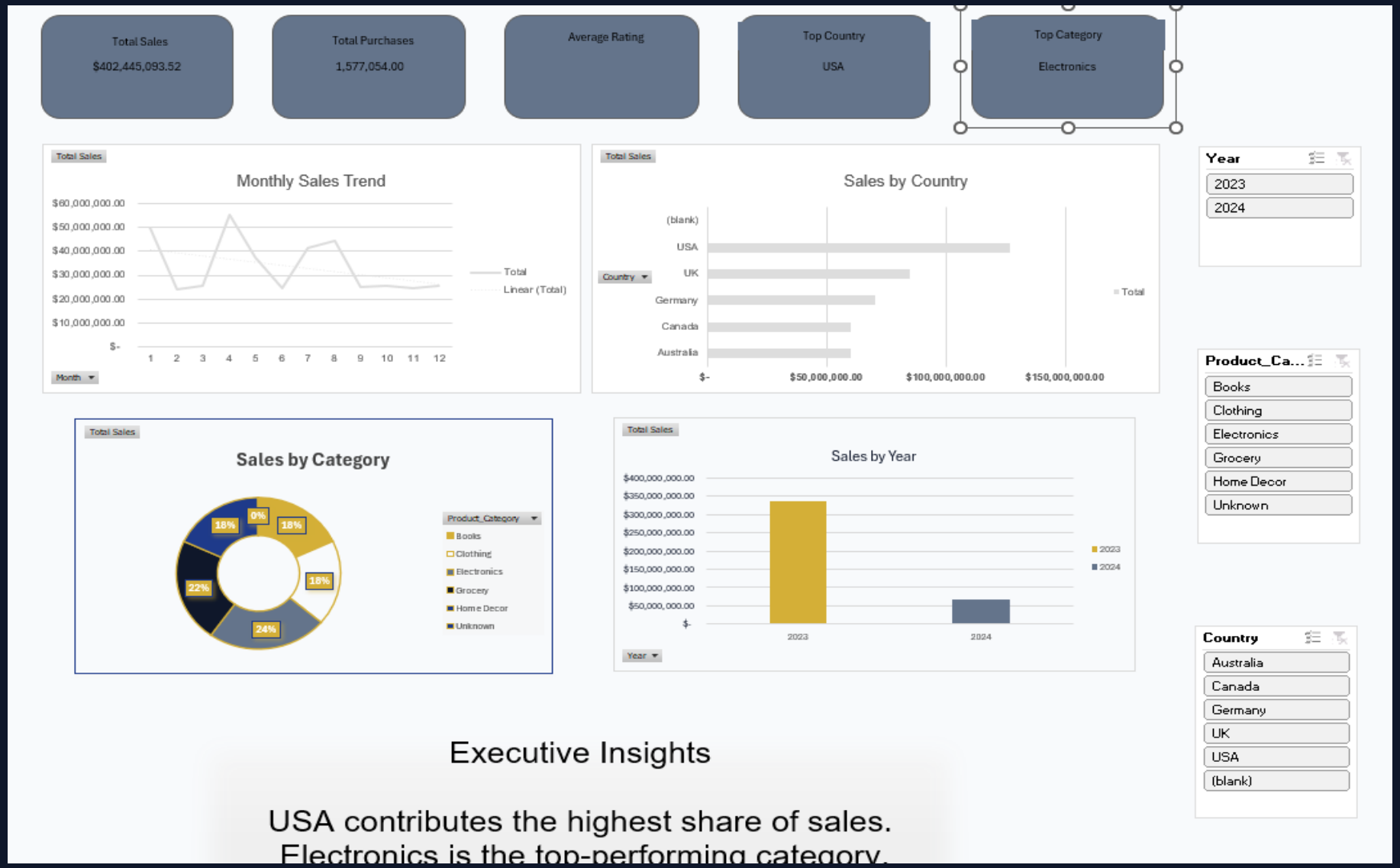
The Reason: A massive backlog of orders is currently stuck in "**Shipped**" **and** "**Processing**" statuses. Clearing this bottleneck will reduce order cancellations and boost customer satisfaction.

