

Shop Ease Customer Order Analysis

This presentation will dive into the analysis of customer order data for Shop Ease, an online retail company. We'll explore sales trends, product performance, and customer purchasing behavior using Python for preprocessing and Power BI for visualization.

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Data Cleaning and Preprocessing

Dataset

We'll use the ShopEase_Orders.csv dataset, containing information on order ID, date, customer details, product information, quantity, sales, profit, and region.

Preprocessing Steps

The data will be cleaned and preprocessed using Python. This includes handling missing values, formatting dates, creating new metrics like profit margin, and validating data consistency.

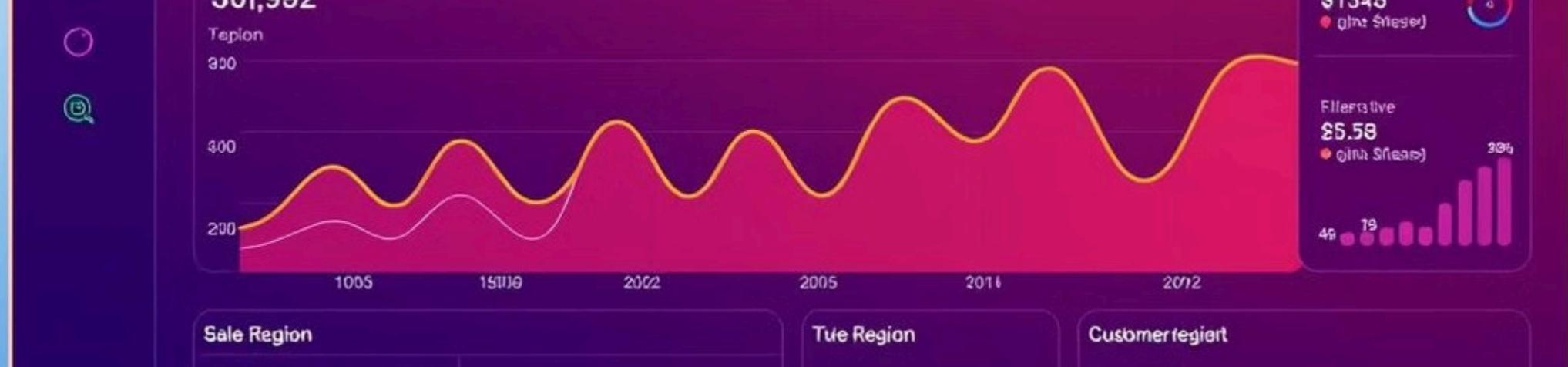


Cleaned Dataset

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Transaction_ID	Customer_ID	Name	Email	Phone	Address	City	State	Zipcode	Country	Age	Gender	Income	Customer_Segment	Date	Year
2	8691788	37249	Michelle Harrington	Ebony39@gmail.com	1414786801	3959 Amanda Bur	Dortmund	Berlin	77985	Germany	21	Male	Low	Regular	18-09-2023	2023
3	2174773	69749	Kelsey Hill	Mark36@gmail.com	6852899987	82072 Dawn Cent	Nottingham	England	99071	UK	19	Female	Low	Premium	31-12-2023	2023
4	6679610	30192	Scott Jensen	Shane85@gmail.com	8362160449	4133 Young Cany	Geelong	New South Wales	75929	Australia	48	Male	Low	Regular	26-04-2023	2023
5	7232460	62101	Joseph Miller	Mary34@gmail.com	2776751724	8148 Thomas Cre	Edmonton	Ontario	88420	Canada	56	Male	High	Premium	05-08-2023	2023
6	4983775	27901	Debra Coleman	Charles30@gmail.com	9098267635	5813 Lori Ports Sq	Bristol	England	48704	UK	22	Male	Low	Premium	01-10-2024	2024
7	6095326	41289	Ryan Johnson	Haley12@gmail.com	3292677006	532 Ashley Crest	Brisbane	New South Wales	74430	Australia	58	Female	Medium	Premium	21-09-2023	2023
8	5434096	97285	Erin Lewis	Arthur76@gmail.com	1578355423	600 Brian Prairie	Kitchener	Ontario	47545	Canada	29	Female	Low	New	26-06-2023	2023
9	2344675	26603	Angela Fields	Tanya94@gmail.com	3668096144	237 Young Curve	Munich	Berlin	86862	Germany	29	Male	Medium	Premium	24-03-2023	2023
10	4155845	80175	Diane Clark	Martin39@gmail.com	6219779557	8823 Mariah Heig	Wollongong	New South Wales	39820	Australia	46	Male	Medium	New	01-06-2024	2024
11	4926148	31878	Lori Bell	Jessica33@gmail.com	6004895059	6225 William Lod	Cologne	Berlin	64317	Germany	25	Male	Medium	New	10-04-2023	2023
