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/*
PARCHE & POSSEY PAPER COMPANY
SQL SALES & OPERATIONS ANALYSIS
*/

/* What are the distinct marketing/web channels available? */
SELECT DISTINCT channel
FROM web_events;


/* How many account holders does Parche & Possey have? */
SELECT COUNT(*) AS total_accounts
FROM accounts;


/* How many web events came from the 'direct' channel? */
SELECT COUNT(channel) AS total_direct_channel
FROM web_events
WHERE channel = 'direct';


/* What is the average price per unit for gloss paper and poster paper? */
SELECT
   ROUND(SUM(gloss_amt_usd) / NULLIF(SUM(gloss_qty), 0), 1) AS gloss_price_per_unit,
   ROUND(SUM(poster_amt_usd) / NULLIF(SUM(poster_qty), 0), 1) AS
poster_price_per_unit
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FROM orders;



/* What are the maximum and minimum quantities ordered for standard paper? */
SELECT
   MAX(standard_qty) AS max_standard_qty_ordered,
   MIN(standard_qty) AS min_standard_qty_ordered
FROM orders;



/* What is the average quantity ordered for standard and poster paper? */
SELECT
   AVG(standard_qty) AS avg_standard_qty_ordered,
   AVG(poster_qty) AS avg_poster_qty_ordered
FROM orders;



/* Which accounts have spent 300,000 USD or more in total? */
SELECT
   account_id,
   SUM(total_amt_usd) AS total_amt_spent
FROM orders
GROUP BY account_id
HAVING SUM(total_amt_usd) >= 300000
ORDER BY total_amt_spent DESC;
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/* How many accounts have placed more than 20 orders? */
SELECT COUNT(*) AS total_accounts
FROM (
  SELECT
    account_id,
    COUNT(account_id) AS total_orders
  FROM orders
  GROUP BY account_id
  HAVING COUNT(account_id) > 20
) AS t;


/* Which day of the week has the highest number of orders? */
SELECT TOP 1
  DATEPART(WEEKDAY, occurred_at) AS day_of_week,
  COUNT(id) AS total_orders
FROM orders
GROUP BY DATEPART(WEEKDAY, occurred_at)
ORDER BY total_orders DESC;


/* Which hour of the day has the highest number of orders? */
SELECT TOP 1
  DATEPART(HOUR, occurred_at) AS hour_of_day,
  COUNT(id) AS total_orders
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FROM orders
GROUP BY DATEPART(HOUR, occurred_at)
ORDER BY total_orders DESC;



/* Which month had the most orders and in which year? */
SELECT TOP 1
  DATEPART(MONTH, occurred_at) AS month,
  DATEPART(YEAR, occurred_at) AS year,
  COUNT(occurred_at) AS total_orders
FROM orders
GROUP BY
  DATEPART(MONTH, occurred_at),
  DATEPART(YEAR, occurred_at)
ORDER BY total_orders DESC;



/* Classify each order as High, Medium, or Small based on total quantity */
SELECT
  account_id,
  occurred_at,
  total,
  CASE
    WHEN total > 500 THEN 'High order'
    WHEN total > 200 THEN 'Medium order'
    ELSE 'Small order'
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  END AS order_type
FROM orders;



/* Which accounts have at least 50 orders? */
SELECT
  a.name,
  o.account_id,
  COUNT(o.account_id) AS total_orders
FROM accounts AS a
INNER JOIN orders AS o
  ON a.id = o.account_id
GROUP BY a.name, o.account_id
HAVING COUNT(o.account_id) >= 50
ORDER BY total_orders DESC;



/* How many sales reps manage more than 5 accounts? */
SELECT COUNT(*) AS count_of_sales_rep
FROM (
  SELECT
    s.id,
    s.name,
    COUNT(a.sales_rep_id) AS total_accounts
  FROM sales_reps AS s
  INNER JOIN accounts AS a
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    ON s.id = a.sales_rep_id
  GROUP BY s.id, s.name
  HAVING COUNT(a.sales_rep_id) > 5
) AS t;



/* Identify sales reps who manage more than 5 accounts*/
WITH sales_rep_accounts AS (
  SELECT
    s.id,
    s.name,
    COUNT(a.sales_rep_id) AS total_accounts
  FROM sales_reps AS s
  INNER JOIN accounts AS a
    ON s.id = a.sales_rep_id
  GROUP BY s.id, s.name
  HAVING COUNT(a.sales_rep_id) > 5
)
SELECT
  name,
  total_accounts
FROM sales_rep_accounts;



/* Identify the top-performing sales rep by total sales in each region */
WITH rep_sales AS (
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  SELECT
    s.name AS rep_name,
    r.name AS region_name,
    SUM(o.total_amt_usd) AS total_amt
  FROM orders AS o
  JOIN accounts AS a ON a.id = o.account_id
  JOIN sales_reps AS s ON s.id = a.sales_rep_id
  JOIN region AS r ON r.id = s.region_id
  GROUP BY s.name, r.name
),
region_max_sales AS (
  SELECT
    region_name,
    MAX(total_amt) AS total_amt
  FROM rep_sales
  GROUP BY region_name
)
SELECT
  r.rep_name,
  r.region_name,
  r.total_amt
FROM rep_sales r
JOIN region_max_sales m
  ON r.region_name = m.region_name
 AND r.total_amt = m.total_amt;
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/* What is the total number of units ordered per account*/
SELECT
   account_id,
   SUM(total) AS total_units
FROM orders
GROUP BY account_id
ORDER BY account_id;

/* What is the running total of units ordered per account over time? */
SELECT
   account_id,
   occurred_at,
   total,
   SUM(total) OVER (
      PARTITION BY account_id
      ORDER BY account_id, occurred_at
   ) AS running_total
FROM orders;

/* Which sales representative generated the highest total sales (total_amt_usd)
  in each region, and how much revenue did they contribute? */

WITH t1 AS (
   SELECT
      s.name AS rep_name,
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      r.name AS region_name,
      SUM(o.total_amt_usd) AS total_amt
   FROM sales_reps s
   JOIN accounts a
      ON a.sales_rep_id = s.id
   JOIN orders o
      ON o.account_id = a.id
   JOIN region r
      ON r.id = s.region_id
   GROUP BY s.name, r.name
),
t2 AS (
   SELECT
      region_name,
      MAX(total_amt) AS total_amt
   FROM t1
   GROUP BY region_name
)
SELECT
   t1.rep_name,
   t1.region_name,
   t1.total_amt
FROM t1
JOIN t2
   ON t1.region_name = t2.region_name
  AND t1.total_amt = t2.total_amt;
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