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**Module Five Major Activity**

1. **Write SQL commands** that capture specific, usable datathat can be used in your analysis.
2. **Analyze the results of queries** to identify specific information that can be presented in your summary.  
   1. Sales by region:
      1. Analyze sales data by state to determine where the company has the largest customer base.

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Command: SELECT State, COUNT(DISTINCT Customers.CustomerID) AS Customer\_Base

FROM Customers

INNER JOIN Orders ON Customers.CustomerID = Orders.CustomerID

GROUP BY State

ORDER BY Customer\_Base DESC

LIMIT 5;

Explanation: The output of this query shows us that Massachusetts has the largest customer base. Followed by Arkansas, West Virginia, Oregon, and Alabama. Based on the data the company should focus its marketing and sales strategies on these states with a focus on Massachusetts to improve overall sales and maximize their customer base.

* + 1. Analyze the data to determine the top three products sold in the United States.

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Command: SELECT COUNT(\*) AS PRODUCT\_SALES\_NUMBER, Orders.SKU AS PRODUCT\_SKU, Orders.Description AS PRODUCT\_DESCRIPTION

FROM Orders

GROUP BY PRODUCT\_SKU, PRODUCT\_DESCRIPTION

ORDER BY PRODUCT\_SALES\_NUMBER DESC

LIMIT 3;

Explanation: With this query, we successfully retrieved the top three products sold in the United States with the number of sales, product SKU, and product description. These products are the “Basic Switch 10/100/1000 BaseT 48 port” with 8385 sales, the “Enterprise Switch 40GigE SFP+ 48 port” with 6186 sales, and the “Enterprise Switch 10GigE SFP+ 48 port” with 4328 sales.

* + 1. Analyze the data to determine the top three products sold in the southeastern region of the United States.
       - Southeastern states to include in your analysis: Virginia, North Carolina, South Carolina, and Georgia

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Command: SELECT COUNT(\*) AS PRODUCT\_SALES\_NUMBER, Orders.SKU AS PRODUCT\_SKU, Orders.Description AS PRODUCT\_DESCRIPTION

FROM Orders

INNER JOIN Customers ON Orders.CustomerID = Customers.CustomerID

WHERE UPPER(State) IN ('VIRGINIA', 'NORTH CAROLINA', 'SOUTH CAROLINA', 'GEORGIA')

GROUP BY Orders.SKU, Orders.Description

ORDER BY PRODUCT\_SALES\_NUMBER DESC;

Explanation: With the query above we can gather the top three products sold in the Southeastern region of the United States The product SKU for these are “BAS-48-1 C”, ENT-48-40F” and “BAS-08-1 C”.

* 1. Returns by region:
     1. Analyze the data to determine the top three products returned in the United States.

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Command:

FROM Orders‬

INNER JOIN RMA ON Orders.OrderID = RMA.OrderID‬

WHERE UPPER(RMA.Status) = 'COMPLETE'‬

GROUP BY Orders.SKU, Orders.Description‬

ORDER BY RETURN\_AMOUNT DESC‬

LIMIT 3;‬

‬ Explanation: With the query above we got the top three products returned in the United States. The SKU for these products are “BAS-48-1 C” with 7545 returns, “ENT-48-40F” with 5565 returns, and” ENT-48-10F” with 3905 returns. these products also happen to be the top three-selling products in the United States.

* + 1. Analyze the data to determine the top three products returned in the northwestern region of the United States.  
       - Northwestern states to include in your analysis: Washington, Oregon, Idaho, and Montana

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Command: SELECT COUNT(\*) AS RETURN\_AMOUNT, Orders.SKU AS PRODUCT\_SKU, Orders.Description AS PRODUCT\_DESCRIPTION

FROM Orders

INNER JOIN RMA ON Orders.OrderID = RMA.OrderID

INNER JOIN Customers ON Orders.CustomerID = Customers.CustomerID

WHERE UPPER(Customers.State) IN ('WASHINGTON', 'OREGON', 'IDAHO', 'MONTANA')

AND UPPER(RMA.Status) = 'COMPLETE'

GROUP BY Orders.SKU, Orders.Description

ORDER BY RETURN\_AMOUNT DESC

LIMIT 3;

Explanation: With the above query we successfully found the top three retuned products in the Northwestern region. The product SKU and return times are “BAS-48-1 C” with 645 returns, “ENT-48-40F” with 483 returns, and “ENT-24-10F” with 349 returns.

1. **Write a report** to the Quantigration product manager that explains your findings in a way nontechnical stakeholders can digest and use.  
   1. This report should include an effective summary of the analysis of the captured data.  
      1. Sales data by region: Provide a well-written summary of your analysis on Part A.

In part A of this project, we employed SQL's SELECT statement to uncover the best-selling products within the United States. Our analysis revealed that the top-selling products were the "Basic Switch 10/100/1000 BaseT 48 port," the "Enterprise Switch 40GigE SFP+ 48 port," and the "Enterprise Switch 10GigE SFP+ 48 port."

To obtain this information, we made use of the INNER JOIN operation, which allowed us to combine data from both the Customers and Orders tables. Additionally, we utilized the COUNT command to aggregate data by state, helping us identify the states with the largest customer bases.

The analysis revealed that the states with the biggest customer bases were Massachusetts, Arkansas, West Virginia, Oregon, and Alabama. To streamline our data retrieval process, we utilized the LIMIT statement, which enabled us to focus on a subset of the data rather than the entire dataset.

Furthermore, we applied the WHERE command to narrow down our results to specific regions and states. This was particularly useful when we aimed to identify the top three selling products in the Southeastern region.

* + 1. Returns data by region: Provide a well-written summary of your analysis of Part B.

In part B of this project, we delved into product returns by region. To start, we employed the INNER JOIN command to combine data from the Orders and RMA tables. This allowed us to identify the top three products that were returned in the United States. Interestingly, these products turned out to be the same as the top three selling products we identified in Part A. Specifically, they were the "Basic Switch 10/100/1000 BaseT 48 port," the "Enterprise Switch 40GigE SFP+ 48 port," and the "Enterprise Switch 10GigE SFP+ 48 port."

We then focused on the Northwestern region using the WHERE statement to determine the top three products returned in that area. As expected, these same three products appeared in the same order, reaffirming their prominence in both sales and returns.

Upon further investigation, we found that many of these returns were due to issues such as incorrect product selection, defects, or other reasons. Armed with this knowledge, it's imperative that we assemble a team to thoroughly review and potentially enhance product descriptions to ensure customers have a comprehensive understanding of their purchases. Additionally, we should contemplate additional measures, such as retraining our personnel in product quality control or establishing a final approval process before products are shipped to customers.

Implementing these precautions will likely reduce the percentage of returns, ultimately leading to increased sales and bolstering our reputation for delivering reliable products.

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