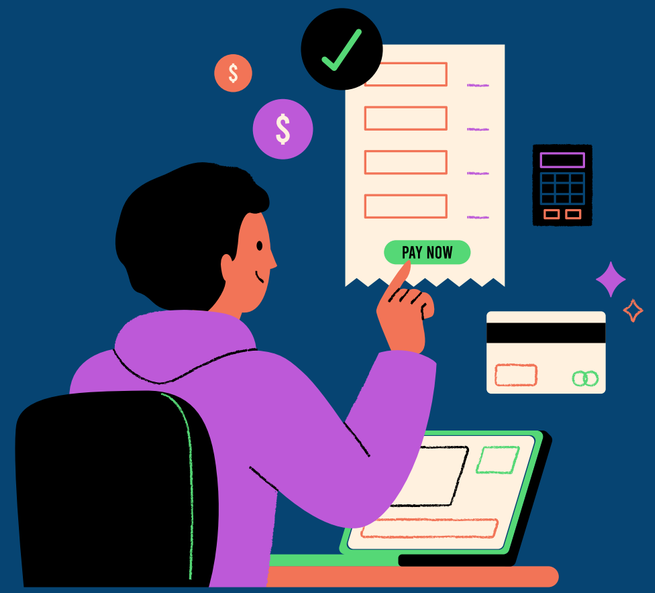
ONLINE STORE ANALYSIS

Data Analysis Project Using SQL



Project Scope:

Derive insights to improve sales, customer engagement, and product strategy

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🎯 Project Objectives:

Product-Level Insights

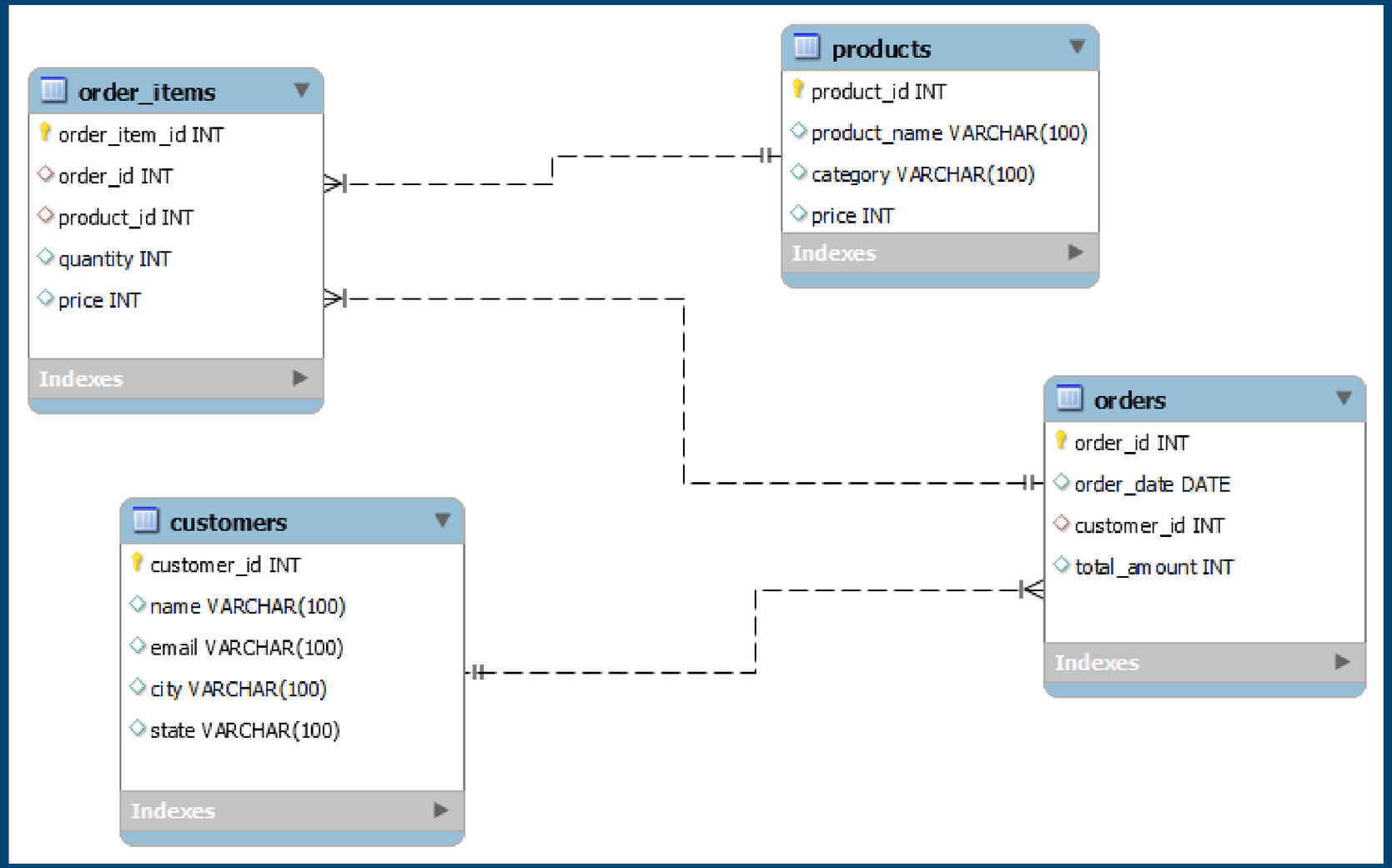
Customer Segmentation

Advanced KPIs (Customer Retention, Lifetime Value)