12	8493213	19136	Jonathan Eaton	Mark38@gmail.com	2996714102	9772 Sosa Coves	Portsmouth	England	59280	UK	64	Female	Low	Regular	20-07-2023	2023
13	1609659	66883	Brianna Oconnor	David47@gmail.com	9398168800	95471 Jerry Hollo	Portsmouth	England	91253	UK	31	Female	Medium	Regular	21-06-2023	2023
14	2846832	31930	Kristine Williams	Charles29@gmail.com	1822767586	60629 Jones Villa	Portsmouth	England	38173	UK	56	Female	Medium	Regular	01-02-2024	2024
15	3217461	74671	Felicia Brown	Laura72@gmail.com	8869644441	381 Richard Plaza	Portsmouth	England	32061	UK	53	Female	Medium	Regular	05-07-2023	2023
16	2401331	98300	Andrew Guzman	Eric76@gmail.com	2923044936	470 Rodriguez Est	Portsmouth	England	5259	UK	32	Female	High	Regular	18-11-2023	2023
17	4969987	64995	Justin Lara	Jacob26@gmail.com	2683281702	3577 Cole Stream	Portsmouth	England	9845	UK	43	Male	Medium	Regular	15-06-2023	2023
18	6681000	69939	Jessica Harrison	Anne45@gmail.com	2540232555	93806 Murphy Av	Portsmouth	England	84007	UK	69	Male	Low	Regular	07-01-2023	2023
19	2430572	71803	Alicia Knight	Jennifer1@gmail.com	6262218202	9856 Meyers Roa	Portsmouth	England	91967	UK	19	Female	High	Regular	14-04-2023	2023
20	7728099	78376	Ronald Chen	Nicole72@gmail.com	1796133281	6048 Charles Lake	Portsmouth	England	82975	UK	49	Male	Low	Regular	02-07-2024	2024
21	3489336	40654	Sara Rogers	Jeff99@gmail.com	2687947826	6048 Charles Kno	Portsmouth	England	3035	UK	69	Male	Low	Regular	24-10-2023	2023
22	6925572	42165	Daniel Hutchinson	Oscar54@gmail.com	9604443902	37402 Williams St	Portsmouth	England	29119	UK	46	Male	Low	Regular	21-03-2023	2023
23	8871554	63914	Joshua Noble	Diana25@gmail.com	5383491869	7467 Henry Port	Portsmouth	England	16385	UK	61	Male	High	Regular	08-06-2023	2023
24	9476855	42410	Anthony Rodriguez	Paula49@gmail.com	3745118170	585 Malik Lodge	Portsmouth	England	83903	UK	21	Female	Low	Regular	02-03-2024	2024
25	9338306	48869	Ashley Watson	Christine23@gmail.co	3296155904	6088 Sandra Stre	Portsmouth	England	38435	UK	41	Female	Low	Regular	31-05-2023	2023
26	9070447	99870	Timothy Benton	Thomas4@gmail.com	4754633123	424 Patton Parkw	Portsmouth	England	2916	UK	38	Male	Medium	Regular	27-02-2024	2024
27	9082305	47037	Mike Christensen	Olivia95@gmail.com	3605880512	753 Rachel Lodge	Portsmouth	England	92862	UK	59	Male	High	Regular	20-04-2023	2023



