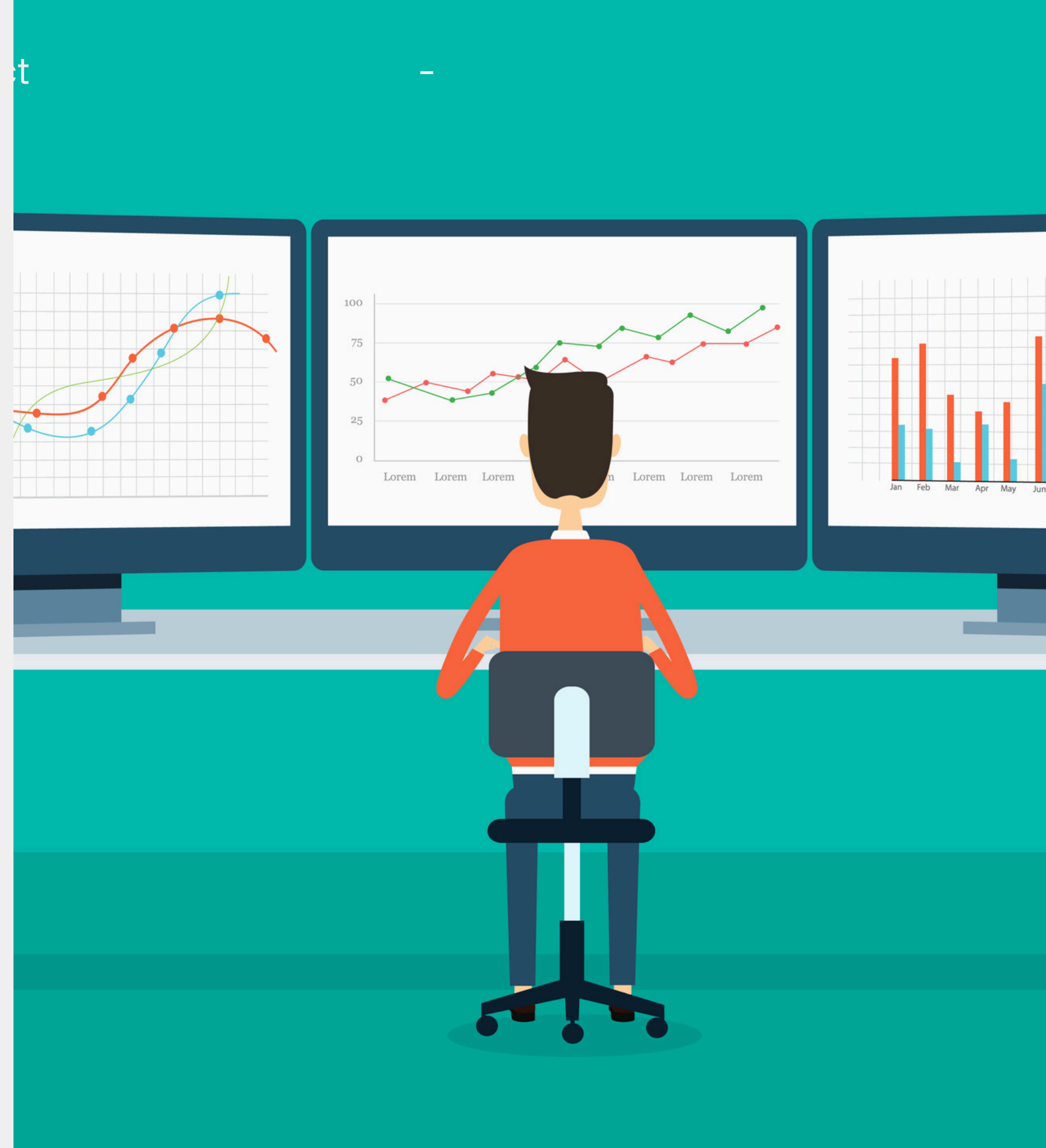


E-commerce Domain

Business Insights from Sales, Reviews & Customer Behavior

Analysis BY-Nitesh Chandra Jena

Dt-07 JUNE 2025



Introduction

- E-commerce platforms generate massive data from orders, customers, products, and payments.
- This project aims to explore business insights using SQL-based analysis across key KPIs such as revenue, seller performance, and product demand.
- The goal is to support decision-making in marketing, inventory, seller performance, and customer experience.
- And used Power Bi for visualization.

Tables

- Orders
- Products
- Customers
- Sellers
- Reviews
- Orders_items
- Payments

Unlimited

-

Project



'How much total money has the platform made so far, and how has it changed over time?

