CECS323 Practice SQL

For each lab, please turn in:

1. For each of these Practice SQL labs, please turn in:
    a. The original question (given to you in this document)
    b. Your **single** SQL statement that provides the data requested in that question
    c. The output
        i. You can do that as one or more screen shots
        ii. Or in a tabular format by doing a copy/paste
2. Your team's filled out collaboration document. You can find a template for that here.

Selects

1. List all the data in the classic models database:
    a) Product Lines (7)
    b) Product (110);
    c) Employees (23)
    d) Offices (7)
    e) Customers (122)
    f) Orders (326)
    g) Orderdetails (2996)
    h) Payments (273)
2. Select customer name from customer. Sort by customer name (122)
3. List each of the different status that an order may be in (6)
4. List firstname and lastname for each employee. Sort by lastname then firstname (23)
5. List all the employee job titles (7)
6. List all products along with their product scale (110)
7. List all the territories where we have offices (4)

Where Clause

8. Select contact firstname, contact lastname and credit limit for all customers where credit limit > 50000 ordered by the last name, then the first name. (85)
9. Select the customer name of customers who do not have a credit limit (0.00) order by customerName (24)
10. List the city, phone, address, state, country, postal code, and territory of all offices not in the USA (4)
11. List the order date, required date, shipped date, status, and comments from all orders made between June 16, 2014 and July 7, 2014 (8)

12. List the product code, product name, product vendor, and the quantity in stock of all products that we need to reorder (quantityinstock < 1000) (12)
13. List the order number, shipped date, and required date of all orders that shipped after the required date (1)
14. List the customer name of all customers who have the word 'Mini' in their name (10)
15. List the product name of all products supplied by 'Highway 66 Mini Classics' (9)
16. List the product name and product vendor of all products **not** supplied by 'Highway 66 Mini Classics' order by productName (101)
17. List the last name and first name of all employees that do not have a manager (1)

Inner Join

18. Display the order number, order date, status, quantity ordered, price each, and product name for every item within every order for order numbers 10270, 10272, 10279 (23)

    Hint: this can be done two ways. Try both. Which is easier if you have many selection criteria?
19. List the product lines, the first 50 characters of the product line's text description and vendors that supply the products in that product line ordered by product Line and product Vendor. (65) The Derby database gives us the SUBSTR function that you can read about here.
20. Select the customer name and their state for all customers that live in the same state as one of our offices ordered by customerName (26)
21. Select the customer name of all customers who live in the same state as their employee representative works (26)

Multi-join

22. Select customer name, order date, quantity ordered, product line, product name for all orders by a customer with the string 'Decorations' in their name, made **and** shipped during odd-numbered months in 2015 ordered by customer name and order date. SQL has a mod function that takes two arguments: the number that you want to perform modular division on, and the divisor. For instance mod (8, 3) will return 2. (28)

Outer Join

23. List the product name and product code of products that didn't sell (1)
24. List the name of all customers and first and last name of their sales rep even if they don't have a sales rep (122)

Aggregate Functions

25. List the customer name and the total of all payments made by each customer (98)

26. Find the largest payment made by a customer (1)
27. Find the average payment made by a customer (1)
28. What is the total number of products per product line (7)? List the product line and the number of products in that product line.
29. What is the number of orders per status (6)? List each status and the number of orders in that status.
30. List the city, phone, address, state, country, postal code, and territory of each office and the number of employees working in that office (7).

Having

31. List each product line and the number of products within that product line for those product lines with > 3 products. (6)
32. List the orderNumber and order total for all orders that totaled more than $60,000.00. (3)

Computations

33. List the products and the profit that we have made on them. The profit in each order for a given product is (priceEach – buyPrice) * quantityOrdered. List the product's name and code with the total profit that we have earned selling that product. Order the rows descending by profit. Only show those products whose profit is greater than $60,000.00. (11)
34. List the product code and the average of the money spent on each product across all orders where that product appears when the customer is based in Japan. Show these products in descending order by the average expenditure (45).
35. List the product name and the profit per product (MSRP-buyprice). Order by productName. (110)
36. List the Customer Name and their total order value (quantity * priceEach) across all orders that the customer has ever placed with us, in descending order by order total for those customers who have ordered more than $100,000.00 from us ordered by Customer total in descending order. (32)

Set Operations

37. List the name of all customers who didn't order in 2015 (78). Order by customer name.
38. List all people that we deal with (employees and customer contacts). Display contact first name, contact last name, company name for the customers. For the employees, display their first name, last name, and just the literal 'Employee' for the employees. Returns 145 rows.
39. List the last name, first name, and employee number of all the employees who do not have any customers. Order by last name first, then the first name. (8).

