

Sales Performance and Customer Insights Report

A SQL Exploratory Data Analysis

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Project Background

This project analyzes transactions dataset to assess sales performance over time, analyze the underperforming profit margins and uncover customer purchasing behaviors, to aid business and marketing decisions.

Project Objective

- ▶ Who are the most valuable customers, male or female
- ▶ Which products truly drive profit
- ▶ Are customers buying in bulk or smaller quantities
- ▶ When is peak sales during the year

Datasets Description

- ▶ Retail Sales.csv
- ▶ Key fields – transactions id, sales date & time, gender, age, category, quantity, total sales

Data Cleaning

- ▶ Renamed columns using CHANGE
- ▶ Standardized text values using LIKE and CASE
- ▶ Converted string dates and time using STR_TO_DATE()

Key KPIs

- ▶ Gender distribution using conditional aggregation
- ▶ Categorized age using conditional aggregation
- ▶ Product segmentation analysis
- ▶ Inventory analysis
- ▶ Transactions by month and by hour of day

Key Insights

- ▶ Female purchases more of beauty products while the male purchases more of Electronics and Clothing.

category	male_count	female_count
Clothing	351	347
Beauty	281	330
Electronics	343	335

- ▶ The middle aged (customers between 41 - 51 age bracket) make higher purchases.

category	Youth	Adult	Middle_age	Elderly
Clothing	170	312	490	208
Beauty	168	304	452	159
Electronics	162	312	487	191

Key Insights contd.

- ▶ Products boosting the sales volume are not the ones with high profit
- ▶ Beauty products generates higher profit followed by Electronics and then Clothing

category	count(trans_id)	sum(total_sale)	avg(total_sale)
Beauty	611	286790	469.3781
Electronics	678	311445	459.3584
Clothing	698	309995	444.1189

Key Insights contd.

- Customers make more of bulk purchases than smaller quantities

quantity	count(trans_id)	sum(total_sale)
4	523	371380
3	478	288240
2	483	160050
1	503	88560

- Sales hike is between 17:00hrs - 22:00hrs.

hour_of_day	transactions	TotalSales
6	84	36995
7	94	46125
8	99	46430
9	82	38255
10	97	42730
11	92	45875
12	29	12475
13	38	15650
14	33	18900
15	30	15410
16	34	16965
17	213	96480
18	206	91090
19	232	109460
20	211	93035
21	206	97650
22	201	82245
23	6	2460

Key Insights contd.

- ▶ Sales increases from the month of September through December.
- ▶ Oct. 2024 and Oct. 2025 has same sales but different profit. This is caused by the higher number of beauty products sales in 2024.

year	month	transactions	TotalSales
2024	September	127	61620
2024	October	145	67735
2024	November	146	68915
2024	December	226	105230
2025	September	146	67560
2025	October	145	57880
2025	November	126	57135
2025	December	71	35795

month	category	transactions	TotalSales
2024-10	Beauty	50	24540
2024-10	Clothing	48	21895
2024-10	Electronics	47	21300
2025-10	Beauty	45	21350
2025-10	Clothing	40	14475
2025-10	Electronics	60	22055

Summary of Findings

- ▶ Clothing generate high sales
- ▶ Beauty products deliver strong profitability
- ▶ Female customers are the most valuable customers
- ▶ Customers between 41 - 51years age bracket deliver higher sales
- ▶ The peak sales period is between 5:00pm and 10:00pm
- ▶ Customers make more of bulk purchases
- ▶ Low purchase of Beauty products this year contributes to decrease in sales profit during peak period in compares with last year's peak

Recommendations

- ▶ Management should invest more on Beauty product
- ▶ Promotions should be focused on female and ‘middle aged’
- ▶ Introduce other incentives that could attract the ‘youth’ and ‘adult’ (from ages 29 - 40yrs)
- ▶ Also promote Beauty products for female and Electronics for the male
- ▶ Inventory stock-up should be increased by 300% from the month of September to the end of the year
- ▶ Deploy more staff towards evening shift

Conclusion

- ▶ In conclusion, the analysis show that staff schedule adjustments, prioritizing targeted promotions, and scaling up inventory towards the last quarter will significantly maximize year-end performance in the retail business.

Thank you.