S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	
1	Quantity	Price	Total Sales	Product_Category	Product_Brand	Product_Type	Feedback	Shipping_Method	Payment_Method	Order_Status	Ratings	products	Total cost	Cost per unit	Profit	Profit Margin
2	3	108.0287567	324.08627	Clothing	Nike	Shorts	Excellent	Same-Day	Debit Card	Shipped	5	Cycling shorts	226.860389	75.62012967	97.225881	30
3	2	403.3539073	806.7078147	Electronics	Samsung	Tablet	Excellent	Standard	Credit Card	Processing	4	Lenovo Tab	564.6954703	282.3477351	242.0123444	30
4	3	354.4775997	1063.432799	Books	Penguin Books	Children's	Average	Same-Day	Credit Card	Processing	2	Sports equipment	744.4029593	248.1343198	319.0298397	30
5	7	352.4077173	2466.854021	Home Decor	Home Depot	Tools	Excellent	Standard	PayPal	Processing	4	Utility knife	1726.797815	246.6854021	740.0562063	30
6	2	124.2765245	248.5530491	Grocery	Nestle	Chocolate	Bad	Standard	Cash	Shipped	1	Chocolate cookies	173.9871344	86.99356719	74.56591473	30
7	4	296.2918059	1185.167224	Electronics	Apple	Tablet	Good	Express	PayPal	Pending	4	Lenovo Tab	829.6170568	207.4042642	355.5501672	30
8	2	315.0576476	630.1152951	Electronics	Samsung	Television	Bad	Standard	Cash	Processing	1	QLED TV	441.0807066	220.5403533	189.0345885	30
9	1	46.58807038	46.58807038	Clothing	Zara	Shirt	Bad	Same-Day	Cash	Processing	1	Dress shirt	32.61164927	32.61164927	13.97642111	30
10	8	328.8393017	2630.714413	Grocery	Nestle	Chocolate	Bad	Same-Day	Cash	Delivered	1	Dark chocolate	1841.500089	230.1875111	789.2143239	30
11	10	397.6112295	3976.112295	Home Decor	Home Depot	Decorations	Excellent	Standard	Cash	Delivered	4	Candles	2783.278606	278.3278606	1192.833689	30
12	4	90.98186975	363.9274749	Home Decor	Home Depot	Tools	Average	Standard	Credit Card	Shipped	2	Screwdriver set	254.7492353	63.68730882	109.1782437	30
13	1	364.8305669	364.8305669	Books	Random House	Non-Fiction	Average	Standard	Credit Card	Pending	2	Science	255.3813968	255.3813968	109.4491701	30
14	10	161.879361	1618.79361	Grocery	Coca-Cola	Water	Bad	Standard	PayPal	Delivered	1	Bottled water	1133.155527	113.3155527	485.638083	30
15	9	350.8170158	3157.353142	Grocery	Nestle	Snacks	Excellent	Express	PayPal	Delivered	4	Fruit snacks	2210.147199	245.571911	947.2059426	30
16	6	297.7260391	1786.356235	Clothing	Adidas	T-shirt	Bad	Same-Day	Cash	Shipped	1	V-neck tee	1250.449365	208.4082274	535.9068705	30
17	3	23.72390122	71.17170367	Books	Random House	Literature	Bad	Express	Credit Card	Pending	1	Drama	49.82019257	16.60673086	21.3515111	30
18	10	14.72716425	147.2716425	Grocery	Pepsi	Water	Average	Same-Day	Debit Card	Shipped	2	Flavored water	103.0901498	10.30901498	44.18149275	30
19	3	139.786855	419.3605651	Electronics	Apple	Tablet	Good	Express	Cash	Shipped	3	Samsung Galaxy Tab	293.5523956	97.85079852	125.8081695	30
20	1	210.1379188	210.1379188	Grocery	Coca-Cola	Juice	Bad	Express	Credit Card	Shipped	1	Orange juice	147.0965432	147.0965432	63.04137564	30
21	2	469.6596392	939.3192783	Home Decor	IKEA	Furniture	Average	Standard	Cash	Shipped	2	Bookshelf	657.5234948	328.7617474	281.7957835	30
22	6	420.8750298	2525.250179	Grocery	Nestle	Coffee	Average	Same-Day	PayPal	Processing	2	Affogato	1767.675125	294.6125209	757.5750537	30
23	4	200.2871282	801.1485128	Books	HarperCollins	Non-Fiction	Average	Standard	PayPal	Processing	2	Business	560.803959	140.2009897	240.3445538	30
24	6	34.12426631	204.7455979	Books	Penguin Books	Non-Fiction	Average	Same-Day	PayPal	Processing	2	Self-help	143.3219185	23.88698642	61.42367937	30
25	8	436.6079091	3492.863273	Home Decor	Bed Bath & Beyond	Bathroom	Good	Standard	PayPal	Pending	3	Sink	2445.004291	305.6255364	1047.858982	30
26	2	285.2983297	570.5966593	Grocery	Coca-Cola	Juice	Bad	Same-Day	PayPal	Processing	1	Grape juice	399.4176615	199.7088308	171.1789978	30