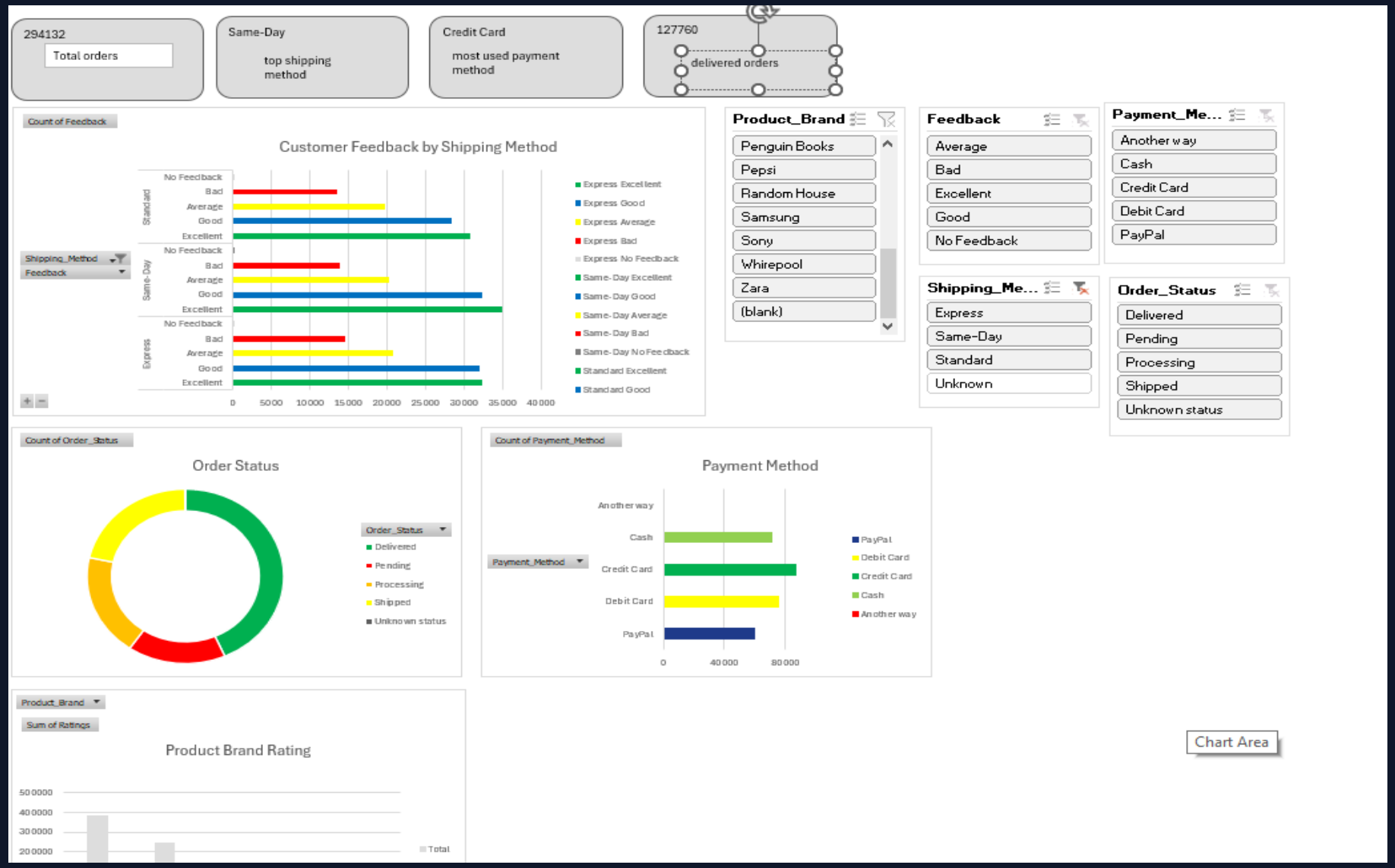
Questions ?