Objective:

- Analyze total revenue generated on the platform and observe monthly trends in earnings..

Key Insights:

- Monthly revenue trends show:
- Growth during peak seasons like [e.g., November and December].
- Consistent upward trend indicating business expansion.
- This analysis helps identify sales cycles, seasonality, and revenue acceleration.

Which product categories are the most popular, and how do their sales numbers compare

Objective:

- Identify which product categories are the most popular based on quantity sold and revenue generated.

25

26

ORDERS O ON OI.ORDER_ID = O.ORDER_ID
 JOIN

100 %

Results

Messages

	PRODUCT_CATEGORY_NAME	TOTAL_QUANTITY_SOLD	TOTAL_REVENUE
1	bed_table & bath	10953	1023435
2	beauty & health	9465	1233132
3	sports & leisure	8431	954853
4	furniture & decoration	8160	711928
5	computers & accessories	7644	888725
6	household utilities	6795	615629
7	watches & gifts	5859	1166177
8	Telephony	4430	309860
9	garden tools	4268	470495
10	automotive	4140	578967

What is the average amount spent per order, and how does it change depending on the product category or payment method

Objective:

- To analyze the average amount customers spend per order and examine how this value varies across different product categories and payment methods, helping identify high-value segments and spending patterns.

AVG_AMOUNT_PER_ORDER			
1	154.1		

	PRODUCT_CATEGORY_NAME	PAYMENT_TYPE	AVG_SPENT_PER_ITEM
1	NULL	voucher	115.66
2	NULL	credit_card	113.78
3	NULL	boleto	107.87
4	NULL	debit_card	93.61
5	agriculture_industry & commerce	credit_card	350.12
6	agriculture_industry & commerce	boleto	342.54
7	agriculture_industry & commerce	voucher	272.49
8	agriculture_industry & commerce	debit_card	215.48
9	air conditioning	debit_card	246.97
10	air conditioning	credit_card	196.29
11	air conditioning	boleto	152.91
12	air conditioning	voucher	136.85
13	appliances	debit_card	304.91
14	appliances	credit_card	105.18
15	appliances	boleto	95.36
16	appliances	voucher	73.45
17	appliances_2	credit_card	557.29
18	appliances_2	voucher	285.92
19	appliances_2	boleto	236.5

How many active sellers are there on the platform, and does this number go up or down over time

Objective:

- To determine the total number of active sellers on the platform and analyze how their participation has evolved over time based on order activity and delivery status.

65

COUNT(DISTINCT OT SELLER ID) AS ACTIVE SELLERS

100 %

Results Messages

	ACTIVE_SELLERS
1	3095

	PURCHASE_MONTH	ACTIVE_SELLERS
1	2016-09	1
2	2016-10	128
3	2016-12	1
4	2017-01	219
5	2017-02	402
6	2017-03	476
7	2017-04	488
8	2017-05	563
9	2017-06	519
10	2017-07	593
11	2017-08	683
12	2017-09	711
13	2017-10	762
14	2017-11	937
15	2017-12	846
16	2018-01	956
17	2018-02	928
18	2018-03	981
19	2018-04	1105

Which products sell the most, and how have their sales changed over time

- Objective: To identify the most sold product categories on the platform and analyze how their sales volume has fluctuated over time, providing insights into customer demand trends and seasonal buying behavior.

Results		Messages	
	PRODUCT_CATEGORY_NAME	TOTAL_QUANTITY_SOLD	
1	bed_table & bath	10953	
2	beauty & health	9465	
3	sports & leisure	8431	
4	furniture & decoration	8160	
5	computers & accessories	7644	
6	household utilities	6795	
7	watches & gifts	5859	
8	Telephony	4430	

	MONTH	PRODUCT_CATEGORY_NAME	TOTAL_QUANTITY_SOLD
1	2018-02	computers & accessories	971
2	2017-11	bed_table & bath	961
3	2018-06	beauty & health	875
4	2018-01	bed_table & bath	836
5	2018-08	beauty & health	835
6	2018-03	bed_table & bath	777
7	2018-07	beauty & health	770
8	2017-11	furniture & decoration	767
9	2018-06	bed_table & bath	764
10	2018-05	beauty & health	751
11	2018-03	computers & accessories	750
12	2018-05	bed_table & bath	740
13	2018-04	bed_table & bath	736
14	2018-03	sports & leisure	732
15	2018-01	computers & accessories	688
16	2018-02	bed_table & bath	685



Do customer reviews and ratings help products sell more or perform better on the platform

- Objective: To evaluate whether customer review scores influence product performance, by comparing sales volume, product count, and revenue across different rating levels.
- Key Insights: Products with higher customer review scores (especially 4 and 5) consistently generate more orders and revenue, highlighting a strong positive correlation between customer satisfaction and sales performance.
- In contrast, low-rated products not only receive fewer orders but also tend to sell at lower average prices — suggesting that customer trust directly influences both demand and perceived value.

