Cameron Sumlin-Eskridge Databases

Homework 3 Report

Question 1: Show the name, age, sales and quota of the sales representative whose last name ends with letter “s”.

SQL Query

SELECT Name, Age, Sales, Quota FROM SALESREPS

WHERE name LIKE '%s';

Output:

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Age | Sales | Quota |
| Dan Roberts | 45 | 305673 | 300000 |
| Bill Adams | 37 | 367911 | 350000 |
| Mary Jones | 31 | 392725 | 300000 |
|  |  |  |  |

Question 2: List the customer company names and product descriptions of all the products each customer/company has ordered. Arrange the output ascending by the company name.

SQL Query

SELECT Company, Description

FROM Customers

INNER JOIN Orders ON Customers.Cust\_Num=Orders.Cust

INNER JOIN Products ON Orders.Product=Products.Product\_ID

ORDER BY Company ASC

Output:

|  |  |
| --- | --- |
| Company | Description |
| Ace International | Ratchet Link |
| Ace International | Size 1 Widget |
| Acme Mfg. | Size 4 Widget |
| Acme Mfg. | Size 2 Widget |
| Acme Mfg. | Size 4 Widget |
| Acme Mfg. | Widget Remover |
| Chen Associates | 500 -lb Brace |
| First Corp. | Size 4 Widget |
| Fred Lewis Corp. | Reducer |
| Fred Lewis Corp. | Ratchet Link |
| Holm & Landis | Widget Adjuster |
| Holm & Landis | Housing |
| Holm & Landis | 900 -lb Brace |
| Ian & Schmidt | Right Hinge |
| J.P. Sinclair | Left Hinge |
| JCP Inc. | Handle |
| JCP Inc. | Widget Adjuster |
| JCP Inc. | Hinge Pin |
| JCP Inc. | Size 3 Widget |
| Jones Mfg. | Motor Mount |
| Miswest Sytems | Handle |
| Miswest Sytems | Size 3 Widget |
| Miswest Sytems | Size 2 Widget |
| Miswest Sytems | Reducer |
| Miswest Sytems | Reducer |
| Orion Corp. | Reducer |
| Orion Corp. | Size 1 Widget |
| Peter Brothers | Handle |
| Peter Brothers | Motor Mount |
| Peter Brothers | Size 3 Widget |
| Rico Enterprises | 900 -lb Brace |
| Zetacorp | Right Hinge |
| Zetacorp | 300-lb Brace |

Question 3: Show the total value of the inventory on hand for each product. Arrange in descending order by total value.

SQL Query

SELECT Product\_ID, Unit\_Price\*Qty\_On\_Hand as 'Total Value'

FROM Products

ORDER BY Unit\_Price\*Qty\_On\_Hand DESC;

Output:

|  |  |
| --- | --- |
| Product\_ID | Total Value |
| 4101 | 70000 |
| 4100Y | 68750 |
| 2A44R | 54000 |
| 2A44L | 54000 |
| 773C | 27300 |
| XK48 | 27202 |
| 41003 | 22149 |
| 41089 | 17550 |
| 112 | 17020 |
| 779C | 16875 |
| 2A45C | 16590 |
| 41004 | 16263 |
| 4100Z | 15235 |
| 887X | 15200 |
| 41002 | 12692 |
| 887H | 12042 |
| 775C | 7125 |
| XK48A | 6549 |
| 887P | 6000 |
| XK47 | 5325 |
| 2A44G | 4900 |
| 41003 | 1956 |
| 114 | 1215 |
| 4100X | 925 |
| 41675 | 0 |

Question 4: How many customers are there?

SQL Query

SELECT Count(Cust\_Num) FROM Customers;

Output:

21

Question 5: List the cities where the local offices have their targets less than $550,000.

SQL Query

SELECT City FROM Offices

WHERE Target < 550000;

Output:

|  |
| --- |
| City |
| Atlanta |
| Denver |

Question 6: List order numbers and quantities for all the orders that are over $20,000; include also the name of the salesperson who took the order and the name of the company (i.e. customer) who placed it.