Visualizations

1 Sales Trends Over Time

A line chart will be used to visualize overall sales trends, allowing us to identify seasonal patterns and growth trajectories.

3 Profit Margin Analysis

A matrix visual will display regional performance, product category breakdown, sales figures, and profit margins. This enables a detailed view of profitability across different categories.

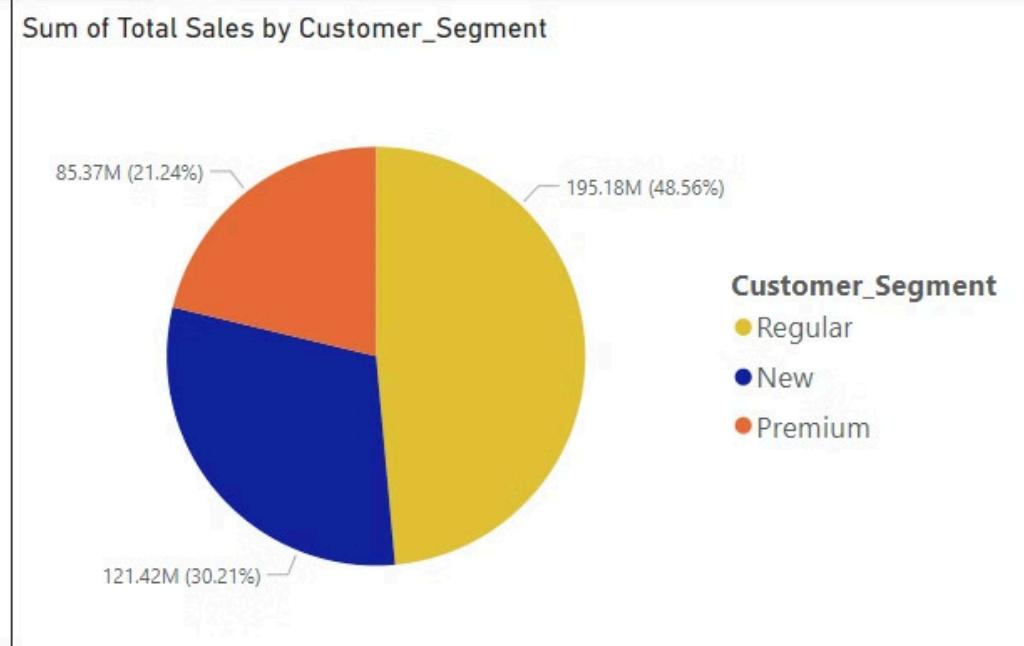
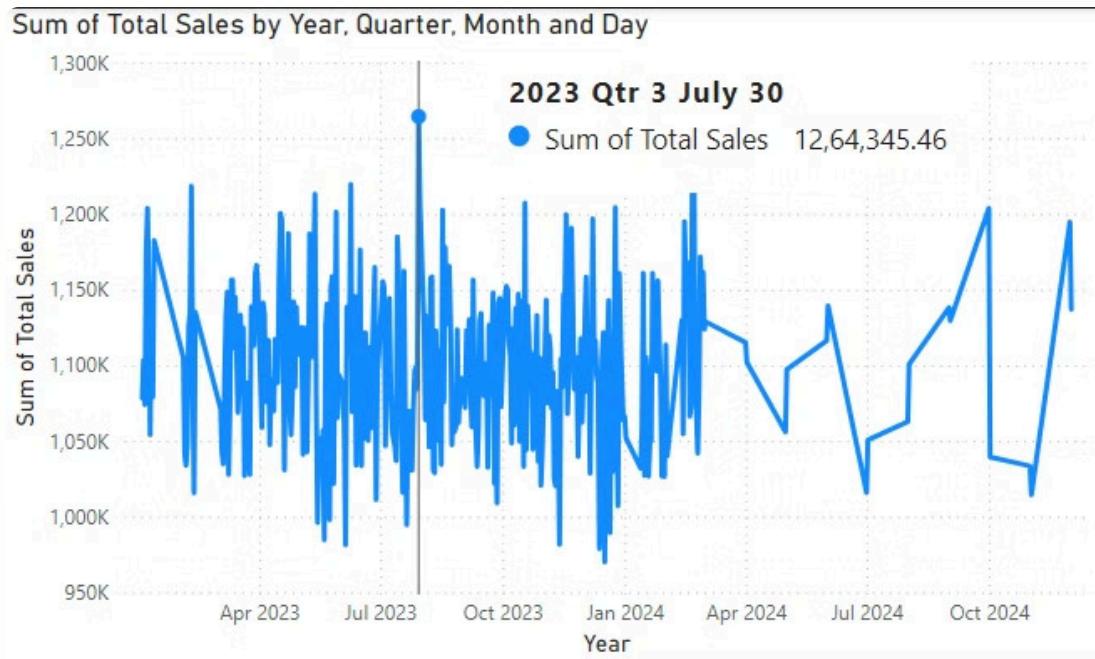
2 Customer Segmentation

