

SQL Questions for Supply Chain Dataset

Reports Related to Revenue and Sales

1. **Count of products per product type?**

The company focuses on the skin care product category, which has 40 products under this category, the second product type is haircare products with 34 products and the third is cosmetics with 26 products

2. **How is revenue and sold products Quantity distributed by customer demographics?**

Since most customers don't want to fill in their demographics data in the order application, we have a demographic called unknown coming in the first place in total revenue

3. **What is the revenue for each supplier?**

Query answer, showing that supplier 1 has the largest revenue.

4. **What is the revenue, total cost, and profit for each product type?**

Again, the skincare product type appears to be the first place for revenue generated.

5. **How is revenue distributed across different locations?**

The top location by revenue generated is Mumbai with a percentage of 23.85% of the total revenue.

Reports Related to Sales and Quantities.

1. **What is the quantity sold for each product compared to its price category?**

As a conclusion for the previous part, nearly price or product type has no significant impact on sales volume, and the count of products connected to product type or price average is taken into consideration.

2. **What are the products sold with the highest and lowest defect rates?**

Query Answer

3. **How are shipping times related to quantities sold?**

As a result, shipping time has no impact on sales volume.

4. How is the quantity sold in each product type related to the inspection result?

It was a surprising result that the pending and fail products had a higher sales volume than the items with a pass result; in conclusion, the inspect result has no effect on sales volume.

5. How is the quantity sold in each region defected by customer demographics?

Females buy more things than males, and sales volume for females is likewise higher than males by 70%.

For the unknown gender, we need to collect additional precise data to clarify the database.

Reports Related to Suppliers and Supply Chain

1. analyze the supplier's performance in terms of efficiency (product sold quantity, stock level, shortest supply time, lowest defect rates, min cost, max profit, and revenue).

This is a comprehensive approach to evaluating suppliers. It ensures that multiple factors like cost control, quality, and responsiveness are considered. A supplier's efficiency is not only based on the products sold but also on their ability to maintain a balance between supply time and quality. The SQL query effectively calculates the relevant metrics, making it easy to compare supplier performance.

2. What percentage of products pass inspections based on supplier?

This is a straightforward and essential question for evaluating the quality of products from different suppliers. Focusing on the inspection pass rate helps the company identify suppliers that consistently provide high-quality products. The SQL query is well-structured, accurately computing the pass percentage and ranking suppliers accordingly.

3. How do transportation modes and routes affect lead times from each supplier?

Understanding the effect of transportation modes and routes on lead times is crucial for optimizing the supply chain. By comparing different methods, the company can choose the fastest and most efficient suppliers. The SQL query is set up to compare transportation modes and routes and rank suppliers by average lead time, which is very effective for supply chain improvements.

4. How does the inspection result impact the total profit by suppliers?

This analysis highlights the importance of product quality in achieving profitability. Suppliers with higher inspection pass rates are likely to have fewer returns, leading to higher profits. The SQL query accurately calculates total profit and provides a clear comparison of suppliers based on inspection outcomes, which can guide the company in making data-driven decisions regarding supplier partnerships.

Reports Related to Costs

1. What is the relationship between manufacturing costs and revenue for each product type?

Based on the analysis of the available data,
It is evident that the revenues exceed the manufacturing costs for various products, indicating that the company is generating a profit.
This conclusion reflects a positive performance in terms of managing costs and increasing revenues.

2. What are the shipping costs by different shipping companies and location?

The analysis shows significant variation in shipping costs
Across different locations
For each shipping company. For example,
Carrierid 100 has its lowest cost at Location 10 (26.13) and
The highest at Location 50 (65.49). This suggests that geographic factors impact costs.
Carrierid 102 shows higher efficiency at Location 30 with the lowest cost of 19.95.