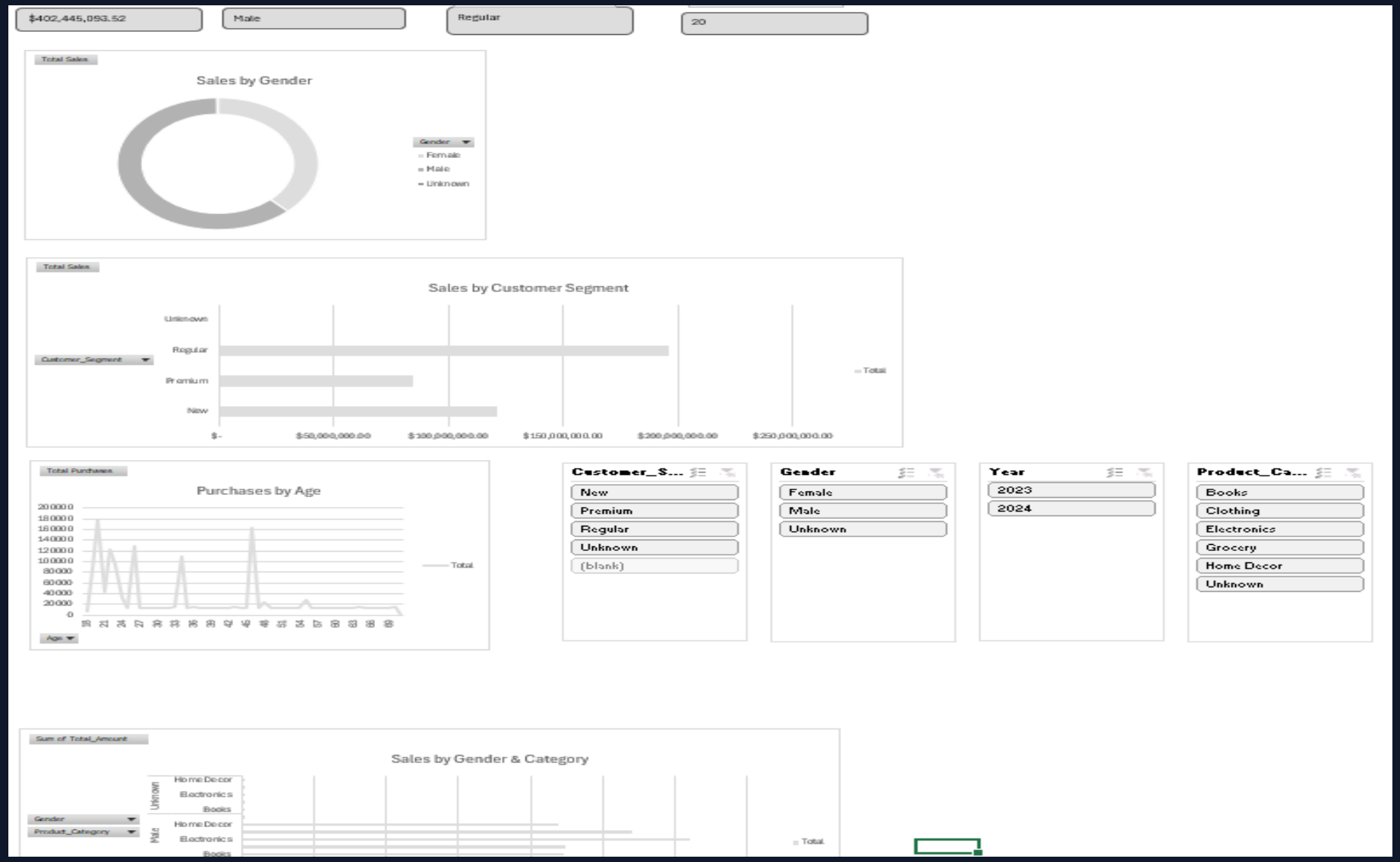


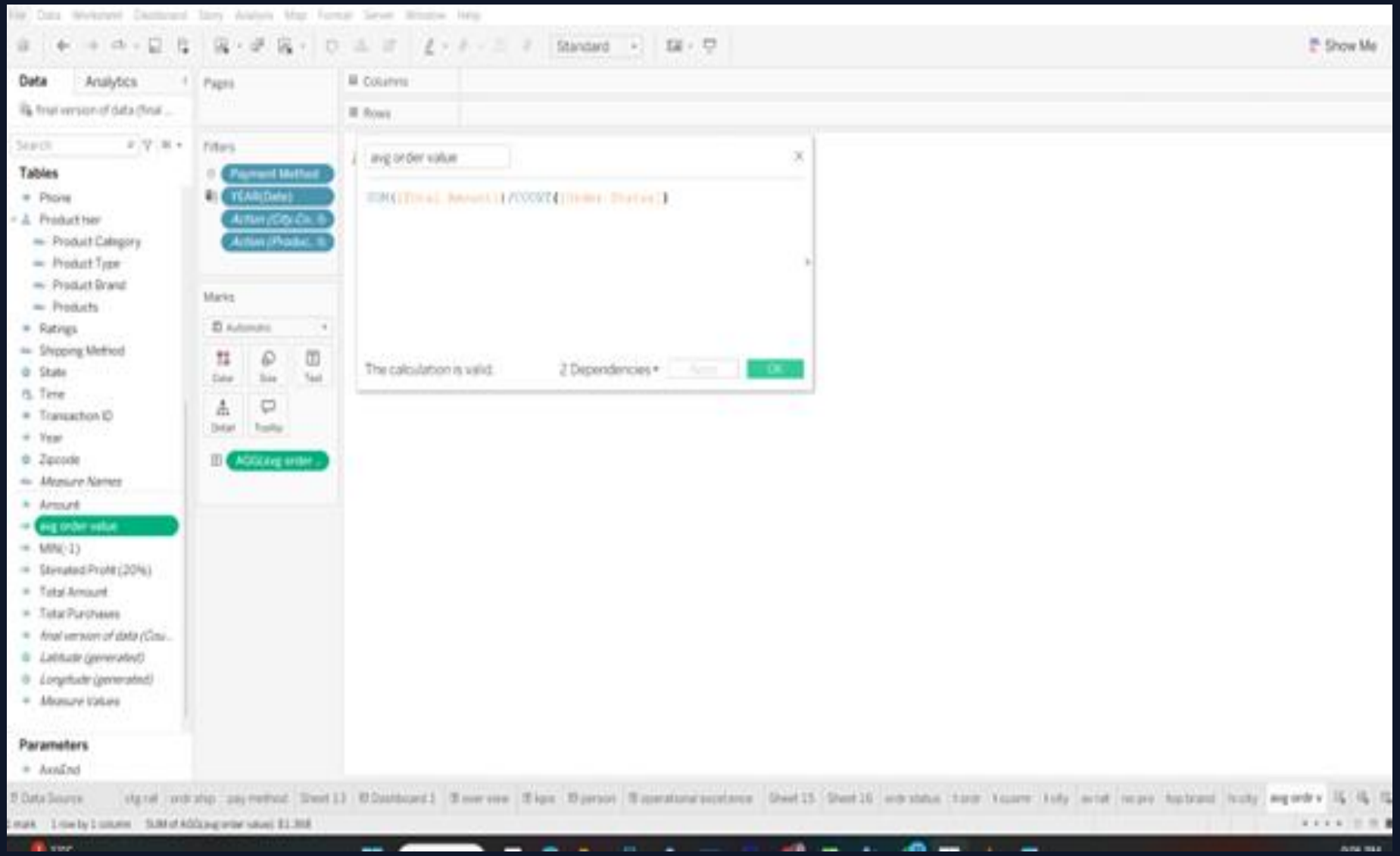
THE END

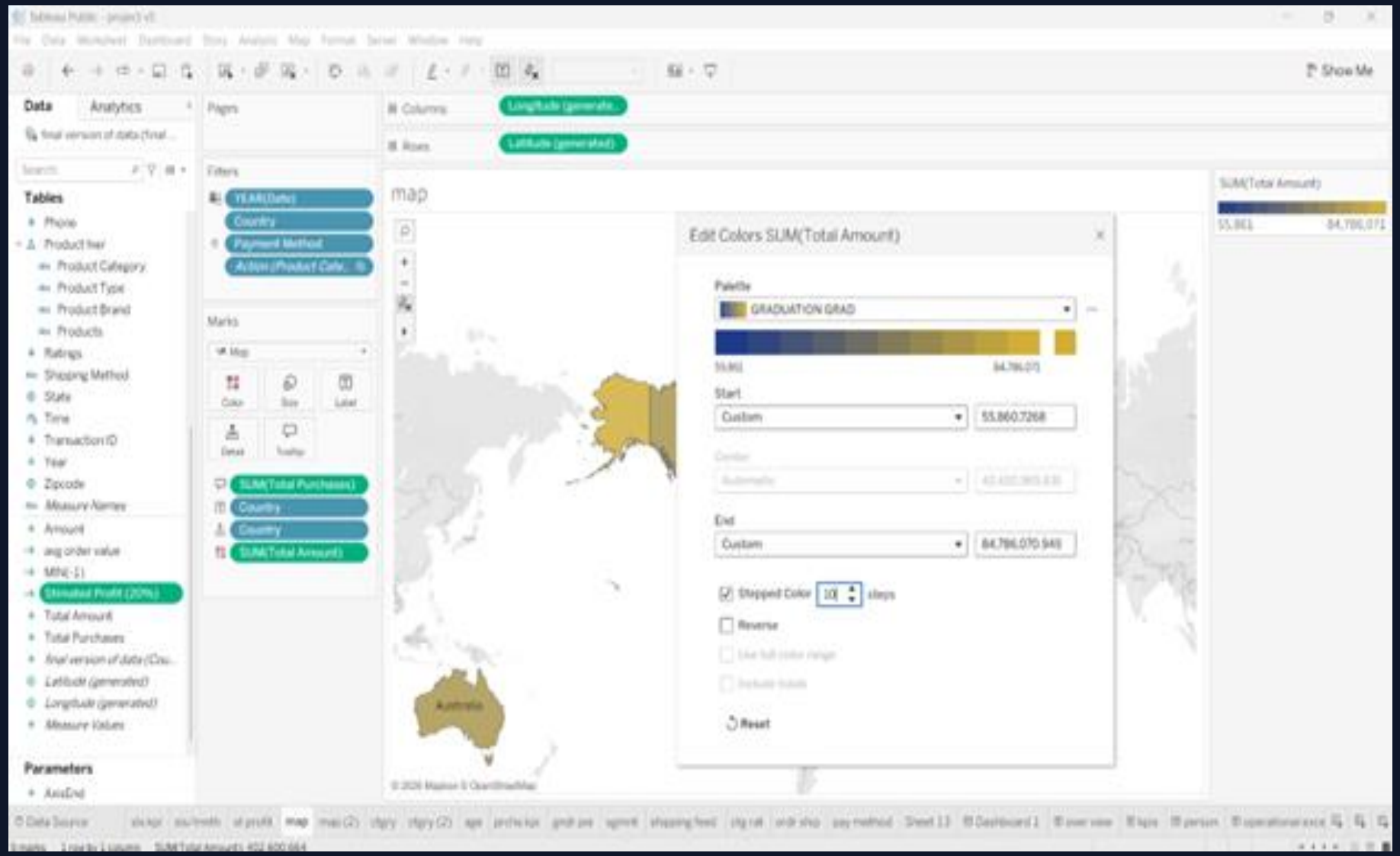
Backstage

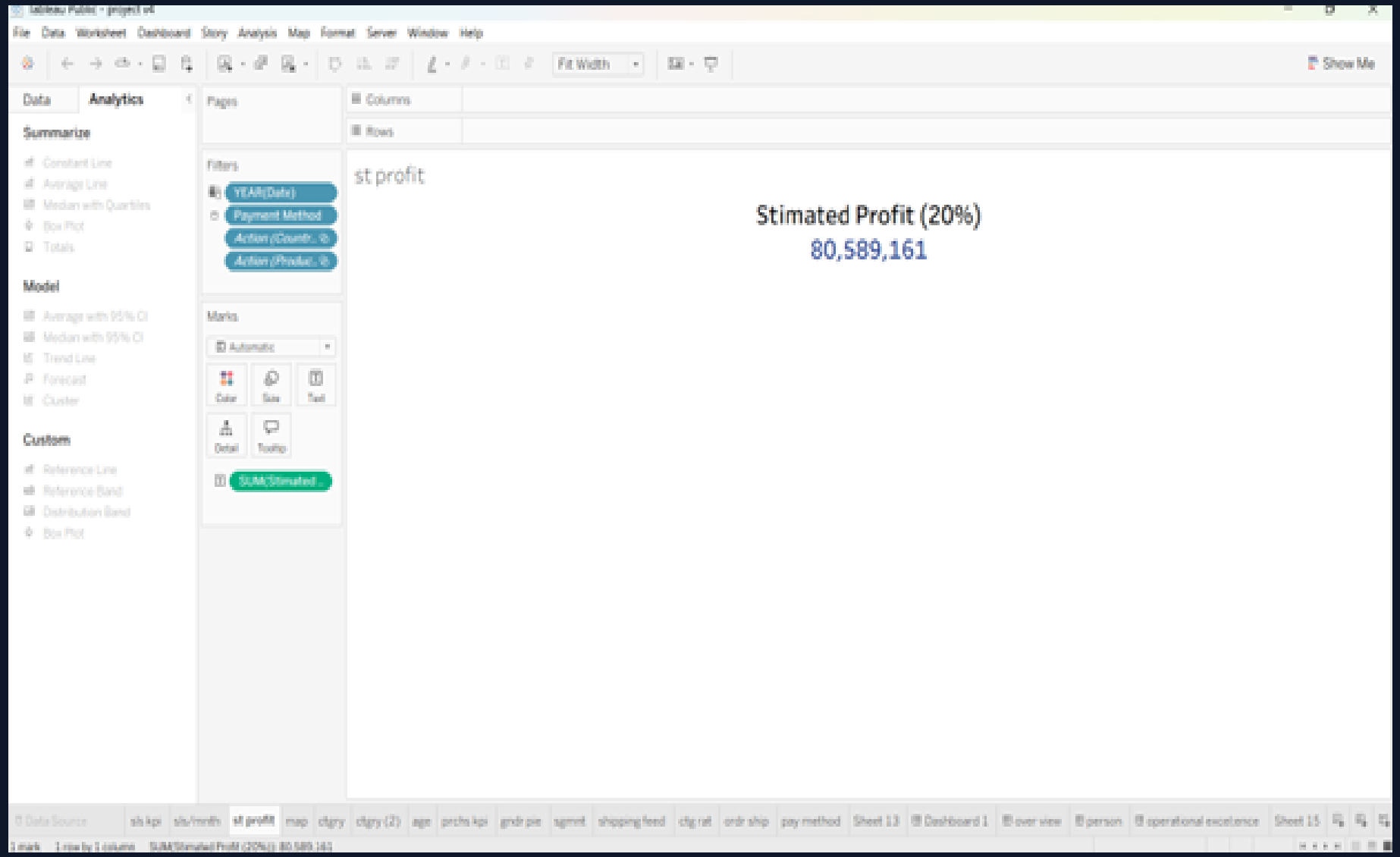

Total Sales
$402,445,093.52
Total Purchases
1,577,054.00
Average Rating
Top Country
USA
Top Category
Electronics
Total Sales
Monthly Sales Trend
$60,000,000.00
$50,000,000.00
$40,000,000.00
$30,000,000.00
$20,000,000.00
$10,000,000.00
$-
1 2 3 4 5 6 7 8 9 10 11 12
Total
Linear (Total)
Month
Total Sales
Sales by Country
(blank)
USA
UK
Germany
Canada
Australia
Country
Total
$-
$50,000,000.00
$100,000,000.00
$150,000,000.00
Year
2023
2024
Product_Ca...
Books
Clothing
Electronics
Grocery
Home Decor
Unknown
Total Sales
Sales by Category
18%
0%
18%
18%
22%
24%
Product_Category
Books
Clothing
Electronics
Grocery
Home Decor
Unknown
Total Sales
Sales by Year
$400,000,000.00
$350,000,000.00
$300,000,000.00
$250,000,000.00
$200,000,000.00
$150,000,000.00
$100,000,000.00
$50,000,000.00
$-
2023
2024
Year
Country
Australia
Canada
Germany
UK
USA
(blank)
Executive Insights
USA contributes the highest share of sales.
Electronics is the top-performing category.