A pie chart will illustrate the proportion of sales contributed by different customer segments (e.g., new, Regular). This helps understand customer behavior and preferences.

4 Top-Performing Products

A bar chart will showcase the top 10 products based on sales volume, accompanied by their respective profit values.

Dashboard : Sales Trends

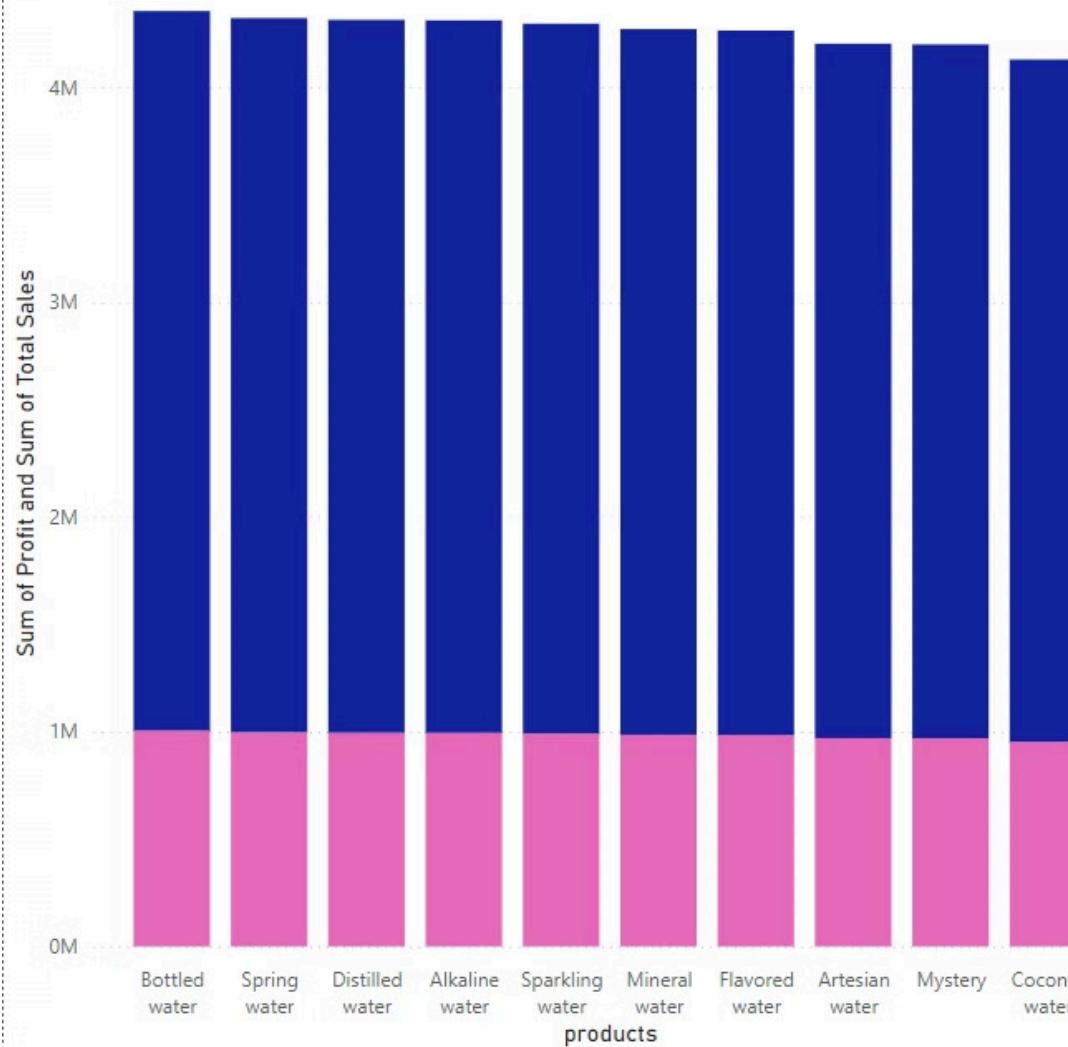


Country, State		Product_Category		Books		Clothing		Electronics		Grocery	
Country	State	Product Category	Sub-Category	Sum of Total Sales	Sum of Profit Margin	Sum of Total Sales	Sum of Profit Margin	Sum of Total Sales	Sum of Profit Margin	Sum of Total Sales	Sum of Profit Margin
Australia		Books	Books	1,10,33,341.41	244950	1,10,90,078.45	241650	1,52,17,651.95	331140	1,20,07,1	
Canada		Books	Books	1,09,23,020.68	238950	1,11,27,184.97	245250	1,53,60,948.16	340020	1,18,85,4	
Germany		Books	Books	1,30,10,196.87	287430	1,31,17,735.48	286470	1,71,43,490.85	377250	1,38,81,5	
UK		Books	Books	1,58,19,259.01	343650	1,59,66,549.78	349290	2,04,69,285.91	443580	1,64,88,1	
USA		Books	Books	2,19,40,909.16	480990	2,16,31,918.78	475800	2,68,20,398.70	588960	3,47,03,8	
Alabama		Clothing	Clothing								
Alaska		Clothing	Clothing								
Arizona		Clothing	Clothing								
Arkansas		Clothing	Clothing								
Total		Books	Books	7,27,26,727.14	1595970	7,29,33,467.46	1598460	9,50,11,775.57	2080950	8,89,66,1	

