Data Analytics Project

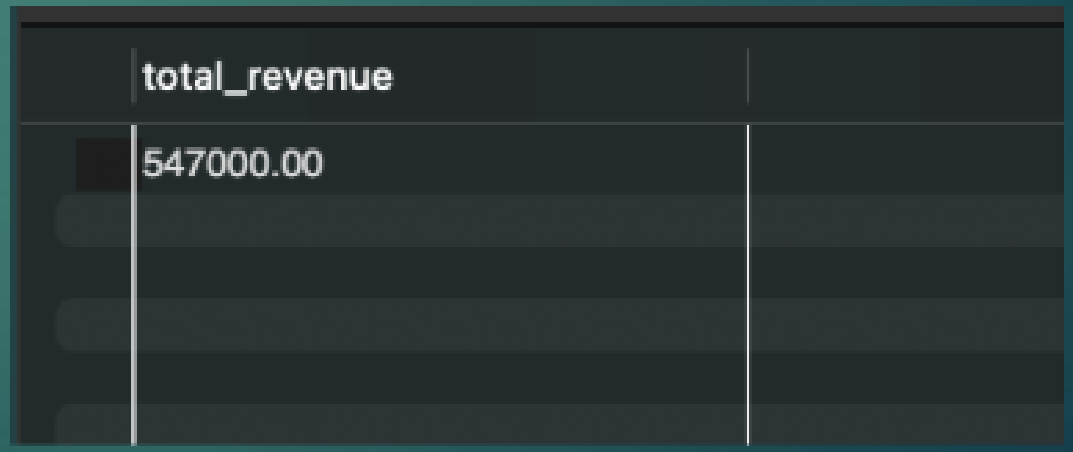
OPTIMIZING SALES & CUSTOMER BEHAVIOR IN E-COMMERCE

Introduction

- This project is about analyzing data from an e-commerce business using **SQL**.
- We look at customer details, product sales, and orders to find useful patterns and trends.
- The main goal is to get **insights** that help improve sales, understand customers better, and support smart business decisions.

1. Total Revenue Generated

```
SELECT SUM(p.selling_price * o.quantity) AS total_revenue
FROM orders o JOIN products p
ON o.product_id = p.product_id;
```



total_revenue
547000.00

2. Top 3 Selling Products by Revenue

```
SELECT p.product_name , SUM(o.quantity) As total_sold_unit,
 SUM(p.selling_price * o.quantity) as revenue
FROM products p JOIN orders o ON p.product_id = o.product_id
GROUP BY p.product_name
ORDER BY revenue DESC LIMIT 3;
```

	product_na...	total_sold_u...	revenue
	Galaxy S22	3	216000.00
	iPhone 14	2	156000.00
	ThinkPad X1	1	95000.00

3. Revenue by Region

```
SELECT SUM (p.selling_price * o.quantity) As revenue ,region
FROM orders o join products p
ON p.product_id = o.product_id
GROUP BY  o.region
ORDER BY  revenue DESC;
```

region	revenue
North	222000.00
South	146000.00
West	107000.00
Central	72000.00

4. Top Customers by Total Spend

```
SELECT c.first_name, c.last_name, SUM(p.selling_price * o.quantity) AS
total_spent

FROM orders o JOIN customers c

ON o.customer_id = c.customer_id

JOIN products p ON o.product_id = p.product_id

GROUP BY c.customer_id

ORDER BY total_spent DESC;
```

first_name	last_name	total_spe...
Ravi	Kumar	222000.00
Anjali	Sharma	107000.00
Arun	Singh	95000.00
Neha	Patel	72000.00
Priya	Verma	51000.00

5. Monthly Sales Trend (Year-wise)

```
SELECT SUM (p.selling_price * o.quantity) As Total_sales ,
YEAR (order_date) As Year, MONTH (order_date) As month
FROM  orders o join products p on p.product_id= o.product_id
GROUP BY YEAR (order_date),MONTH (order_date)
ORDER BY  Year,Month;
```

Total_sales	Year	month
78000.00	2023	1
144000.00	2023	3
22000.00	2023	6
29000.00	2023	9
95000.00	2023	12
72000.00	2024	1
29000.00	2024	2
78000.00	2024	3

6.Which region generated the highest sales revenue

```
SELECT region, SUM (selling_price * quantity ) As revenue
FROM orders o join products p
ON o.product_id=p.product_id
GROUP BY o.region
ORDER BY revenue
DESC LIMIT 1;
```

region	revenue
North	222000.00

7.Who are the top 2 customers by total spend

```
SELECT  first_name, last_name , SUM( selling_price * quantity ) As total_spend
FROM customers c JOIN orders o
 ON c.customer_id = o.customer_id
JOIN products p. ON p.product_id = o.product_id
GROUP BY c.customer_id
ORDER BY total_spend
DESC  LIMIT 2;
```

first_name	last_name	total_spe...
Ravi	Kumar	222000.00
Anjali	Sharma	107000.00

8.Most Popular Product Category

```
SELECT  category , SUM (quantity) as Total_sold_unit
FROM products p JOIN  orders o
ON p.product_id= o.product_id
GROUP BY  p.category
ORDER BY total_sold_unit;
```

	category	Total_sold_u...
	Electronics	9

9.Profit Generated by Each Product

```
SELECT  product_name, SUM ( (selling_price - cost_price) * quantity) As Product_profit

FROM products p join orders o

ON p.product_id = o.product_id

GROUP BY  p.product_name

ORDER BY  product_profit;
```

product_name	Product_pr...
Galaxy S22	42000.00
iPhone 14	26000.00
ThinkPad X1	10000.00
Sony WH-1000XM5	8000.00
AirPods Pro	4000.00

10.New Customers Acquired by Month

```
SELECT  (signup_date) as month,  COUNT (*) from customers c
GROUP BY  signup_date
ORDER BY  month;
```

month	new_customers
1	1
3	1
5	1
7	1
9	1

Conclusion

- As a beginner data analyst, this project allowed me to apply core SQL techniques to analyze real e-commerce data.
- I extracted insights on sales, customer behavior, and product performance—skills that are directly useful in business decision-making.
- This project demonstrates my ability to work with structured data, write meaningful queries, and turn data into clear, actionable insights.