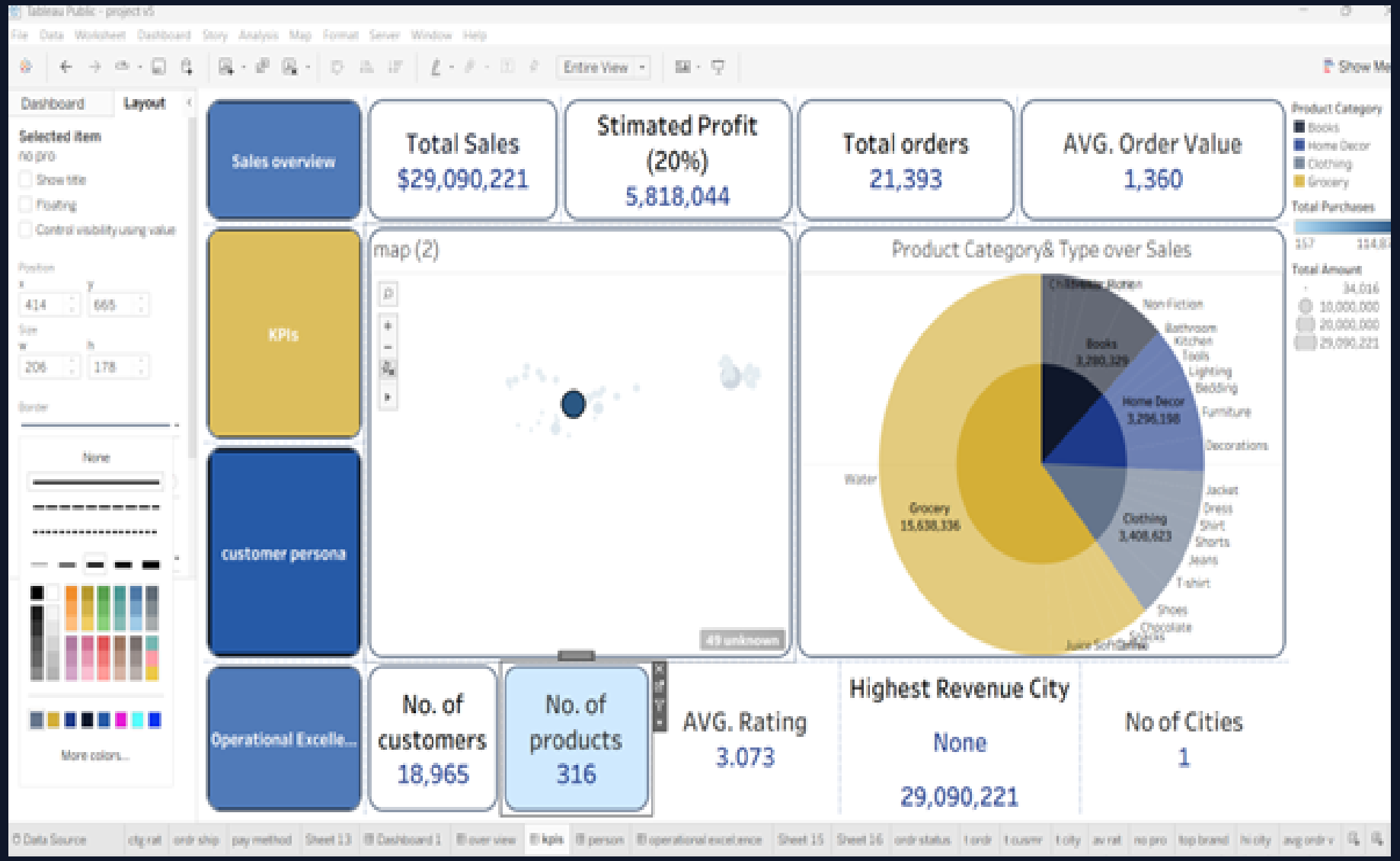

294132
Total orders
Same-Day
top shipping method
Credit Card
most used payment method
127760
delivered orders
Count of Feedback
Customer Feedback by Shipping Method
Shipping_Method
Feedback
Standard
Same-Day
Express
No Feedback
Bad
Average
Good
Excellent
0
5000
10000
15000
20000
25000
30000
35000
40000
Express Excellent
Express Good
Express Average
Express Bad
Express No Feedback
Same-Day Excellent
Same-Day Good
Same-Day Average
Same-Day Bad
Same-Day No Feedback
Standard Excellent
Standard Good
Product_Brand
Penguin Books
Pepsi
Random House
Samsung
Sony
Whirepool
Zara
(blank)
Feedback
Average
Bad
Excellent
Good
No Feedback
Payment_Me...
Another way
Cash
Credit Card
Debit Card
PayPal
Shipping_Me...
Express
Same-Day
Standard
Unknown
Order_Status
Delivered
Pending
Processing
Shipped
Unknown status
Count of Order_Status
Order Status
Order_Status
Delivered
Pending
Processing
Shipped
Unknown status
Count of Payment_Method
Payment Method
Payment_Method
Another way
Cash
Credit Card
Debit Card
PayPal
0
40000
80000
Product_Brand
Sum of Ratings
Product Brand Rating
500000
400000
300000
200000
Total
Chart Area