40. List the states and the country that the state is part of that have customers but not offices, offices but not customers, or both one or more customers and one or more offices all in one query. Designate which state is which with the string 'Customer', 'Office', or 'Both'. If a state falls into the “Both” category, do not list it as a Customer or an Office state. Order by the country, then the state. Give the category column (where you list ‘Customer’, ‘Office’, or ‘Both’) a header of “Category” and exclude any entries in which the state is null. (19)

41. List the Product Code and Product name of every product that has never been in an order in which the customer asked for more than 48 of them. Order by the Product Name. (8)

42. List the customer’s name of any customer who ordered any products from either of the two product lines ‘Trains’ or ‘Trucks and Buses’. Do not use an “or”. Instead perform a union. Order by the customer’s name. (61)

43. List the name of all customers, their state, and country who do not live in the same state and country with any other customer. Do not use a count for this exercise. Order by the customer name.

    This returns 18 if you convert the null states to something like ‘N/A’ and it returns 10 if you exclude all customers with no state value at all.

Subqueries

44. What is the name of the product(s) that makes us the most money (qty*price) across all orders for that product? Returns 1.

45. List the product lines and vendors for product lines **which** are supported by < 5 vendors. That is, there are < 5 vendors making products within that product line. Returns 3.

46. List the product name of the products in the product line(s) with the largest number of products. Returns 38.

47. Find the first name and last name of all customer contacts whose customer is located in the same state as the San Francisco office. Returns 11.

48. What is the name of the customer and salesperson of the highest priced order? The price of the order is the sum of the quantity ordered * the price each for all the items within that order. Returns 1.

49. What is the order number and the cost of the order for the most expensive orders? Note that there could be more than one order which all happen to add up to the same cost, and that same cost could be the highest cost among all orders. The cost of an order is the sum of the quantity ordered * the price each for all the items within that order. Returns 1.

50. What is the name of the customer, the order number, and the total cost of the most expensive orders? Returns 1.

51. Report the sales representative’s last name, their first name, and the total of all purchases made by all of that sales representative’s customers, but only for those sales representatives whose total is the largest for all sales representatives. (1)

52. List the names of the customers who have ordered at least one product with the name "Ford" in it, that "Dragon Souveniers, Ltd." has also ordered. List them in reverse alphabetical order, and do not consider the case of the letters in the customer name in the ordering. Show each customer no more than once. Returns 61.

53. List the product name, the MSRP of that product, and the average MSRP for all products but only for those products have an MSRP within 5% of the average MSRP across all products. Order by the product MSRP. If we denote the average MSRP as aMSRP, then the % difference between a particular MSRP and aMSRP is 100 * (MSRP - aMSRP)/aMSRP. Returns 14.

Recursion

54. List the name of all the customers who have never made a payment on the same date as another customer. Order by customer name. (57)

55. List the names of customers who have ordered the same thing as each other. For instance, if 'AV Stores, Co.' orders a particular item five times, and 'Land of Toys Inc.' orders that same item 4 times, it only counts as one item that they have ordered in common. Find only those customer pairs who have ordered more than 40 different items in common (3).

56. What are the names of the managers who manage the greatest number of employees (2)

57. List the names all employees and their manager who work for the manager that manages the greatest number of employee (12)

58. List all pairs of employees that have the same last name. Make sure each combination is listed only once (5)

59. Select the name of each of two customers who have made at least one payment on the same date as the other. Make sure that each pair of customers only appears once. Order by the first customer name, then the second customer name. Returns 46 rows.

60. List the names, state and country of customers that share the same state and country. The country must be one of the following: UK, Australia, Italy, or Canada. Remember that not all countries have states at all, so you need to substitute a character sting like 'N/A' for the state in those cases so that you can compare the states. (15)

61. List the names of all of the customer pairs who have the same sales representative as some other customer, and either customer name has 'Australian' in it. List each of the customers sharing a sales representative, and the name of the sales representative. Order by the name of the first customer, then the second. Do not show any combination more than once. (9)

62. List the names of all pairs of employees who have the same manager. List the first and last name of each employee, the first and last name of their manager. Order by the last name of the manager, the first name of the manager, the last name of the first employee the first name of the first employee, the last name of the second employee and the first name of the second employee. Be sure that each pair of employees shows up in the output only once. (40)