SQL Query

SELECT Orders.Order\_Num, Orders.QTY, Customers.Company, Salesreps.Name

FROM Orders

INNER JOIN Customers ON Orders.Cust=Customers.Cust\_Num

INNER JOIN Salesreps ON Customers.Cust\_Rep=Salesreps.Emp\_Num

WHERE Total\_Amount>20000;

Output:

|  |  |  |  |
| --- | --- | --- | --- |
| Order\_Num | QTY | Company | Name |
| 112961 | 7 | J.P. Sinclair | Sam Clark |
| 112987 | 11 | Acme Mfg. | Bill Adams |
| 113036 | 9 | Ace International | Tom Snyder |
| 113042 | 5 | Ian & Schmidt | Bob Smith |
| 113045 | 10 | Zetacorp | Larry Fitch |
| 113069 | 22 | Chen Associates | Paul Cruz |

Question 7: List all the companies which have ordered any size widget (i.e., Size 1, 2, and 3 widgets), and the widget they ordered. Make sure you print out only unique pairs of attribute values.

SQL Query

SELECT DISTINCT Company, Description

FROM Customers, Products

WHERE Description LIKE 'Size%'

ORDER BY Company;

Output:

|  |  |
| --- | --- |
| Company | Description |
| AAA Investments | Size 2 Widget |
| AAA Investments | Size 1 Widget |
| AAA Investments | Size 4 Widget |
| AAA Investments | Size 3 Widget |
| Ace International | Size 3 Widget |
| Ace International | Size 4 Widget |
| Ace International | Size 2 Widget |
| Ace International | Size 1 Widget |
| Acme Mfg. | Size 4 Widget |
| Acme Mfg. | Size 2 Widget |
| Acme Mfg. | Size 1 Widget |
| Acme Mfg. | Size 3 Widget |
| Carter & sons | Size 3 Widget |
| Carter & sons | Size 1 Widget |
| Carter & sons | Size 4 Widget |
| Carter & sons | Size 2 Widget |
| Chen Associates | Size 2 Widget |
| Chen Associates | Size 1 Widget |
| Chen Associates | Size 3 Widget |
| Chen Associates | Size 4 Widget |
| First Corp. | Size 3 Widget |
| First Corp. | Size 2 Widget |
| First Corp. | Size 4 Widget |
| First Corp. | Size 1 Widget |
| Fred Lewis Corp. | Size 3 Widget |
| Fred Lewis Corp. | Size 2 Widget |
| Fred Lewis Corp. | Size 1 Widget |
| Fred Lewis Corp. | Size 4 Widget |
| Holm & Landis | Size 1 Widget |
| Holm & Landis | Size 4 Widget |
| Holm & Landis | Size 2 Widget |
| Holm & Landis | Size 3 Widget |
| Ian & Schmidt | Size 1 Widget |
| Ian & Schmidt | Size 2 Widget |
| Ian & Schmidt | Size 4 Widget |
| Ian & Schmidt | Size 3 Widget |
| J.P. Sinclair | Size 1 Widget |
| J.P. Sinclair | Size 2 Widget |
| J.P. Sinclair | Size 3 Widget |
| J.P. Sinclair | Size 4 Widget |
| JCP Inc. | Size 4 Widget |
| JCP Inc. | Size 2 Widget |
| JCP Inc. | Size 1 Widget |
| JCP Inc. | Size 3 Widget |
| Jones Mfg. | Size 1 Widget |
| Jones Mfg. | Size 2 Widget |
| Jones Mfg. | Size 3 Widget |
| Jones Mfg. | Size 4 Widget |
| Miswest Sytems | Size 1 Widget |
| Miswest Sytems | Size 2 Widget |
| Miswest Sytems | Size 4 Widget |
| Miswest Sytems | Size 3 Widget |
| Orion Corp. | Size 1 Widget |
| Orion Corp. | Size 2 Widget |
| Orion Corp. | Size 4 Widget |
| Orion Corp. | Size 3 Widget |
| Peter Brothers | Size 1 Widget |
| Peter Brothers | Size 3 Widget |
| Peter Brothers | Size 2 Widget |
| Peter Brothers | Size 4 Widget |
| QMA Assoc. | Size 1 Widget |
| QMA Assoc. | Size 4 Widget |
| QMA Assoc. | Size 3 Widget |
| QMA Assoc. | Size 2 Widget |
| Rico Enterprises | Size 4 Widget |
| Rico Enterprises | Size 3 Widget |
| Rico Enterprises | Size 1 Widget |
| Rico Enterprises | Size 2 Widget |
| Smithson Corp. | Size 2 Widget |
| Smithson Corp. | Size 1 Widget |
| Smithson Corp. | Size 3 Widget |
| Smithson Corp. | Size 4 Widget |
| Solomon Inc. | Size 1 Widget |
| Solomon Inc. | Size 4 Widget |
| Solomon Inc. | Size 2 Widget |
| Solomon Inc. | Size 3 Widget |
| Three-Way Lines | Size 4 Widget |
| Three-Way Lines | Size 2 Widget |
| Three-Way Lines | Size 3 Widget |
| Three-Way Lines | Size 1 Widget |
| Zetacorp | Size 3 Widget |
| Zetacorp | Size 1 Widget |
| Zetacorp | Size 2 Widget |
| Zetacorp | Size 4 Widget |

