E-Commerce Sales Analysis

(SQL Portfolio Project)

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Project Overview :

This project analyzes e-commerce sales data using SQL to uncover key business insights. By working with tables like Customers, Orders, OrderDetails, and Products, I identified top-selling products, repeat customers, and revenue trends. The goal was to turn raw data into actionable insights and improve my SQL skills through real-world business scenarios.

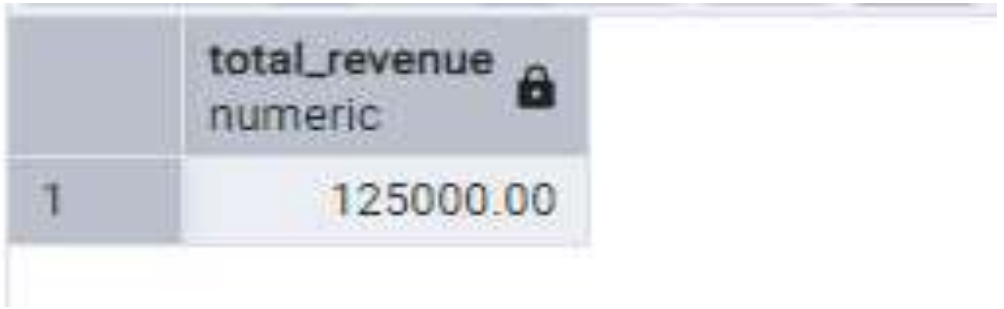
Goals :

- Identify top customers and products
- Understand revenue distribution
- Find repeat vs. one-time customers
- Analyze product and category performance
- Develop SQL proficiency for real-world business use cases

Total Revenue

```
--Total Revenue Generated--

SELECT SUM(total_amount) AS total_revenue FROM orders
```



	total_revenue numeric
1	125000.00

❑ **Insight:**

The business generated a **total revenue of ₹1,25,000** from all customer orders.

Top Customer by Revenue

```sql
--Top Customer by Revenue--

SELECT c.customer_name, SUM(o.total_amount) AS total_spent
FROM customers c
JOIN orders o ON c.customer_id = o.customer_id
GROUP BY c.customer_name
ORDER BY total_spent DESC
LIMIT 1;
```

Data Output | Messages | Notifications

SQL

	customer_name character varying (100)	total_spent numeric
1	Amit Sharma	90000.00

❑ Insight:

Amit Sharma is the top customer, contributing **₹90,000** to total revenue (72%).

Top selling product (By Quantity)

```
81
82  --Top Selling Product (by Quantity)--
83
84  SELECT p.product_name, SUM(od.quantity) AS total_units_sold
85  FROM order_details od
86  JOIN products p ON od.product_id = p.product_id
87  GROUP BY p.product_name
88  ORDER BY total_units_sold DESC
89  LIMIT 1;
90
```

Data Output | Messages | Notifications

SQL

	product_name character varying (100)	total_units_sold bigint
1	Smartphone	3

❑ Insight:

The **Smartphone** is the highest-selling product with **3 units sold**, showing high demand in electronics.

Product Generating Highest Revenue

```
90
91  --Product Generating Highest Revenue--
92
93  SELECT p.product_name, SUM(od.unit_price * od.quantity) AS revenue_generated
94  FROM order_details od
95  JOIN products p ON od.product_id = p.product_id
96  GROUP BY p.product_name
97  ORDER BY revenue_generated DESC
98  LIMIT 1;
```

Data Output | Messages | Notifications

SQL

	product_name character varying (100)	revenue_generated numeric
1	Smartphone	90000.00

❑ Insight:

Laptop generated the **highest product revenue of ₹90,000**, by selling higher units.

Customer Distribution by Country

```
100
101   --Customer Distribution by Country--
102
103   SELECT country, COUNT(*) AS total_customers
104   FROM customers
105   GROUP BY country;
```

Data Output | Messages | Notifications

SQL

	country character varying (50)	total_customers bigint
1	UK	1
2	USA	1
3	India	1

❑ Insight:

Customers are spread across **India, USA, and UK**, with **India contributing 1 out of 3** customers.

Repeat Customers

```
113
114   --Repeat Customers--
115
116   SELECT customer_id, COUNT(order_id) AS orders_count
117   FROM orders
118   GROUP BY customer_id
119   HAVING COUNT(order_id) > 1;
120
```

Data Output | Messages | Notifications

SQL

customer_id integer	orders_count bigint

❑ Insight:

Currently, there are **no repeat customers**, suggesting a **potential issue with customer retention.**

Category-wise Quantity Sold

```
124
125   --Category-wise Quantity Sold--
126
127   SELECT category, SUM(od.quantity) AS total_units
128   FROM order_details od
129   JOIN products p ON od.product_id = p.product_id
130   GROUP BY category;
131
```

Data Output | Messages | Notifications

SQL

	category character varying (50)	total_units bigint
1	Furniture	1
2	Electronics	4

❑ Insight:

Electronics dominates with **4 units sold**, vs **Furniture's** 1 unit — 80% of sales are electronics.

Average Order Value

```
120
121   --Average Order Value (AOV)--
122
123   SELECT AVG(total_amount) AS avg_order_value FROM orders;
124
```

Data Output | Messages | Notifications

SQL

	avg_order_value numeric
1	41666.666666666667

❑ **Insight:**

The **average order value is ₹41,667**, indicating high-ticket purchases, possibly due to electronics focus.

Customers with no Orders

```
131
132   --Customers with No Orders--
133
134   SELECT c.customer_name
135   FROM customers c
136   LEFT JOIN orders o ON c.customer_id = o.customer_id
137   WHERE o.order_id IS NULL;
138
```

Data Output | Messages | Notifications

SQL

customer_name character varying (100)

❑ **Insight:**

All registered customers have placed at least one order — **no inactive users so far.**

Quantifiable Insights

- **Total Revenue:** ₹1,25,000
- **Top Customer:** Amit Sharma (₹90,000 spent)
- **Best-Selling Product:** Smartphone (3 units)
- **Top Revenue Product:** Laptop (₹30,000)
- **Average Order Value:** ₹41,667
- **Repeat Customers:** 0 (need for customer retention strategy)
- **Category Sales:** 80% of units sold are electronics