Project Overview

Analyzed top-selling products, sales trends, customer segmentation, customer retention and overall business performance using SQL. Shared insights to optimize marketing and inventory strategies.

Data Model


order_items
order_item_id INT
order_id INT
product_id INT
quantity INT
price INT
Indexes
products
product_id INT
product_name VARCHAR(100)
category VARCHAR(100)
price INT
Indexes
orders
order_id INT
order_date DATE
customer_id INT
total_amount INT
Indexes
customers
customer_id INT
name VARCHAR(100)
email VARCHAR(100)
city VARCHAR(100)
state VARCHAR(100)
Indexes

What is the Average Order Value (AOV)?

```sql
SELECT ROUND(SUM(total_amount) / COUNT(order_id), 2) AS avg_order_value
FROM orders;
```

Result Grid

	Avg_order_value
▶	8980.0000

What is the Monthly Revenue Trend?

```sql
SELECT
    DATE_FORMAT(order_date, '%m') AS month,
    SUM(total_amount) AS monthly_revenue
FROM orders
GROUP BY DATE_FORMAT(order_date, '%m')
ORDER BY month;
```

Result Grid | Filter Rows:

	month	monthly_revenue
▶	02	33700
	04	15000
	05	19700
	06	8300
	07	4900
	09	1000
	10	5500
	11	26200
	12	20400

Top 5 most frequently purchased products?

```sql
select p.product_name, sum(o.quantity) as total_quantity_sold
from products p
join order_items o
on p.product_id=o.product_id
group by p.product_name
order by total_quantity_sold desc
limit 5;
```

product_name	total_quantity_sold
Wireless Mouse	34
Notebook	26
Backpack	19
Ball Pen Pack	18
Bluetooth Speaker	17

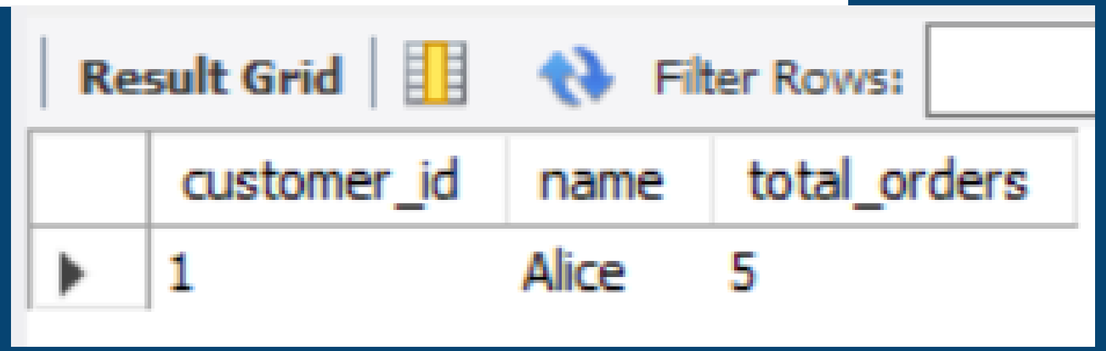
Find the top best-selling product per category by quantity

```sql
with ranked_products as(
    SELECT
        p.category,
        p.product_name,
        SUM(oi.quantity) AS total_quantity,
        rank() OVER (PARTITION BY p.category ORDER BY SUM(oi.quantity) DESC) AS rank_in_category
    FROM products p
    JOIN order_items oi ON p.product_id = oi.product_id
    GROUP BY p.category, p.product_name
)
SELECT category, product_name, total_quantity
FROM ranked_products
WHERE rank_in_category = 1;
```

category	product_name	total_quantity
Accessories	Backpack	19
Electronics	Wireless Mouse	34
Stationery	Notebook	26

Which customers have placed the most orders?

```sql
SELECT c.customer_id, c.name, COUNT(o.order_id) AS total_orders
FROM customers c
JOIN orders o ON c.customer_id = o.customer_id
GROUP BY c.customer_id, c.name
ORDER BY total_orders DESC
limit 1;
```



customer_id	name	total_orders
1	Alice	5

Which customers have generated the highest total revenue?

```sql
select c.customer_id, c.name, sum(o.total_amount) as total_spend
from customers c
join orders o
on c.customer_id=o.customer_id
group by c.customer_id, c.name
order by total_spend desc
limit 1;
```