Top-Performing Products

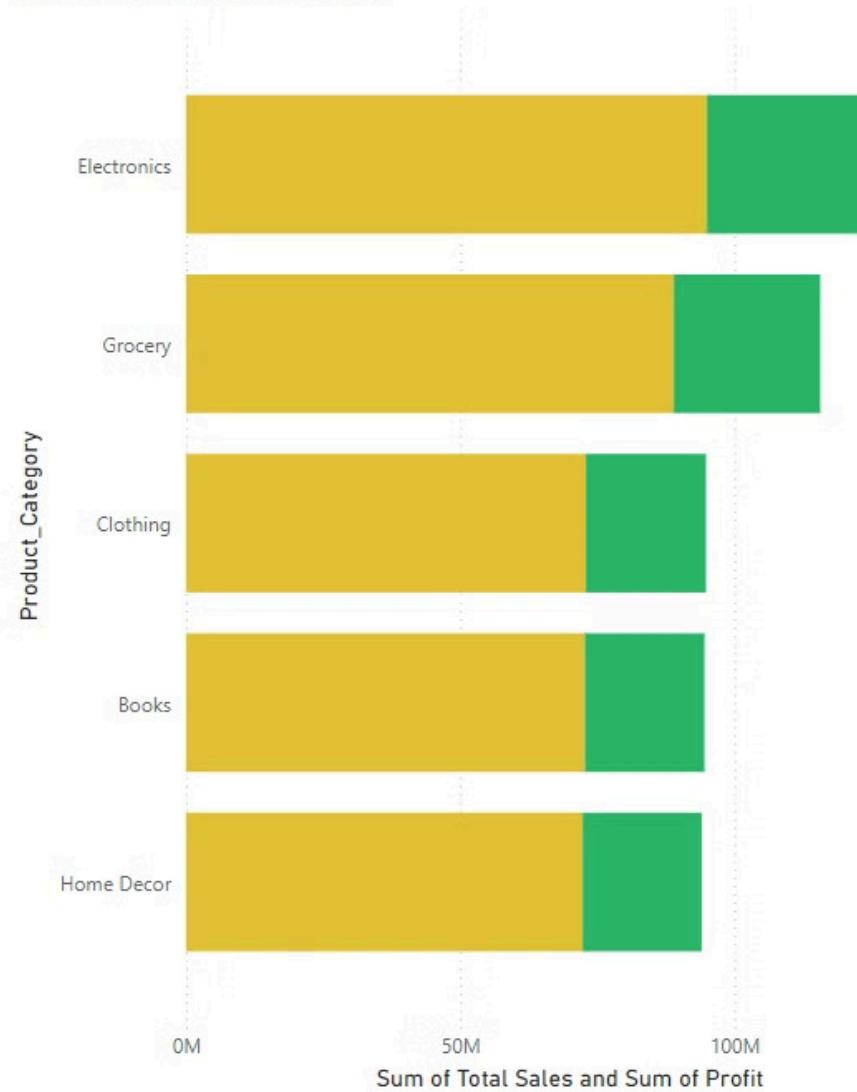
Sum of Profit and Sum of Total Sales by products

● Sum of Profit ● Sum of Total Sales



Sum of Total Sales and Sum of Profit by Product_Category

● Sum of Total Sales ● Sum of Profit



Key Insights

Region and Category Performance

Insights will be drawn on which regions and product categories generate the highest revenue, providing insights into market trends and customer demand.

Profitable Customer Segment

The analysis will identify the customer segment contributing the most to sales and profit, revealing target audience for future marketing campaigns.

Low-Profit Margin Products

Products with high sales but low profit margins will be identified, prompting further investigation for pricing or cost optimization.





Recommendations for ShopEase

1

Focus Marketing

Marketing efforts should be concentrated on high-performing regions and products, maximizing return on investment and targeting profitable markets.