3. How are transportation costs distributed by routes and transportation mode used?

The analysis of transportation costs distributed
across routes and transportation modes shows noticeable variations. For example,
Route 10000 has the highest total transportation cost with Transportation Mode 1003 at 7181.08, while Route 10002 has the lowest cost with Mode 1003 at 1367.13.
This indicates that both the route and mode of transportation significantly influence the overall costs.

4. How do shipping costs impact on the total revenue for each shipping company?

While Carrier 101 incurs higher shipping costs,
it still yields the most significant revenue and net impact,
suggesting that higher shipping costs do not necessarily hinder profitability.
Carrier 100 has lower shipping costs but also lower revenue,
indicating that revenue generation may depend
more on factors beyond just shipping expenses.

5. How do shipping costs affect the number of products sold by location

Overall, there is a trend indicating that locations with higher shipping costs tend to sell more products, as seen in Location 20. However, in some cases, like Location 30, lower shipping costs do not always correspond to fewer products sold. Thus, while shipping costs can be an influential factor, other variables also play a role in determining the number of products sold at different locations.

Reports Related to Quality

1. Failure rates in product inspection by location.

The number of products which failed inspection for Bangladesh: 5, Chennai: 10, Delhi: 8, Kolkata: 8, Mumbai: 5

2. What are total costs for defective products for each product type?

The total cost for products which failed inspection for cosmetics: 5858.58, haircare: 5878.02, skincare: 6673.43

3. What percentage of products inspections result based on supplier?

The percentage of defective products for supplier 1: 21.39%, supplier 2: 22.83%, supplier 3: 16.24%, supplier 4: 18.48%, supplier 5: 21.07%

4. Are the results in inspections result can affect sales volume?

The sales revenue seems to be relatively higher when the inspection result is either failing or pending (190565.53, 255729.54 respectively) than when it's pass (131309.75)

Reports Related to Location and Shipping companies

1. What is the average shipping cost per product by shipping companies?

The result of the SQL query will produce a table with three columns:

Product: This column will display the SKU (Stock Keeping Unit) for each product. The SKU is a unique identifier used to distinguish different products in your database.

ShippingCompany: This column will list the names of the shipping companies (from the Shipping Carriers table) associated with the orders or shipments for the given product.

AvgShippingCost: This column will show the average shipping cost (from the Operations table) for each product, grouped by the shipping company. The ROUND() function ensures that the shipping cost is rounded to two decimal places, making it easier to read.

For each row, the result will display:

A product (identified by its SKU).

The shipping company that ships the product.

The average shipping cost of that product when shipped by that company.

2. How does revenue vary by rote and transportation mode?

Description of the query:

R.Routes: This column will display the name of the route from the Routes table.

T.Transportation_modes: This column will display the transportation mode used (e.g., truck, ship, air) from the Transportation table.

SUM(O.Revenue_generated): This column will show the total revenue generated for each combination of route and transportation mode.

3. What is the most used rote and transportation mode for each company?

RouteTransportationUsage (CTE):

In this part of the query, we sum up the total usage (Order_quantities) for each combination of shipping company, route, and transportation mode.

Main Query:

This part selects the maximum usage (MAX(TotalUsage)) for each shipping company.

It uses a correlated subquery to identify the most used route and transportation mode for each company based on the highest TotalUsage.

4. Which shipping company has the highest percentage of best deliveries time (compared to the average value)?

Description of the query:

averagedeliverytime (CTE):

This calculates the overall average delivery time across all shipping companies from the Shipping_times column in the Operations table.

bestdeliverycount (CTE):

This calculates, for each shipping company, the total number of deliveries (totaldeliveries) and the number of "best" deliveries (bestdeliveries) where the Shipping_times is less than the overall average. It uses a CASE statement to count deliveries that meet this condition.

bestdeliverypercentage (CTE):

This calculates the percentage of best deliveries for each company by dividing the bestdeliveries by totaldeliveries and multiplying by 100 to get a percentage.

Final SELECT:

This selects the shipping company with the highest percentage of best deliveries, sorted in descending order by bestdeliverypercentage.