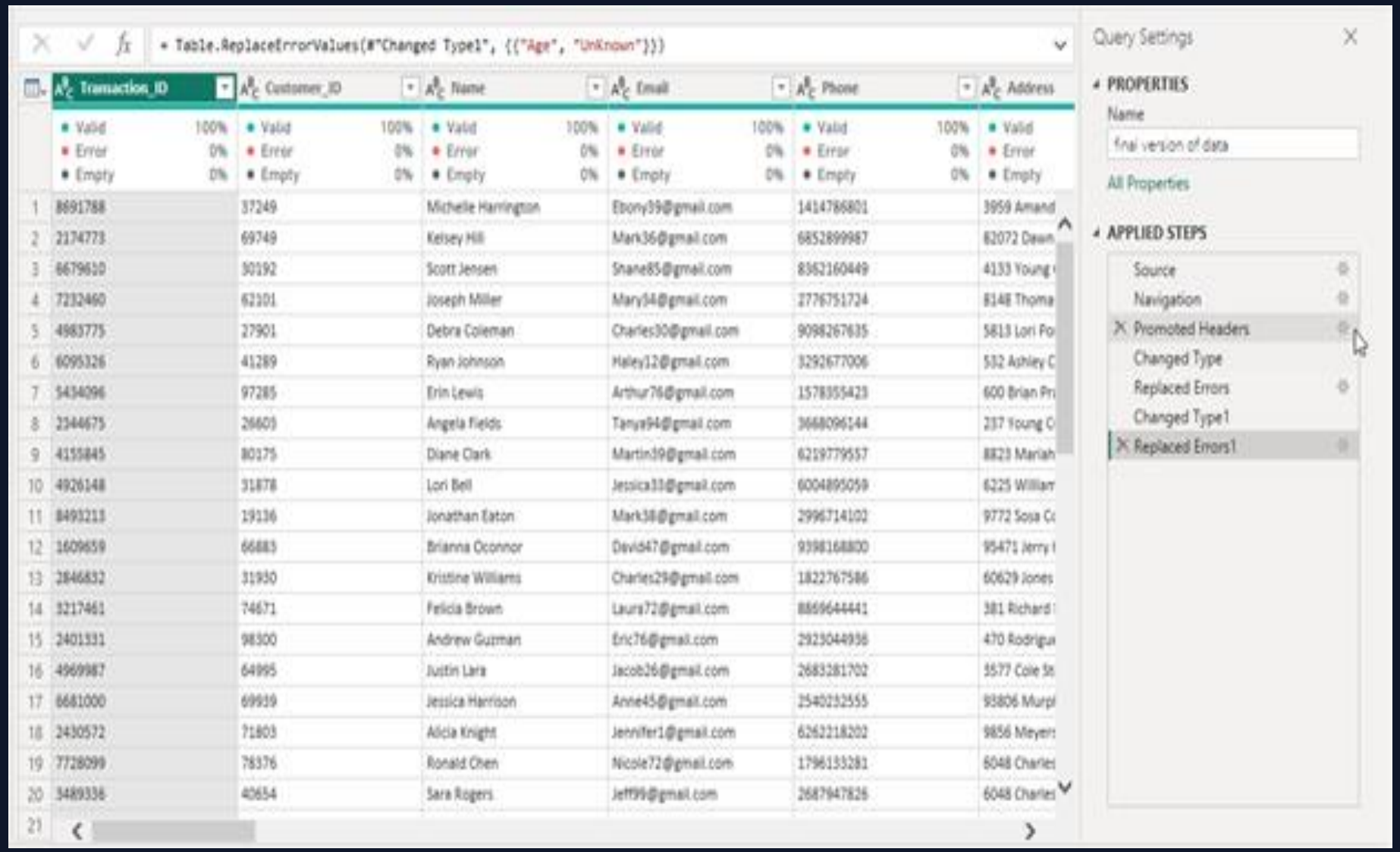

$402,445,093.52
Male
Regular
20
Total Sales
Sales by Gender
Gender
Female
Male
Unknown
Total Sales
Sales by Customer Segment
Unknown
Regular
Premium
New
Customer_Segment
Total
$-
$50,000,000.00
$100,000,000.00
$150,000,000.00
$200,000,000.00
$250,000,000.00
Total Purchases
Purchases by Age
Total
Age
Customer_$...
New
Premium
Regular
Unknown
(blank)
Gender
Female
Male
Unknown
Year
2023
2024
Product_Ca...
Books
Clothing
Electronics
Grocery
Home Decor
Unknown
Sum of Total_Amount
Sales by Gender & Category
Unknown
Home Decor
Electronics
Books
Male
Home Decor
Electronics
Books
Gender
Product_Category
Total


Data
Analytics
Pages
Columns
Rows
Filters
Tables
Marks
avg order value
The calculation is valid.
2 Dependencies
OK
Parameters


Data
Analytics
Pages
Columns
Rows
Filters
Tables
Marks
map
Edit Colors SUM(Total Amount)
Palette
GRADUATION GRAD
Start
Custom
End
Custom
Stepped Color
Reverse
Reset
Parameters
Show Me

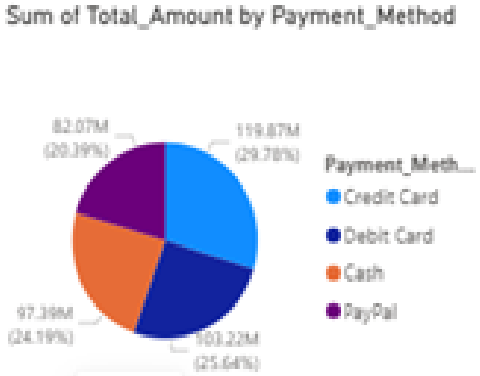

st profit
Stimated Profit (20%)
80,589,161

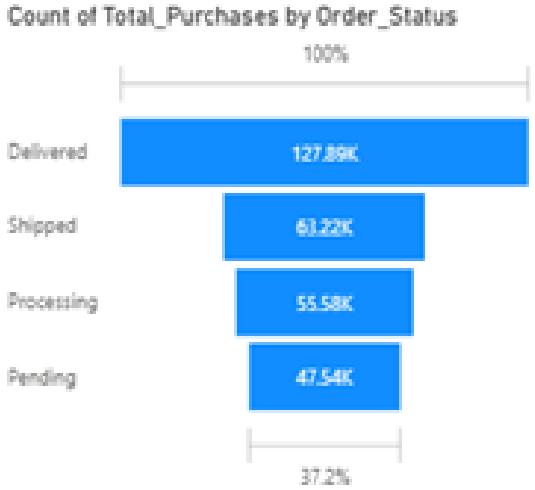

Sales overview
Total Sales
$29,090,221
Stimated Profit
(20%)
5,818,044
Total orders
21,393
AVG. Order Value
1,360
KPIs
map (2)
Product Category& Type over Sales
customer persona
Operational Excelle...
No. of
customers
18,965
No. of
products
316
AVG. Rating
3.073
Highest Revenue City
None
29,090,221
No of Cities
1