Question 8: List the office, city, region and amount that sales are over (or under) target for each office (if sales are over the target the number needs to be positive, if under –I want to see a negative number).

SQL Query

SELECT Office\_Num, City, Region, Sales-Target AS 'Over/Under Target'

FROM Offices;

Output:

|  |  |  |  |
| --- | --- | --- | --- |
| Office\_Num | City | Region | Over/Under Target |
| 11 | New York | Eastern | 117637 |
| 12 | Chicago | Eastern | -64958 |
| 13 | Atlanta | Eastern | 17911 |
| 21 | Los Angeles | Western | 110915 |
| 22 | Denver | Western | -113958 |

Question 9: Are there any customers who are over their credit limit? If so, list the customer, the total amount the customer has on order, the credit limit, and the difference between total amount and credit limit.

SQL Query

SELECT Orders.Order\_Num, Customers.Company, Customers.Credit\_Limit, Orders.Total\_Amount, Credit\_Limit-Total\_Amount AS 'Credit Remaining After Order'

FROM Customers

INNER JOIN Orders ON Customers.Cust\_Num=Orders.Cust

WHERE Credit\_Limit-Total\_Amount < 0;

Output:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Order\_Num | Company | Credit\_Limit | Total\_Amount | Credit Remaining After Order |
| 113042 | Ian & Schmidt | 20000 | 22500 | -2500 |
| 113069 | Chen Associates | 25000 | 31350 | -6350 |

Question 10: What is the total order amount for each salesperson? Order output by decreasing total order amount; do not print the same names multiple times

SQL Query

SELECT Name, SUM(Total\_Amount)

FROM Salesreps

INNER JOIN Orders on Salesreps.Emp\_Num=Orders.Rep

GROUP BY Name

ORDER BY SUM(Total\_Amount) DESC;

Output:

|  |  |
| --- | --- |
| Larry Fitch | 58633 |
| Bill Adams | 39327 |
| Nancy Angelli | 34432 |
| Sam Clark | 32958 |
| Dan Roberts | 26628 |
| Tom Snyder | 23132 |
| Sue Smith | 22776 |
| Mary Jones | 7105 |
| Paul Cruz | 2700 |
| Question 11: What is the total amount (i.e. value!) of orders for each salesperson whose orders total for more than $40,000? Order output by amounts, in decreasing manner.  SQL Query  Select Name, SUM(Qty\*Total\_Amount) AS 'Value'  FROM Salesreps  INNER JOIN Orders ON Salesreps.Emp\_Num=Orders.Rep  GROUP BY Name  HAVING SUM(Qty\*Total\_Amount)>40000  ORDER BY SUM(Qty\*Total\_Amount) DESC  Output:  Name Value  Bill Adams 751131  Nancy Angelli 714652  Larry Fitch 616259  Dan Roberts 248652  Sam Clark 229248  Tom Snyder 207556  Sue Smith 155784 |  |

Question 12: List the offices and the target amounts for every office where the target for the office exceeds the sum of the individual salespeople’s quotas.

