Lesson Plan 05, ISTA-420

Chapter 2, T-SQL Fundamentals

August 14, 2017

1 Class Discussion

Chapter 2, T-SQL Fundamentals

- 1. What is a data type? Why do we have data types?
- 2. What is a collation? Name four elements of a collation.
- 3. How would you strip whitespace from a string? For example, suppose you had "____Dave____" but wanted only "Dave".
- 4. Suppose you wanted to make a list of every college and university that was called an Institute from the college table. Write the query.
- 5. How would you find out the index of the first space in a string? For example, the index of the first space in "Barack Hussein Obama" would be 7.
- 6. How would you select just the first name in a list of the presidents. First names can be an arbitrary length, from "Cal" to "Benjamin."
- 7. Payments are due exactly 30 days from the date of the last function. Write a select query that calculates the date of the next payment. Pretend we want to update a column in a database that contains the date of the next payment. We will do this when we write UPDATE queries.
- 8. Suppose your son or daughter wants to run a query every day that tells them the number of days until their 16th birthday. Write a select query that does this.
- 9. What function returns the current date? This is very useful in a table that maintains a log of events, such as user logins.

2 Graded Labs

These graded exercises use SQL Server and SSMS with the TSQLV4 database that is downloadable from the book web site.

- 1. Write a query against the Sales. Orders table that returns orders placed in June 2015.
- 2. Write a query against the Sales. Orders table that returns orders placed on the last day of the month. There is an end-of-month function, use the documentation to find it.
- 3. Write a query against the HR.Employees table that returns employees with a last name containing the letter e twice or more.
- 4. Write a query against the Sales.OrderDetails table that returns orders with a total value (quantity * unitprice) greater than 10,000, sorted by total value.
- 5. To check the validity of the data, write a query against the HR.Employees table that returns employees with a last name that starts with a lowercase English letter in the range a through z. Remember that the collation of the sample database is case insensitive (Latin1_General_CI_AS).

3 Homework

3.1 Readings

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

3.2 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?

========first query========

- 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?"

```
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;
    These graded exercises use SQL Server and SSMS with the TSQLV4 database that is downloadable in
%
%
     \begin{enumerate}
% \item Write a query against the Sales.Orders table that returns orders placed in June 2015.
  \item Write a query against the Sales.Orders table that returns orders placed on the last day or
  \item Write a query against the HR. Employees table that returns employees with a last name conta
   \item Write a query against the Sales.OrderDetails table that returns orders with a total value
   \item To check the validity of the data, write a query against the HR. Employees table that return
     \end{enumerate}
```

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';
```