Please answer below questions

1. a. Find Top 10 Buyer by revenue in each year!

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| (      SELECT          EXTRACT(YEAR FROM Date) AS Year,          idBuyer,          SUM(Revenue) as TotalRevenue      FROM `buoyant-arcanum-409003.cehikasyde.Order`      WHERE EXTRACT(YEAR FROM Date) = 2020      GROUP BY Year, idBuyer      ORDER BY TotalRevenue DESC      LIMIT 10  )  UNION ALL  (      SELECT          EXTRACT(YEAR FROM Date) AS Year,          idBuyer,          SUM(Revenue) as TotalRevenue      FROM `buoyant-arcanum-409003.cehikasyde.Order`      WHERE EXTRACT(YEAR FROM Date) = 2021      GROUP BY Year, idBuyer      ORDER BY TotalRevenue DESC      LIMIT 10  )  ORDER BY Year; |
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b. Find Top 5 Sales Person by gross profit in each year!

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| (      SELECT EXTRACT(YEAR FROM o.Date) AS Year, o.idSales, s.Name AS SalesName,             SUM(o.Revenue - (o.RawMaterial + o.Handling + o.Logistic)) AS GrossProfit      FROM `buoyant-arcanum-409003.cehikasyde.Order` o      INNER JOIN `buoyant-arcanum-409003.cehikasyde.Sales` s ON o.idSales = s.idSales      WHERE EXTRACT(YEAR FROM o.Date) = 2020      GROUP BY Year, o.idSales, s.Name      ORDER BY GrossProfit DESC      LIMIT 5  )  UNION ALL  (      SELECT EXTRACT(YEAR FROM o.Date) AS Year, o.idSales, s.Name AS SalesName,             SUM(o.Revenue - (o.RawMaterial + o.Handling + o.Logistic)) AS GrossProfit      FROM `buoyant-arcanum-409003.cehikasyde.Order` o      INNER JOIN `buoyant-arcanum-409003.cehikasyde.Sales` s ON o.idSales = s.idSales      WHERE EXTRACT(YEAR FROM o.Date) = 2021      GROUP BY Year, o.idSales, s.Name      ORDER BY GrossProfit DESC      LIMIT 5  )  ORDER BY Year, GrossProfit DESC; |
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Note:

Gross Profit = Revenue - Cost Revenue

Cost Revenue = Raw Material + Handling + Logistic

c. Find monthly revenue, cost revenue, and gross profit in each year!

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| SELECT EXTRACT(YEAR FROM Date) Year, EXTRACT(MONTH FROM Date) Month,         SUM(Revenue) AS TotalRevenue,         SUM(RawMaterial+Handling+Logistic) TotalCostRevenue,         SUM(Revenue-(RawMaterial+Handling+Logistic)) GrossProfit  FROM `buoyant-arcanum-409003.cehikasyde.Order`  GROUP BY Month,Year; |
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d. What kind of product criteria do you think should be prioritized by the company?

To determine the criteria for prioritizing products by the company, we can consider several factors such as profitability, product popularity, and customer preferences. Here are some criteria that can be used to prioritize products based on:

* Profitability: Prioritize products with high profit levels.
* Popularity: Prioritize products that are best-selling or have the highest sales.
* Customer Preferences: Prioritize products that are most liked or frequently purchased by customers.

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| WITH Profitability AS (      SELECT Product, SUM(Revenue - (RawMaterial + Handling + Logistic)) AS GrossProfit      FROM `buoyant-arcanum-409003.cehikasyde.Order`      GROUP BY Product  ), Popularity AS (      SELECT Product, SUM(Quantity) AS TotalQuantitySold      FROM `buoyant-arcanum-409003.cehikasyde.Order`      GROUP BY Product  ), CustomerPreference AS (      SELECT Product, COUNT(\*) AS TotalTransactions      FROM `buoyant-arcanum-409003.cehikasyde.Order`      GROUP BY Product  )  SELECT p.Product, p.GrossProfit, po.TotalQuantitySold, cp.TotalTransactions  FROM Profitability p  LEFT JOIN Popularity po ON p.Product = po.Product  LEFT JOIN CustomerPreference cp ON p.Product = cp.Product  ORDER BY p.GrossProfit, po.TotalQuantitySold, cp.TotalTransactions DESC; |
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1. Company want to do sales performance evaluation. One of the aspect to be evaluated is the sales person. Company want to know which sales person achieved and did not achieve the target. The achievement is defined as Total Revenue (Rp) generated by each person per year (annually).

If we define the target as average total revenue (Rp) achieved per person per year, answer below questions:

a. Calculate the target revenue by year!

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| WITH yearly\_revenue AS (      SELECT          EXTRACT(YEAR FROM Date) AS year,          idSales,          SUM(Revenue) AS total\_revenue      FROM          `buoyant-arcanum-409003.cehikasyde.Order`      GROUP BY          year,          idSales  ),  average\_revenue AS (      SELECT          year,          AVG(total\_revenue) AS avg\_revenue\_per\_person      FROM          yearly\_revenue      GROUP BY          year  )  SELECT      year,      avg\_revenue\_per\_person AS target\_revenue  FROM      average\_revenue  ORDER BY      year; |
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b. Which sales person achieved the target (generate revenue >= target) for 2 years in a row?

