

Sr. #		Query	Explanation	Query Functionality
1	Financial Anomalies	Abnormal Inventory Changes	Identify products with sudden and significant changes in inventory levels.	This query identifies significant changes in inventory quantities over time. It calculates the percentage deviation between current and previous quantities for each item, filtering out changes exceeding a 50% threshold.
2	Financial Anomalies	Duplicate Transactions	Identify potential duplicate transactions based on order details.	This query identifies duplicate transactions within the sales data based on order ID, customer ID, quantity sold, and unit price, counting the occurrences of duplicates.
3	Financial Anomalies	Late Payments	Identify payments that are significantly overdue.	This query identifies overdue transactions by calculating the difference in days between the due date and the current date, filtering out transactions with positive overdue days.
4	Operational Process Anomalies	Inconsistent Handling of Sales Tax Calculation	Identify orders with discrepancies in the calculation or application of sales tax.	This query compares the standard sales tax for each order with the actual sales tax recorded, determining if there's any discrepancy between the two. It then outputs the order ID, customer ID, order amount, standard tax, actual tax, and a status indicating whether there's a discrepancy.
5	Operational Process Anomalies	Inconsistent Tax Calculations	Identify orders with tax amounts significantly deviating from the expected tax calculation.	This query computes the percentage deviation between the standard tax and the actual tax for each order, comparing the two values and identifying any significant discrepancies. It then provides the order ID, customer ID, order amount, standard tax, actual tax, and the percentage deviation.
6	Operational Process Anomalies	Inconsistent Tax Rates	Identify orders with tax rates significantly deviating from the average.	This query identifies discrepancies between the tax rates recorded in the Tax_1 table and the standard tax rates in the Tax_S table for each product and order. It then labels each row with either 'Okay' if there's no discrepancy, or 'Discrepancy' if there is.

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7	Operational Process Anomalies	Inconsistent Unit Costs		This query computes the deviation percentage of the unit cost of products from both the average cost and the previous cost. It compares the current unit cost with the average cost and the previous cost, then labels the deviation percentage accordingly, indicating whether it's above (+) or below (-) the threshold of 10%.
8	Operational Process Anomalies	Inconsistent Unit Prices	Identify products with unit prices significantly deviating from the average.	This query calculates the deviation percentage of the unit price of products from both the average price and the previous price. It compares the current unit price with the average price and the previous price, then labels the deviation percentage accordingly, indicating whether it's above (+) or below (-) the threshold of 10%.
9	Operational Process Anomalies	Mismatched Shipping and Delivery Dates	Identify orders where the delivery date is significantly later than the promised delivery date.	Duplicate query. See Query No. 41
10	Operational Process Anomalies	Unusual Time Gaps in Payment Processing	Identify payments with delays beyond the standard processing time.	This query retrieves overdue transaction data by calculating the number of days overdue based on the due date compared to the current date. It selects the serial number, customer ID, order ID, customer name, due date, today's date, and the number of days overdue for transactions where the due date is in the past.
11	Operational Process Anomalies	Unusual Time Gaps in Shipped and Delivered Dates	Identify orders with significant delays between shipped and delivered dates.	This query identifies orders with significant delays in delivery by calculating the difference in days between the shipped date and the delivered date. It selects the order ID, shipped date, delivered date, and the number of days delayed for orders where the delay is greater than 5 days.
12	Customer Interaction Anomalies	Inconsistencies in Payment Methods	Identify orders with unusual payment methods or a high frequency of changes.	This query identifies customers who have used multiple payment methods across different orders. It calculates the number of unique payment methods and the number of unique orders for each customer, then selects customers who have used more than one payment method and placed more than one order.

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13	Customer Interaction Anomalies	Suspicious Customer Behavior	Identify customers with unusual patterns in order frequency or order amounts.	This query compares customer order statistics from the previous year with those from the current year, highlighting customers whose current order count or average order amount exceeds 1.5 times the averages from the previous year, showing their ID, count, amount, and percentage difference.
14	Customer Interaction Anomalies	Unusual Discounts	Identify orders with abnormally high or frequent discounts.	Identifies orders with either total discount exceeding \$100 or more than one item having a discount greater than 50% of its price, showing their ID, count of high discounts, and total discount amount, sorted by total discount in descending order.
15	Customer Interaction Anomalies	Unusual Order Amounts	Identify orders with unusually high or low amounts.	Identifies orders with order amounts exceeding 1.5 times or falling below 0.5 times the average order amount, displaying their ID and order amount, sorted by order amount in descending order.
16	Customer Interaction Anomalies	Unusual Patterns in Customer Returns	Identify customers with a high frequency of returns compared to their overall order history.	Identifies customers with a return rate exceeding 20%, displaying their ID, return count, total order count, and return rate, sorted by return rate in descending order.
17	Customer Interaction Anomalies	Unusual Patterns in Employee Sales Performance	Identify employees or sales representatives with abnormal sales performance compared to their peers.	Identifies employees whose current month's sales either exceed 15% above or fall below 15% of the average sales amount for previous months, displaying their ID, total sales amount, and average sales amount per employee of previous months.
18	Customer Interaction Anomalies	Unusual Patterns in Gift Card Usage	Identify orders with abnormal usage of gift cards.	Detects orders exceeding the 10% limit of the order amount for gift card usage, showcasing the order ID, order amount, and gift card amount.

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19	Customer Interaction Anomalies	Unusual Patterns in Invoice Amounts	Identify invoices with amounts significantly deviating from the average.	The first query identifies deviations by product, evaluating invoice amounts against the product's average, while the second query focuses on deviations by customer, assessing invoice amounts relative to the customer's average. Both queries employ a threshold of 1.5 times the standard deviation for anomaly detection.
20	Customer Interaction Anomalies	Unusual Patterns in Payment Delays	Identify payments with delays beyond the usual processing time.	Duplicate query. See Query No. 4
21	Customer Interaction Anomalies	Unusual Patterns in Payment Methods	Identify orders with a high frequency of changes in payment methods.	Duplicate query. See Query No. 43
22	Customer Interaction Anomalies	Unusual Patterns in Product Returns	Identify products with a high rate of returns compared to sales.	Identifies products with a return rate exceeding 10%, displaying their product ID, return count, total sales quantity, return rate, and product name, based on sales returns data.
23	Customer Interaction Anomalies	Unusual Patterns in Refunds	Identify orders with a high frequency of refunds or abnormally high refund amounts.	Identifies orders with a high refund frequency or abnormally high refund amounts, displaying their order ID, refund count, total refund amount, and refund status, filtering out null refund statuses.