Lesson Plan 05, ISTA-420

Chapter 2, T-SQL Fundamentals

June 6, 2017

1   Class Discussion

Pages 73 – 93.

1. In general, why would you even want to join two (or more) tables together? This is a good time to think about the nature of relational algebra.

2. Describe in your own words the output from an *inner join*.

3. Describe in your own words the output from an *outer join*.

4. Describe in your own words the output from an *cross join*.

5. A convenient mnemonic for remembering the various joins is "Ohio." Why is this true?

6. Give an example of a *composite join*.

7. What is the difference between the following two queries? The business problem is "How many orders do we have from each customer?"

```
        ================first query===============
SELECT C.custid, COUNT(*) AS numorders
FROM Sales.Customers AS C
LEFT OUTER JOIN Sales.Orders AS O
ON C.custid = O.custid
GROUP BY C.custid;
        ================second query==============
SELECT C.custid, COUNT(O.orderid) AS numorders
FROM Sales.Customers AS C
LEFT OUTER JOIN Sales.Orders AS O
ON C.custid = O.custid
GROUP BY C.custid;
```

8. What might be one reason the following query does not return the column *custID* in this query?

```
SELECT C.custid, C.companyname, O.orderid, O.orderdate
FROM Sales.Customers AS C
LEFT OUTER JOIN Sales.Orders AS O
ON C.custid = O.custid
WHERE O.orderdate >= '20160101';
```

2 In Class Exercises

Using SQLite and the Northwind database, write a SQL script that executes the following queries. Your deliverables should be your SQL script and the text output.

1. What is the order number and the date of each order sold by each employee?

2. List each territory by region.

3. What is the supplier name for each product alphabetically by supplier?

4. For every order on May 5, 1998, how many of each item was ordered, and what was the price of the item?

5. For every order on May 5, 1998, how many of each item was ordered giving the name of the item, and what was the price of the item?

6. For every order in May, 1998, what was the customer's name and the shipper's name?

7. What is the customer's name and the employee's name for every order shipped to France?

8. List the products by name that were shipped to Germany.

```
1  select e.employeeid , e.firstname , e.lastname , o.orderid , o.orderdate from employees e join
       orders o on e.employeeid = o.employeeid ;
2  select e.employeeid , e.firstname , e.lastname , o.orderid , o.orderdate from employees e,
       orders o where e.employeeid = o.employeeid ;
3
4  select r.regiondescription , t.territorydescription from territories t join region r on r.
       regionid = t.regionid ;
5  select r.regiondescription , t.territorydescription from territories t , region r where r.
       regionid = t.regionid ;
6
7  select p.productname , s.companyname from products p join suppliers s on s.supplierid = p.
       supplierid order by s.companyname ;
8  select p.productname , s.companyname from products p , suppliers s where s.supplierid = p.
       supplierid order by s.companyname ;
9
10 select o.orderdate , o.orderid , d.productid , d.quantity , d.unitprice from order_details d
       join orders o on o.orderid = d.orderid where o.orderdate = '1998−05−05';
11 select o.orderdate , o.orderid , d.productid , d.quantity , d.unitprice from order_details d ,
       orders o where o.orderid = d.orderid and o.orderdate = '1998−05−05';
12
13 select o.orderdate , o.orderid , p.productname , d.quantity , d.unitprice from order_details d
       join orders o on o.orderid = d.orderid join products p on p.productid = d.productid
       where o.orderdate = '1998−05−05';
14 select o.orderdate , o.orderid , p.productname , d.quantity , d.unitprice from order_details d ,
       orders o , products p where o.orderid = d.orderid and p.productid = d.productid and o.
       orderdate = '1998−05−05';
15
16 select o.orderid , o.orderdate , c.companyname , s.companyname from orders o join customers c
       on o.customerid = c.customerid join shippers s on s.shipperid = o.shipperid where o.
       orderdate like '1998−01%';
17 select o.orderid , o.orderdate , c.companyname , s.companyname from orders o , customers c ,
       shippers s where o.customerid = c.customerid and s.shipperid = o.shipperid and o.
       orderdate like '1998−01%';
18
19 select o.orderid , c.companyname , e.firstname , e.lastname , o.shipcountry from orders o join
       customers c on o.customerid = c.customerid join employees e on o.employeeid = e.
       employeeid where o.shipcountry = 'France';
20 select o.orderid , c.companyname , e.firstname , e.lastname , o.shipcountry from orders o ,
       customers c , employees e where o.customerid = c.customerid and  o.employeeid = e.
       employeeid and o.shipcountry = 'France';
21
```

```
22  select distinct p.productname, o.shipcountry from orders o join order_details d on o.orderid
       = d.orderid join products p on   d.productid = p.productid where o.shipcountry = '
       Germany';
23  select distinct p.productname, o.shipcountry from products p, orders o, order_details d
       where o.orderid = d.orderid and d.productid = p.productid and o.shipcountry = 'Germany';
```

3   Graded Labs

Lab 3, exercises 1, 2, 3, and 4, from 20761A, page 2-19. Labs will be directed by assigned students.

4   Course Project

4.1   Software Engineering

Database design, logical design, physical design, entity-relationship diagrams.

4.2   Version Control

Create a Github account (if you don't already have one), create a repository for this class, and push your local repository to Github.

4.3   Project Assignment

This begins your first full week on your project. We will be using an iterative process with iterations one week in length. Typically, on Tuesday you will do design. You will do implementation on Wednesday. You will do testing on Thursday.

Since today is Tuesday, you will do design. Your deliverable will be an entity-relationship diagram (ERD). You do not have to use software, a hand drawn will diagram work fine. You will need to convert the drawing to an electronic document in order to upload it.

5   Homework

5.1   Readings

Read pages 103 through 123 in the *T-SQL Fundamentals* book.

5.2   Exercises

Do all exercises in chapter 2.