Power BI Visualizations

Online Retail Performance & Customer Insights Dashboard

Sales Performance

2016

2017

2018

Customer Type

Month

Trend-Analysis

Sales
Performance

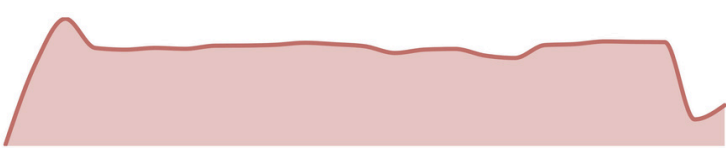
One-Time

Repeat

All

Avg Review Score

4.09



Top Category Revenue

1.45M

beauty & health



Avg Delivery Delay

13.32 Days

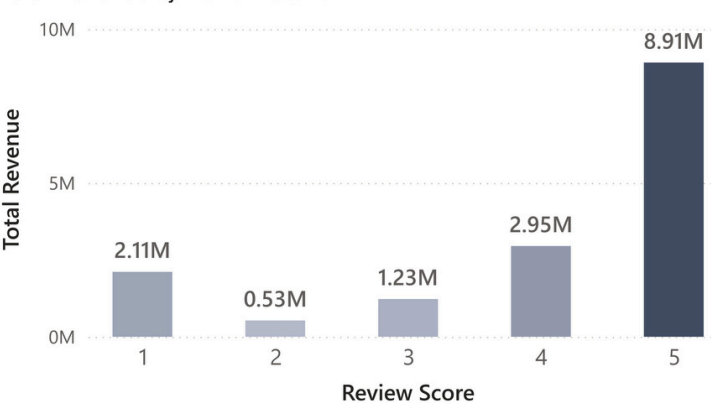


% Late Deliveries

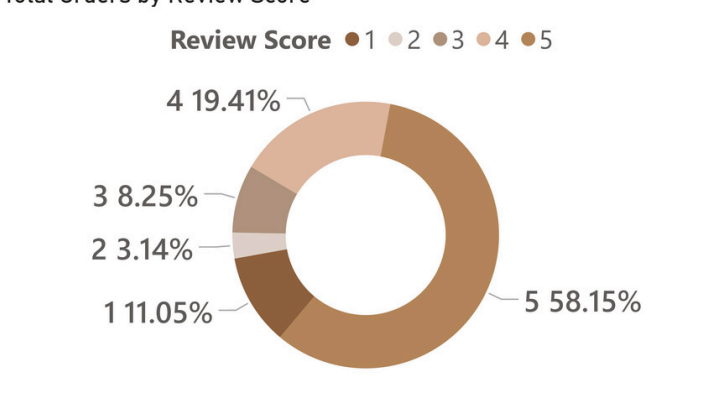
84.5%



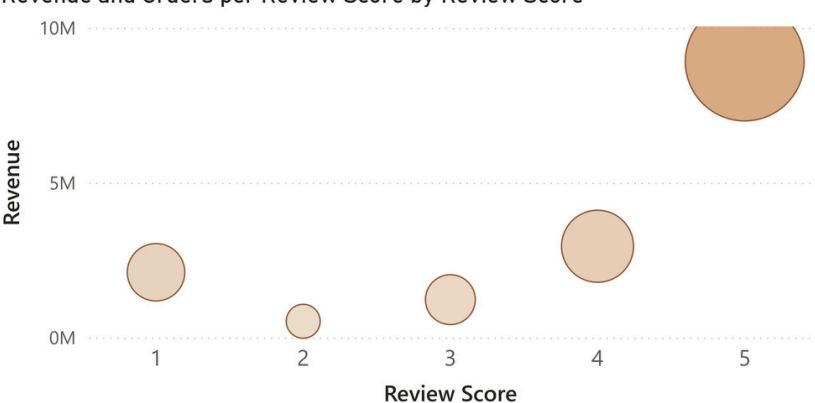
Total Revenue by Review Score



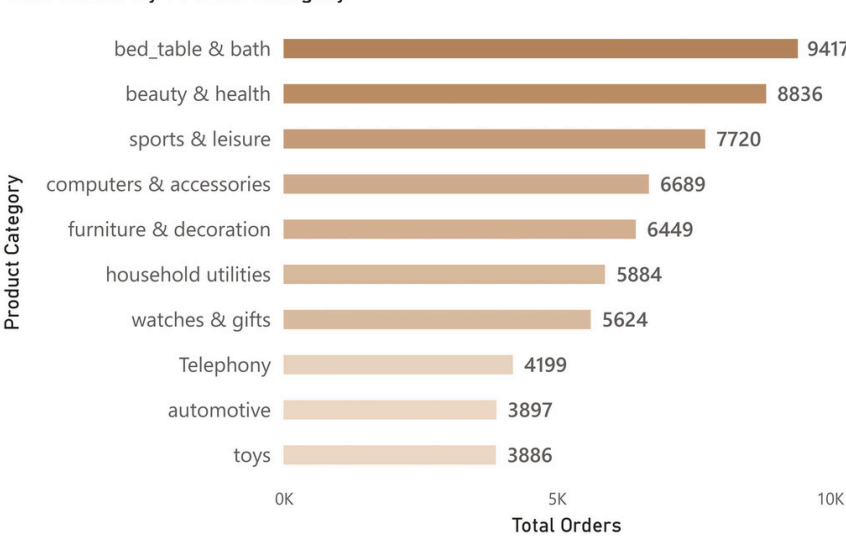
Total Orders by Review Score



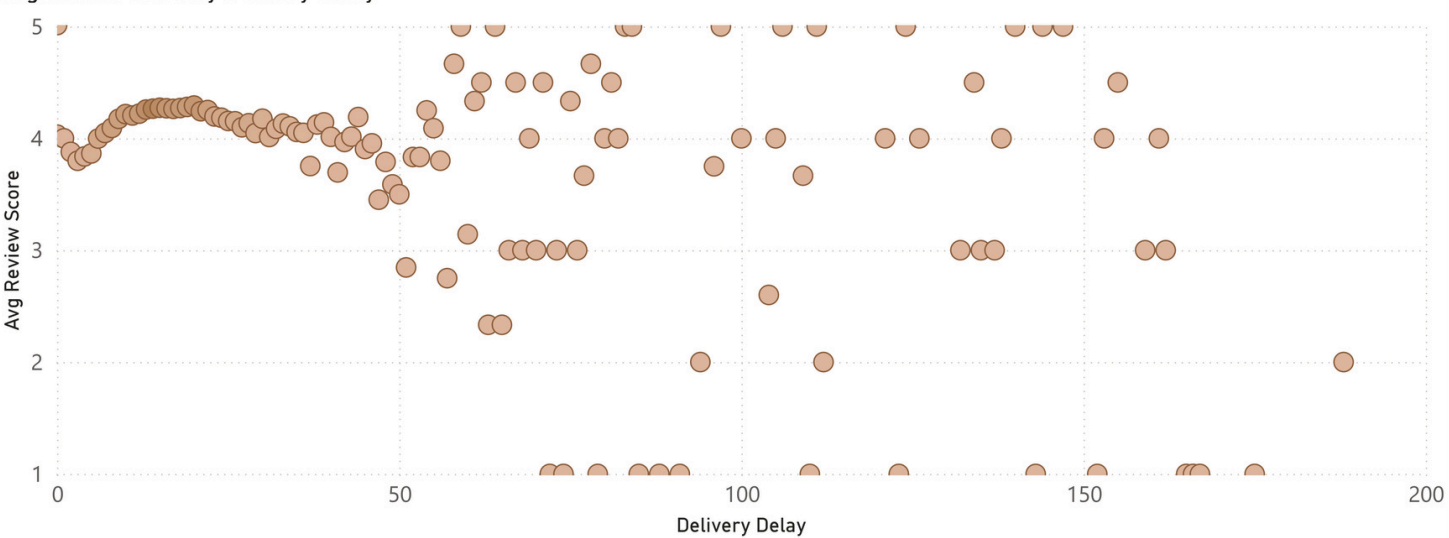
Revenue and Orders per Review Score by Review Score



