

Assignment

Question: Given a table named sales with columns order_date, region, and revenue, write a query to calculate the total revenue for each region, ordering the results by region and order date.

Question: Using the same sales table, write a query to find the top 3 highest revenue days for each region.

Question: Suppose you have an employee_salaries table with columns employee_id, salary, and department_id. Write a query to calculate the average salary for each department, including the department's highest-paid employee's salary.

Question: In a table named student_scores with columns student_id, subject, and score, find the student with the highest score in each subject.

Question: Given a table product_sales with columns product_id, sale_date, and revenue, calculate the running total revenue for each product, ordered by sale date.

Question: In a table order_details with columns order_id, product_id, and quantity, find the product that contributed the most to each order in terms of quantity.

Question: Given a table `employee_performance` with columns `employee_id`, `quarter`, and `performance_score`, calculate the average performance score for each employee over the last two quarters.

Question: Suppose you have a table `exam_scores` with columns `student_id`, `subject`, `score`, and `exam_date`. Write a query to find the student who achieved the highest score in each subject within the last month.

Question: In a table `customer_orders` with columns `customer_id`, `order_date`, and `order_total`, find the top 10 customers who have spent the most in total across all orders.

Question: Given a table `web_traffic` with columns `page_id`, `visit_date`, and `page_views`, find the pages that received the highest number of page views for each month.

Question: Suppose you have a table `sales` with columns `sale_date`, `product_id`, and `revenue`. Write a query to calculate the moving average revenue for each product over a 7-day window.

Question: In a table `student_scores` with columns `student_id`, `subject`, and `score`, find the average score for each subject, and also include the student who scored the highest in each subject.

Question: In a table `employee_salaries` with columns `employee_id`, `salary`, and `department_id`, find the difference between each employee's salary and the average salary in their department.

Question: Given a table `web_logs` with columns `log_date`, `user_id`, and `page_views`, calculate the 7-day rolling average page views for each user.

Question: Suppose you have a table `order_details` with columns `order_id`, `product_id`, and `unit_price`. Write a query to calculate the total revenue for each order and include the order with the highest revenue in each result row.

Question: Given a table `product_sales` with columns `product_id`, `sale_date`, and `revenue`, find the products that have had the highest daily revenue at least once.

Question: In a table `employee_performance` with columns `employee_id`, `quarter`, and `performance_score`, find the employees whose performance score has improved for three consecutive quarters.

Question: Given a table `product_inventory` with columns `product_id`, `transaction_date`, and `quantity`, calculate the sum of quantities sold for each product over a rolling 30-day period.

Question: Given a table `employees` with columns `employee_id`, `employee_name`, and `manager_id`, write a SQL query to list all employees and their immediate managers using a CTE.

Question: In a table `orders` with columns `order_id`, `customer_id`, and `order_date`, write a CTE query to find the number of orders placed by each customer in the year 2022.

Question: You have a table `product_sales` with columns `product_id`, `sale_date`, and `revenue`. Write a CTE query to calculate the cumulative revenue for each product ordered by sale date.

Question: Given a table `student_scores` with columns `student_id`, `subject`, and `score`, write a CTE query to find the average score for each subject and display subjects with an average score greater than 80.

Question: In a table `employee_salaries` with columns `employee_id`, `salary`, and `department_id`, write a CTE query to find the highest salary in each department.

Question: Suppose you have a table `orders` with columns `order_id`, `customer_id`, and `order_date`. Write a CTE query to find the first and last order dates for each customer.

Question: Given a table `web_logs` with columns `log_date`, `user_id`, and `page_views`, write a CTE query to find the users who had the highest daily page views.

Question: In a table `product_inventory` with columns `product_id`, `transaction_date`, and `quantity`, write a CTE query to find the products that have never had a negative quantity in stock.

Question: Suppose you have a table `expenses` with columns `expense_id`, `category`, and `amount`. Write a CTE query to find the top 5 expense categories with the highest total amount.

Question: Given a table `customer_orders` with columns `customer_id`, `order_date`, and `order_total`, write a CTE query to calculate the total order value for each customer and list customers with total order values exceeding \$10,000.

Question: You are given a table sales with columns order_date, region, and revenue. Write a CTE query to find the total revenue for each region and display regions with total revenue greater than \$1,000,000.

Question: In a table employee_hierarchy with columns employee_id, employee_name, and manager_id, write a CTE query to find all employees and their immediate managers' names.

Question: Given a table product_sales with columns product_id, sale_date, and revenue, write a CTE query to calculate the average revenue for each product for the last 3 months.

Question: You have a table order_details with columns order_id, product_id, and quantity. Write a CTE query to find the total quantity ordered for each product and rank the products by total quantity.

Question: In a table employee_salaries with columns employee_id, salary, and department_id, write a CTE query to find the employees who have the same salary as their department's average salary.

Question: Given a table web_logs with columns log_date, user_id, and page_views, write a CTE query to find the date with the highest total page views and the user who had the highest page views on that date.

Question: Suppose you have a table `expenses` with columns `expense_id`, `category`, and `amount`. Write a CTE query to find the category with the highest total amount spent and list expenses within that category.

Question: Given a table `customer_orders` with columns `customer_id`, `order_date`, and `order_total`, write a CTE query to find the customers who placed orders on the same date as the highest total daily order value.

Question: In a table `product_inventory` with columns `product_id`, `transaction_date`, and `quantity`, write a CTE query to find the products that have the highest cumulative quantity purchased in the last 90 days.

Question: Suppose you have a table `employee_performance` with columns `employee_id`, `quarter`, and `performance_score`. Write a CTE query to find the employees who have shown consistent improvement in their performance score over the last four quarters.

Question: You are designing a database for a library. Create a view that lists all books available for checkout along with their authors' names. Explain the benefits of using this view.

ADVANCED:

Question: You have a table `sales_data` with columns `order_date`, `region`, `salesperson_id`, and `revenue`. Write an SQL query to find the top-performing salesperson in each region based on the highest total revenue. Use a combination of CTEs and window functions.

Question: Given a table `employee_salaries` with columns `employee_id`, `salary`, and `department_id`, write an SQL query to find the department with the highest average salary. Additionally, list the employees within that department who have a salary greater than the department's average salary.

Question: You are given a table `customer_orders` with columns `customer_id`, `order_date`, and `order_total`. Write an SQL query to find the top 3 customers who have placed the most orders, along with the total number of orders placed by each of them.

Question: In a table `product_inventory` with columns `product_id`, `transaction_date`, and `quantity`, write an SQL query to find the products with the highest and lowest average quantity sold per month. Use CTEs and window functions.

Question: Given a table `web_logs` with columns `log_date`, `user_id`, and `page_views`, write an SQL query to find the date with the highest total page views and the user who had the highest page views on that date. Additionally, provide the total page views on that date.