CSC 355 Database Systems 502
Assignment 3 (1/23)

Due 11:59:00pm, Thursday 1/31.

Reading: The posted Lecture 5 and Lecture 6 Slides, and Ullman/Widom Sections 6.1-6.2 and 6.4. [Next week: Ullman/Widom Sections 6.2-6.3.]

Your task in this assignment is to write a set of SQL queries (I will supply the tables).

First, download the script file Furniture2019.sql from the dropbox and run it in SQLDeveloper to build the tables you will be querying.

This script will build and display the contents of the following four tables that store data for a fictitious furniture supplier:

> CUSTOMER(CustomerID, Name, City, State, Zip), which contains information on customers of the company;
>
> PRODUCT(ProductID, Description, Material, Price), which contains information on products sold by the company;
>
> FULLORDER(OrderID, OrderDate, CustomerID), which contains information on orders placed with the company;
>
> REQUEST(OrderID, ProductID, Quantity), which contains information on the individual products requested in customers' orders.

In additional to the primary keys indicated above, OrderID and ProductID in REQUEST are foreign keys referencing OrderID in FULLORDER and ProductID in PRODUCT, respectively, and CustomerID in FULLORDER is a foreign key referencing CustomerID in CUSTOMER.

In SQLDeveloper, look at the Columns, Data, and Constraints for each of the four tables before continuing, to be sure that they have been constructed correctly. You might also want to draw the foreign keys and reference arrows into the set of relation schemas given above to be sure that you understand the links among the tables.

For each of the following query problems, follow the steps we discussed in class: interpret the problem, predict the output by solving it by hand on the table in question, write a query to solve the problem, and test the query. (Each of these query problems can be solved with information from just one of the given tables.)

In a separate .sql file (do not modify Furniture2019.sql), write a script that contains just the following ten SQL queries (in this order):

1. Give an alphabetical list of the names of all customers

2. Give the city, state, and zip of all customers in Florida (FL), California (CA), and Arizona (AZ).

3. Give the material, product ID, and price of all wardrobes, sorted alphabetically by the material, and with the wardrobes with the same material given in ascending order by price.

4. Give the names and zips of all customers whose names contain the word 'Home'.

5. For each state with at least one customer in it, give the name of the state and how many customers are in that state. Give the states in alphabetical order.

6. For each date on which at least one order has been placed, give the date and the highest orderID of the orders placed on that date. Sort the output by the date, from latest to earliest.

7. Give the price and description of all products that cost more than four hundred dollars, from the most expensive product to the least expensive product.

8. Give the IDs of all customers who have placed at least one order, and the date of their first order. Sort the output by the customers' IDs.

9. For each order, give the order ID and the total number of items requested in that order (e.g., for an order that requested 4 of one product, 3 of a second product, and 1 of a third product, the total number of items reported for that order should be 8). Sort the orders from the one with the largest total number of items to the one with the smallest total number of items.

10. For each product, give the product ID and a count of how many different orders have requested it. (Don't worry about the quantity of the product requested by each order, just count how many orders requested any number of that product.) Order the output from the products requested by the fewest different orders to the products requested by the most different orders. (Your output will not include products that have not been requested by any orders yet, and that is okay; to do that would require using more than one table.)

You may want to write and test these queries individually in SQLDeveloper, but once you have them working, you should put them all together into a single script file and be sure that the queries can be run all together in this form.

Add a comment before each query in your script file to label the queries 1 through 10 (e.g., the comment '-- 1.' on a line before the first query, the comment '-- 2.' on a line before the second query, et cetera).

Run the script file containing your queries to verify that your results are correct.

Include a comment at the top of your script file giving your name, the course number and section, the assignment number, and the date of submission, e.g.:

> *YourName*
> CSC 355 Section 502
> Assignment 3
> *SubmissionDate*, 2019

Submit two files to the Assignment 3 dropbox: (1) the .sql file containing your queries and (2) a .doc/.docx or .txt file showing the output when you run your script file. Do not submit Furniture2019.sql

or include any code from it or output generated by it in your submission -- your submitted files should contain only your queries and the requested comments, and the output generated by your queries.

Remarks:

1. As is always the case, it is your responsibility to make sure that the files you have uploaded are readable and in the correct locations. I recommend that you download your file after submitting it to be sure that is has been uploaded correctly. And as is the case for all assignments, all work must be completed individually – no collaboration between students is permitted.

2. For scratch work, a copy of the database instance created by Furniture2019.sql is given below.

Eric J. Schwabe – 01/23/19

CUSTOMER

CUSTOMERID	NAME	CITY	STATE	ZIP
1	Mannys Home Style	Newburgh	NY	12550
2	Furniture-palooza	Hauppauge	NY	11788
3	Finer Home Furniture	Hartford	CT	06167
4	Midwest Antique Furnishings	Lansing	MI	48922
5	Californian Comfort	Irvine	CA	92612
6	Unpainted Arizona	Sedona	AZ	87507
7	Furthur Furnishings	San Francisco	CA	94121
10	Coastal Casuals	Miami	FL	33101
11	Mountain Forest Home	Oregon City	OR	97045
12	Classic Home	Albany	NY	12209
13	East Coast Furnishings	Nutley	NJ	07110
14	Home Impressions	Fort Myers	FL	33901
15	Mountain Furniture	Boulder	CO	80514
16	Vintage Furniture	Ann Arbor	MI	48103
17	Home Design Classics	Simsbury	CT	06070
20	M and H Casual Furniture and Stuff	Seattle	WA	98105
21	Seminole Interiors	Seminole	FL	34646

PRODUCT

PRODUCTID	DESCRIPTION	MATERIAL	PRICE
101	Dining Table	Oak	500
102	Dining Table	Maple	475
103	Dining Table	Maple	500
104	Dining Table	Oak	250
105	Wardrobe	Oak	300
106	Wardrobe	Pine	375
107	Wardrobe	Oak	425
208	Entertainment Center	Cherry	550
209	Entertainment Center	Pine	350

FULLORDER

ORDERID	ORDERDATE	CUSTOMERID
1001	30-DEC-17	10
1002	30-DEC-17	5
1003	30-DEC-17	12
1004	15-JAN-18	13
1005	03-FEB-18	20
1006	03-FEB-18	6
1007	10-MAR-18	13
1008	01-AUG-18	20
1009	01-AUG-18	13
1010	30-SEP-18	6
1011	30-SEP-18	2
1012	15-JAN-19	10
1013	15-JAN-19	1
1014	15-JAN-19	7
1015	15-JAN-19	20
1016	20-JAN-18	7
1017	23-JAN-18	20

REQUEST

ORDERID	PRODUCTID	QUANTITY
1001	106	2
1001	102	2
1001	104	1
1002	103	3
1003	103	4
1004	208	2
1004	104	1
1005	104	4
1006	104	2
1006	103	2
1006	102	2
1007	106	4
1007	102	5
1008	103	1
1008	208	1
1010	104	5
1010	107	4
1011	208	5
1012	106	1
1013	106	2
1013	209	1
1014	101	1
1015	102	1
1016	103	1