Lesson Plan 04, ISTA-420

Chapter 2, T-SQL Fundamentals

June 5, 2017

1 Class Discussion

Pages 52-73.

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 n "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 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. Group our suppliers by American, North American if they are located in Canada or Mexico, or Foreign if they are not located in the USA, Canada, or Mexico.
2. I need a list of our customers and the first name only of the customer representative.
3. You sell some kind of dried fruit that I liked very much. What is its name?
4. Give me a list of our customer contacts alphabetically by last name.
5. I want to see when customers placed orders in December. Give me a data file showing the day of all December orders.

6. How many days old are you today?

```
select companyname,
    case country
    when 'USA' then 'American'
    when 'Canada' then 'North American'
    when 'Mexico' then 'North American'
    else 'Foreign'
end as origin from suppliers;

select substr(contactname, 1, pos-1) as first_name, companyname
    from (select *, instr(contactname,' ') as pos from customers)
    order by first_name;

select productname from products where productname like "%dried%";;

select strftime("%d", orderdate) as december_day from orders where orderdate like '19__12%';

select --contactname,
       substr(contactname, instr(contactname, ' ') + 1) || ', ' ||
       substr(contactname, 1, instr(contactname, ' ') - 1) as alphaname
from customers order by alphaname;

select julianday('2017-06-03') - julianday('1950-01-18');
```

3 Graded Labs

Lab 2, exercises 1, 2, and 3, from 20761A, page 2-23. Labs will be directed by assigned students.

4 Course Project

4.1 Software Process

Software requirements specifications, what they are, how they are written, and examples.

4.2 Version Control

We will learn how to check the status of a Git repository and to commit files.

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 2, pages 73 – 102 in the *T-SQL Fundamentals* book.

5.2 Exercises

- Do exercises 6 through 10 beginning on page 93. You are allowed to look at and copy the solutions, but make sure you understand the concepts. For example, if you give a query similar to exercise 1 but for another month, would you understand how to do it?
- Read the Microsoft T-SQL documentation for the functions used in these exercises.