

Comprehensive SQL Questions for Data Analytics

1. Data Preprocessing & Cleaning

- How many missing values exist in each table?
- Are there any duplicate records in the orders, customers, or access logs tables?
- Find and list all orders with incorrect or missing shipping dates.
- Identify products that have missing or null category names.
- Are there any customers with invalid email formats?
- Detect and remove inconsistent product prices (e.g., negative or zero prices).
- Standardize country and state names in the `customers` table.
- Identify orders where the shipping date is earlier than the order date.
- Find customers who placed multiple orders with the exact same order details.
- Detect and correct product names that contain unwanted special characters.

2. Exploratory Data Analysis (EDA)

- What are the top 10 most frequently ordered products?
- What are the top 5 most common customer segments?
- What is the distribution of order statuses (e.g., completed, pending, canceled)?
- What is the average number of products per order?
- What are the top 10 best-selling categories based on revenue?
- What is the average and median product price in each category?
- How many unique customers have placed orders?
- What percentage of total revenue is contributed by the top 10% of customers?
- Identify the top-selling products that generate the most revenue.
- Which customer segments have the highest and lowest return rates?

3. Sales & Performance Analysis

- What is the total revenue generated in the past year?
- Which product category contributes the most to total sales?
- Find the top 10 customers who have spent the most money.
- What is the total number of orders placed each month?
- What is the percentage of returning vs. new customers?
- Which city or region generates the highest revenue?
- How does the average order value change over time?
- Identify products with the highest profit margins.
- What is the overall return rate of products?
- How does the discount percentage impact total sales?

4. Trends & Insights

- Which products are increasing in sales over time?
- Which categories are experiencing a decline in sales?
- What is the correlation between discount percentage and total sales?
- Which regions are showing rapid revenue growth?
- What is the impact of marketing campaigns on order volume?
- Which time of day has the highest order volume?
- What is the correlation between shipping time and customer satisfaction ratings?
- Which payment methods are gaining popularity over time?
- Which product categories are frequently bought together?
- How does the order value change across different sales channels?

5. Time-Based Analysis

- What is the month-over-month sales growth rate?
- Which quarter had the highest revenue?
- Which day of the week has the highest sales volume?
- What is the best-performing hour for online orders?
- Compare revenue generated in Q1, Q2, Q3, and Q4.
- Which products sell best during specific seasons?
- What is the percentage increase in orders during holiday seasons?
- What is the average revenue per day in the last 12 months?
- How does weekend revenue compare to weekday revenue?
- What are the peak sales periods for the past 3 years?

6. Customer Behavior & Segmentation

- What percentage of customers purchase more than once?
- Which customer demographic spends the most on orders?
- What is the average time between a customer's first and second purchase?
- Which customer segment has the highest lifetime value?
- What is the churn rate of customers over time?
- How does customer spending behavior vary by region?
- Which product categories are most popular among high-spending customers?
- What is the frequency of purchases per customer segment?
- How do purchase patterns change based on customer age group?
- What percentage of customers make a second purchase within 6 months?

7. Website Traffic & Conversion Analysis

- How many customers visit the website but don't make a purchase?
- What is the conversion rate of website visits to orders?
- Which product pages have the highest bounce rates?
- What are the most visited product categories on the website?
- Which referral sources generate the most conversions?
- What is the average session duration for customers who make a purchase?
- What percentage of customers abandon their carts before checkout?
- How does page load speed affect conversion rates?
- Which landing pages lead to the most successful purchases?
- Which marketing campaign drove the highest website engagement?

8. Shipping & Delivery Performance

- What is the average shipping time for each shipping mode?
- Which shipping method has the highest on-time delivery rate?
- What percentage of shipments are delayed beyond the expected delivery date?
- Identify regions with the highest number of shipping delays.
- What is the refund rate due to delivery issues?
- Which carriers have the highest rate of successful deliveries?
- How does delivery time impact customer satisfaction ratings?
- Identify customers who frequently experience late deliveries.
- What percentage of orders have tracking issues?
- How many orders are returned due to incorrect shipping information?