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| WITH yearly\_revenue AS (      SELECT          EXTRACT(YEAR FROM Date) AS year,          o.idSales,          s.Name,          SUM(Revenue) AS total\_revenue      FROM          `buoyant-arcanum-409003.cehikasyde.Order` o      JOIN `buoyant-arcanum-409003.cehikasyde.Sales` s ON o.idSales = s.idSales      GROUP BY          year,          o.idSales,          s.Name  ),  average\_revenue AS (      SELECT          year,          AVG(total\_revenue) AS avg\_revenue\_per\_person      FROM          yearly\_revenue      GROUP BY          year  ),  target\_revenue AS (      SELECT          year,          avg\_revenue\_per\_person AS target\_revenue      FROM          average\_revenue  )  SELECT      t1.idSales,      t1.Name AS Sales\_Name,      COUNT(\*) AS consecutive\_years  FROM      yearly\_revenue t1  JOIN target\_revenue t2 ON t1.year = t2.year  WHERE      t1.total\_revenue >= t2.target\_revenue  GROUP BY      t1.idSales,      t1.Name  HAVING      COUNT(\*) >= 2; |
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c. Which sales person doesn't achieve the target (generate revenue < target) for 2 years in a row?

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| WITH yearly\_revenue AS (      SELECT          EXTRACT(YEAR FROM Date) AS year,          o.idSales,          s.Name,          SUM(Revenue) AS total\_revenue      FROM          `buoyant-arcanum-409003.cehikasyde.Order` o      JOIN `buoyant-arcanum-409003.cehikasyde.Sales` s ON o.idSales = s.idSales      GROUP BY          year,          o.idSales,          s.Name  ),  average\_revenue AS (      SELECT          year,          AVG(total\_revenue) AS avg\_revenue\_per\_person      FROM          yearly\_revenue      GROUP BY          year  ),  target\_revenue AS (      SELECT          year,          avg\_revenue\_per\_person AS target\_revenue      FROM          average\_revenue  )  SELECT      t1.idSales,      t1.Name AS Sales\_Name,      COUNT(\*) AS consecutive\_years  FROM      yearly\_revenue t1  JOIN target\_revenue t2 ON t1.year = t2.year  WHERE      t1.total\_revenue < t2.target\_revenue  GROUP BY      t1.idSales,      t1.Name  HAVING      COUNT(\*) >= 2; |
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1. Assuming idBuyer from Order table is an identification for a buyer. Which means, every idBuyer represents one buyer. Find out how many users each month in each segment where segments' definition is below:

0 transaction: Inactive

1 - 2 transactions: Casual

2 transactions: Power

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| WITH UserTransactions AS (      SELECT          EXTRACT(YEAR FROM Date) AS Year,          EXTRACT(MONTH FROM Date) AS Month,          idBuyer,          COUNT(\*) AS TransactionCount      FROM          `buoyant-arcanum-409003.cehikasyde.Order`      GROUP BY          Year,          Month,          idBuyer  ),  UserSegments AS (      SELECT          Year,          Month,          idBuyer,          CASE              WHEN TransactionCount = 0 THEN 'Inactive'              WHEN TransactionCount >= 1 AND TransactionCount <= 2 THEN 'Casual'              WHEN TransactionCount >= 2 THEN 'Power'          END AS Segment      FROM          UserTransactions  )  SELECT      Year,      Month,      Segment,      COUNT(DISTINCT idBuyer) AS UserCount  FROM      UserSegments  GROUP BY      Year,      Month,      Segment  ORDER BY      Year,      Month,      Segment; |
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1. Based on the data and 3 questions above, what insights do you think are useful for the company?
2. Top Buyers by Revenue: Identifying the top 10 buyers by revenue in each year can help the company understand its most valuable customers and tailor marketing strategies or loyalty programs to retain them.
3. Top Sales Persons by Gross Profit: Identifying the top 5 sales persons by gross profit in each year can help the company recognize and reward high-performing sales individuals. It can also provide insights into the effectiveness of sales strategies and incentives.
4. Monthly Revenue, Cost Revenue, and Gross Profit: Analyzing monthly revenue, cost revenue, and gross profit in each year can help the company understand its revenue and cost trends over time. It can also help in identifying seasonal patterns and optimizing pricing and cost management strategies.
5. Product Prioritization Criteria: Evaluating product profitability, popularity, and customer preferences can help the company prioritize its product offerings. This can guide decisions on inventory management, marketing efforts, and product development.
6. Sales Performance Evaluation: Evaluating sales persons' performance based on their ability to achieve target revenue can help the company identify top-performing sales persons and areas for improvement. It can also inform decisions on sales strategies and training programs.
7. User Segmentation: Segmenting users based on their transaction behavior can help the company tailor its marketing and customer engagement strategies. Understanding user segments can also help in identifying opportunities to increase customer retention and engagement.

These insights can be valuable for the company in optimizing its operations, improving customer satisfaction, and driving revenue growth.