Lesson Plan 04, ISTA-420

Chapter 3, T-SQL Fundamentals

June 5, 2017

1 Class Discussion

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 *composit 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.

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 Process

Program design, structured programming. The only three things that a computer program can do.

4.2 Version Control

How to commit files to a Git repository.

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 Monday you will do requirements analysis. You will do design on Tuesday. You will do implementation on Wednesday. You will do testing on Thursday.

Since today is Monday, you will do requirements analysis. Focus on functional requirements, that is, what the application is supposed to do. You have been employed to build an application supporting a baseball team. The foundation for all applications is the data layer. (What would your application do if it had absolutely no data?) Therefore, you will start with the design of a database. Start very simple. You will increase the complexity as the term progresses. Your assignment for today is to draft a requirements specification for the application. *Do not go beyond completing the requirements specification — no design, implementation, or testing!* Your deliverable will be your requirements specification.

5 Homework

5.1 Readings

Read chapter 4, pages 133 through 149.

5.2 Exercises

Do exercises, beginning on page 150, numbers 1, 3, 4, 5, 6, and 9. You can do the optional exercises, in fact, I recommend you do so.