SQL Query

SELECT Office\_Num, Target

FROM Offices

INNER JOIN Salesreps ON Offices.Office\_Num=Salesreps.Rep\_Office

WHERE Target>Quota;

Output:

|  |  |
| --- | --- |
| Office\_Num | Target |
| 11 | 575000 |
| 11 | 575000 |
| 12 | 800000 |
| 12 | 800000 |
| 12 | 800000 |
| 21 | 725000 |
| 21 | 725000 |

Question 13: List the salespeople whose quotas are equal to or higher than the target of the Denver sales office (note: you are not allowed to just write SQL command with “office=22” explicitly, you must use word “Denver” somewhere in your command).

SQL Query

SELECT Name

FROM Salesreps

WHERE Quota >

(SELECT Target

FROM Offices

WHERE City='Denver');

Output:

|  |
| --- |
| Name |
| Sue Smith |
| Bill Adams |
| Larry Fitch |

Question 14: List the names of companies who placed an order with a sales representative that is not the sales representative that usually calls on them (i.e. he/she is not specified in an appropriate record of the CUSTOMER table, as the regular sales representative for this client/company). Include also the names of these salesreps, indicating in attribute TEMPORARY\_SALES\_REP name of salesrep, who took the order.

SQL Query

SELECT Order\_Num, Company, Name AS 'TEMPORARY\_SALES\_REP'

FROM Customers

INNER JOIN Orders ON Customers.Cust\_Num=Orders.Cust

INNER JOIN Salesreps ON Orders.Rep=Salesreps.Emp\_Num

WHERE Orders.Rep!=Customers.Cust\_Rep

ORDER BY Company

Output:

|  |  |  |
| --- | --- | --- |
| Order\_Num | Company | TEMPORARY\_SALES\_REP |
| 113069 | Chen Associates | Nancy Angelli |
| 113055 | Holm & Landis | Dan Roberts |
| 113042 | Ian & Schmidt | Dan Roberts |
| 113012 | JCP Inc. | Bill Adams |
| 113024 | Orion Corp. | Larry Fitch |

Question 15: Reverse engineer the relational design, and identify the foreign key relationships among the tables. Using alter table statements, add these constraints to your tables.

drop table if exists ORDERS;

drop table if exists PRODUCTS;

drop table if exists CUSTOMERS;

drop table if exists OFFICES;

drop table if exists SALESREPS;

create table ORDERS(

ORDER\_NUM varchar(6),

ORDER\_DATA date,

CUST char(4),

REP char(3),

MFR char(3),

PRODUCT varchar(10),

QTY int,

TOTAL\_AMOUNT decimal (10,2),

constraint pk\_orders primary key (ORDER\_NUM)

**ALTER TABLE ORDERS**

**ADD CONSTRAINT FK\_Product**

**FOREIGN KEY (PRODUCT) REFERENCES Products(PRODUCT\_ID)**

**ADD CONSTRAINT FK\_MFR**

**FOREIGN KEY (MFR) REFERENCES Products(MFR\_ID)**

**ADD CONSTRAINT FK\_CUSTNO**

**FOREIGN KEY (CUST) REFERENCES Customers(Cust\_Num)**

);

create table PRODUCTS(

MFR\_ID char(3),

PRODUCT\_ID varchar(10),

DESCRIPTION varchar(20),

UNIT\_PRICE decimal (10,2),

QTY\_ON\_HAND int,

constraint pk\_products primary key(MFR\_ID, PRODUCT\_ID)

);

create table CUSTOMERS(

CUST\_NUM char(4),

COMPANY varchar(20),

CUST\_REP char(3),

CREDIT\_LIMIT decimal (10,2),

constraint pk\_customers primary key (CUST\_NUM)

);

create table OFFICES(

OFFICE\_NUM char(2),

CITY varchar(20),

REGION varchar(10),

MGR char(3),

TARGET decimal (10,2),

SALES decimal (10,2),

constraint pk\_offices primary key (OFFICE\_NUM)

);

create table SALESREPS(

EMP\_NUM char(3),

NAME varchar(20),

AGE int,

REP\_OFFICE char(2),

TITLE varchar(10),

MANAGER char(3),

HIRE\_DATE date,

QUOTA decimal (10,2),

SALES decimal (10,2),

constraint pk\_salesRep primary key (EMP\_NUM)

**ALTER TABLE Salesreps**

**ADD CONSTRAINT FK\_Offno**

**FOREIGN KEY (Offno) REFERENCES Offices(OFFICE\_NUM)**

);