2

Tailor Promotions

Promotions should be tailored to the most profitable customer segment, leveraging their buying habits and preferences to increase conversion rates.

3

Investigate Low-Margin Products

A deeper investigation into products with high sales but low profit margins is necessary to determine potential price adjustments or cost reduction strategies.



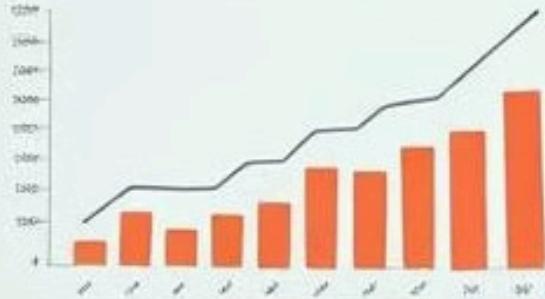
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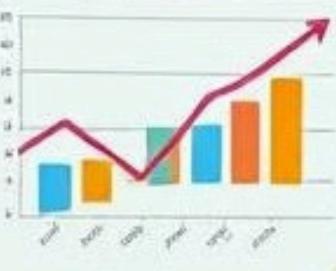
Conclusion

By analyzing customer order data, ShopEase can gain valuable insights into sales performance, product trends, and customer behavior. These insights can be used to optimize marketing campaigns, improve product offerings, and enhance overall business strategy.

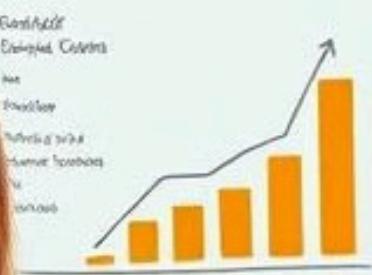
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Hawkins



Thank You