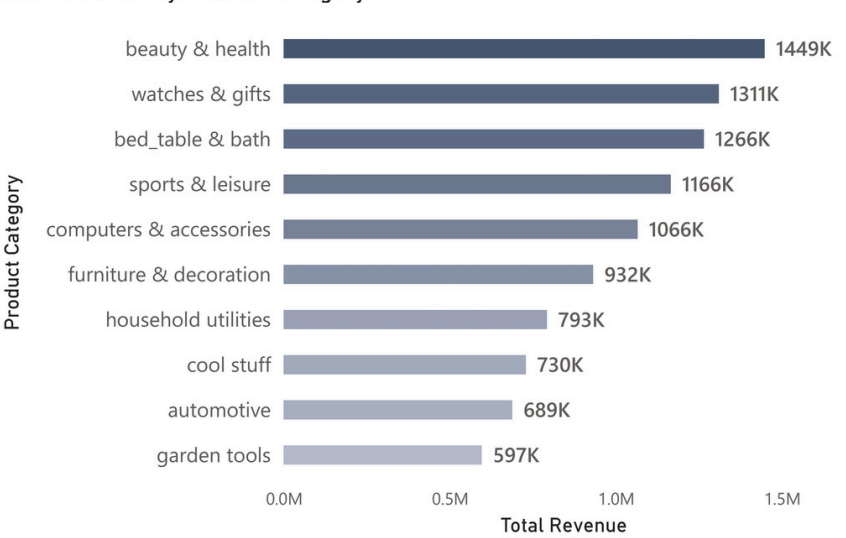
Total Orders by Product Category



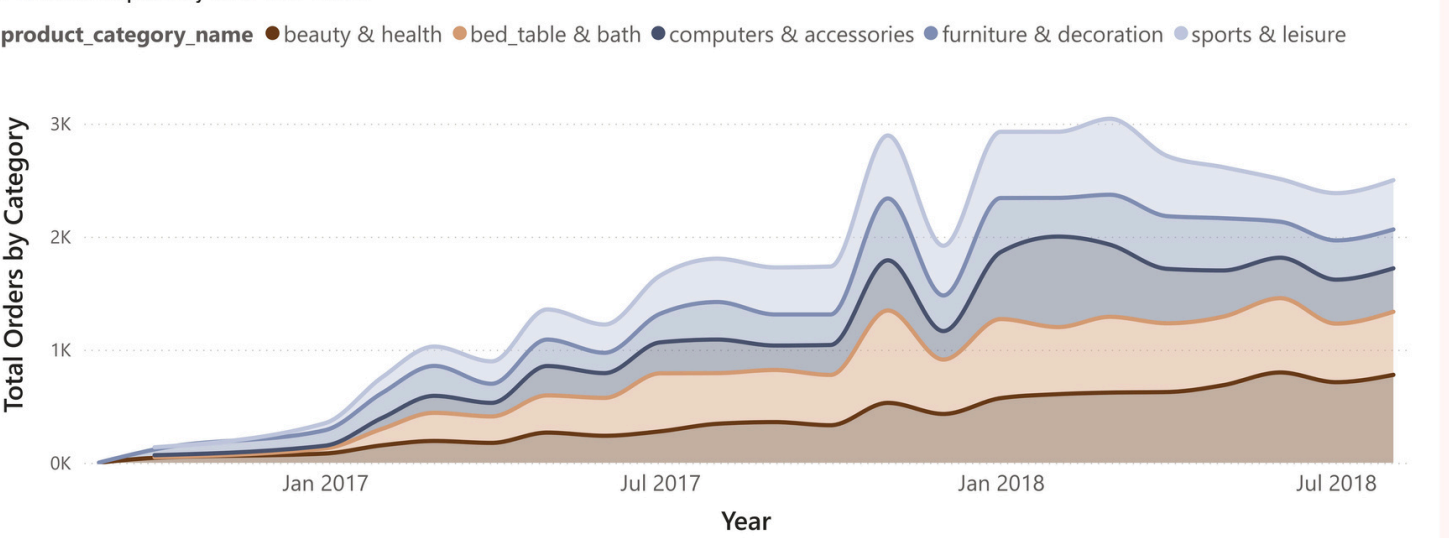
Avg Review Score by Delivery Delay



Total Revenue by Product Category



Products Popularity Over the Years



Conclusion

✓ Key Takeaways:

- Uncovered top-selling product categories and their revenue impact to inform inventory and promotion strategies.
- Analyzed order trends and payment patterns to optimize customer experience and payment method offerings.
- Identified high-performing sellers and monitored their activity trends to support vendor engagement and platform growth.
- Evaluated average order values across categories and payment types to enhance pricing and bundling strategies.
- Discovered that customer reviews positively correlate with higher sales and pricing — reinforcing the value of product quality and feedback visibility.
- Detected seasonal and category-wise sales trends to enable proactive marketing and stock planning.
- Delivered actionable insights using SQL and Power BI to empower data-driven decision-making.
- Improved targeting of high-value products and customers, driving better revenue outcomes.

Thank You