= Table.ReplaceErrorValues(#"Changed Type1", {{"Age", "Unknown"}})
Transaction_ID
Customer_ID
Name
Email
Phone
Address
Valid 100%
Error 0%
Empty 0%
1 8691788 37249 Michelle Harrington Ebony39@gmail.com 1414786801 3959 Amand
2 2174773 69749 Kelsey Hill Mark36@gmail.com 6852899987 62072 Dawn
3 6679610 30192 Scott Jensen Shane85@gmail.com 8362160449 4133 Young
4 7232460 62101 Joseph Miller Mary54@gmail.com 2776751724 8148 Thoma
5 4983775 27901 Debra Coleman Charles30@gmail.com 9098267635 5813 Lori Fo
6 6095326 41289 Ryan Johnson Haley12@gmail.com 3292677006 532 Ashley C
7 5434096 97285 Erin Lewis Arthur76@gmail.com 1578355423 600 Brian Pr
8 2344675 26603 Angela Fields Tanya94@gmail.com 3668096144 237 Young C
9 4155845 80175 Diane Clark Martin39@gmail.com 6219779557 8823 Mariah
10 4926148 31878 Lori Bell Jessica33@gmail.com 6004895059 6225 William
11 8493213 19136 Jonathan Eaton Mark38@gmail.com 2996714102 9772 Sosa C
12 1609659 66883 Brianna Oconnor David47@gmail.com 9398168800 95471 Jerry
13 2846832 31930 Kristine Williams Charles29@gmail.com 1822767586 60629 Jones
14 3217461 74671 Felicia Brown Laura72@gmail.com 8869644441 381 Richard
15 2401331 98300 Andrew Guzman Eric76@gmail.com 2923044936 470 Rodrigu
16 4969987 64995 Justin Lara Jacob26@gmail.com 2683281702 3577 Cole St
17 6681000 69939 Jessica Harrison Anne45@gmail.com 2540232555 93806 Murp
18 2430572 71803 Alicia Knight Jennifer1@gmail.com 6262218202 9856 Meyer
19 7728099 78376 Ronald Chen Nicole72@gmail.com 1796133281 6048 Charles
20 3489336 40654 Sara Rogers Jeff99@gmail.com 2687947826 6048 Charles
Query Settings
PROPERTIES
Name
final version of data
All Properties
APPLIED STEPS
Source
Navigation
Promoted Headers
Changed Type
Replaced Errors
Changed Type1
Replaced Errors1

Total sales
402.95M
Total Purchased
2M
Year
2023
2024
Sum of Total_Amount by Product_Category
Product_Category
Electronics
Grocery
Clothing
Books
Home Decor
0M
50M
100M
Sum of Total_Amount
Books
First Product_Ca...
Sum of Total_Amount by Month and Year
Year 2023 2024
60M
40M
20M
0M
Sum of Total_Amount
0
5
10
Month
Total Amount by Country
NORTH AMERICA
EUROPE
AFRICA
SOUTH AMERICA

Product_Brand	Average of Ratings
BlueStar	4.39
Mitsubhisi	3.87
Whirepool	3.47
Pepsi	3.27
Samsung	3.13
Sony	3.12
HarperCollins	3.12
IKEA	3.12
Bed Bath & Beyond	3.11
Penguin Books	3.11
Random House	3.11
Nike	3.11
Nestle	3.11
Apple	3.11
Adidas	3.10
Home Depot	3.10
Coca-Cola	3.10
Zara	3.10
Total	**3.16**





Page 3

Backstage

Sum of Total_Purchases by Gender
597K
(37.83%)
981K
(62.17%)
Gender
Male
Female
Sum of Total_Amount by Customer_Segment and Income
Income
High
Low
Medium
100M
50M
0M
Sum of Total_Amount
Regular
New
Premium
Customer_Segment
Product_Category
Books
Clothing
Electronics
Grocery
Home Decor
Sum of Total_Amount by Age
40M
20M
0M
Sum of Total_Amount
20
46
26
22
34
23
19
21
24
55
Age

```
Estimated Profit = SUM('final version of data'[Total_Amount]) * 0.20
```

```
Highest Revenue City =
MAXX(
    TOPN(
        1,
        VALUES('final version of data'[City]),
        CALCULATE(SUM('final version of data'[Total_Amount]))
    ),
    'final version of data'[City]
)
```

```
Customer Growth % =
VAR Customers2023 = CALCULATE(DISTINCTCOUNT('final version of data'[Customer_ID]), 'final version of data'[Year] = 2023)
VAR Customers2024 = CALCULATE(DISTINCTCOUNT('final version of data'[Customer_ID]), 'final version of data'[Year] = 2024)
RETURN
DIVIDE(Customers2024 - Customers2023, Customers2023)
```

```
avg order value = DIVIDE(SUM('final version of data'[Total_Amount]),COUNT('final version of data'[Order_Status]) )
```