Result Grid | Filter Rows:

customer_id	name	total_spend
2	Bob	35300

Total revenue each customer has contributed

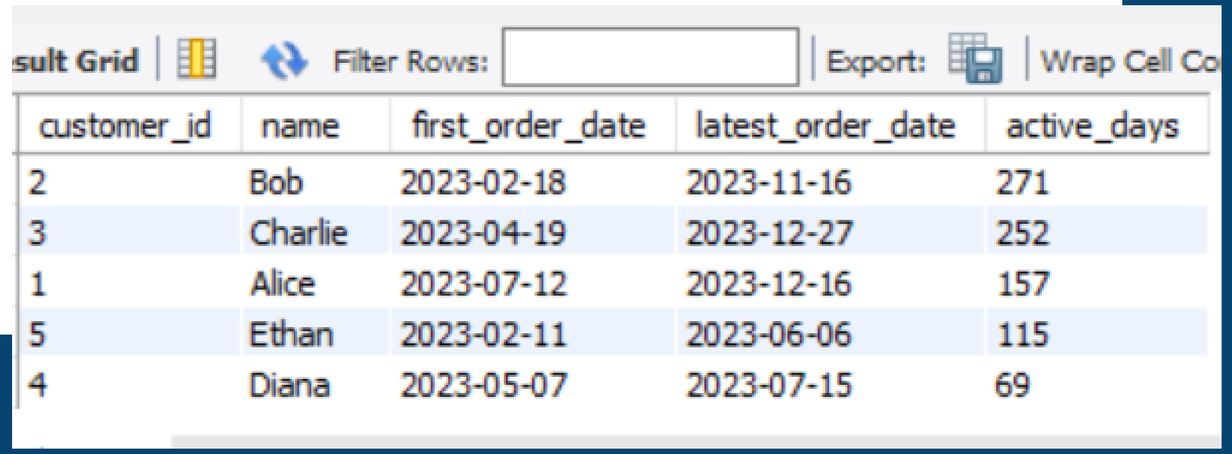
```sql
-- (Total revenue each customer has contributed to date)
SELECT c.customer_id, c.name, SUM(o.total_amount) AS lifetime_value
FROM customers c
JOIN orders o ON c.customer_id = o.customer_id
GROUP BY c.customer_id, c.name
ORDER BY lifetime_value DESC;
```

esult Grid | Filter Rows:

customer_id	name	lifetime_value
2	Bob	35300
1	Alice	29100
3	Charlie	28800
5	Ethan	21200
4	Diana	20300

Find the first and latest order date of each customer, also find active days of each customer

```sql
select c.customer_id, c.name,
min(o.order_date) as first_order_date,
max(o.order_date) as latest_order_date,
DATEDIFF(MAX(o.order_date), MIN(o.order_date)) AS active_days
from customers c
join orders o
on c.customer_id=o.customer_id
group by c.customer_id, c.name
order by active_days desc;
```



sult Grid | Filter Rows: | Export: | Wrap Cell Co

customer_id	name	first_order_date	latest_order_date	active_days
2	Bob	2023-02-18	2023-11-16	271
3	Charlie	2023-04-19	2023-12-27	252
1	Alice	2023-07-12	2023-12-16	157
5	Ethan	2023-02-11	2023-06-06	115
4	Diana	2023-05-07	2023-07-15	69

Segment customers based on lifetime value:

```sql
select c.customer_id, c.name, sum(o.total_amount) as lifetime_value,
case
    when sum(o.total_amount) > 30000 then 'Gold'
    when sum(o.total_amount) between 25000 and 30000 then 'Silver'
    else 'Bronze'
end as customer_tier
from customers c
join orders o
on c.customer_id=o.customer_id
group by c.customer_id, c.name
order by lifetime_value desc;
```

customer_id	name	lifetime_value	customer_tier
2	Bob	35300	Gold
1	Alice	29100	Silver
3	Charlie	28800	Silver
5	Ethan	21200	Bronze
4	Diana	20300	Bronze

Customer Retention Analysis (Repeat Customers by Month)

```sql
WITH orders_with_months AS (
    SELECT
        customer_id,
        DATE_FORMAT(order_date, '%Y-%m') AS order_month,
        MIN(DATE_FORMAT(order_date, '%Y-%m')) OVER (PARTITION BY customer_id) AS first_order_month
    FROM orders
)
SELECT
    order_month,
    COUNT(DISTINCT customer_id) AS repeat_customers
FROM orders_with_months
WHERE order_month > first_order_month
GROUP BY order_month
ORDER BY order_month;
```

order_month	repeat_customers
2023-06	1
2023-07	1
2023-09	1
2023-10	1
2023-11	2
2023-12	2

THANK YOU!