Lesson Plan 02, ISTA-420

Chapter 1, T-SQL Fundamentals

August 8, 2017

1   Class Discussion

Pages 1 – 26.

1. Give an informal definition of *database* as used in the expression "relational database management system."

2. Give an informal definition of *database* as used in the expression "Human Resources database."

3. Give an informal definition of *entity integrity.*

4. Give an informal definition of *referential integrity.*

5. What is a *relation* as defined in the textbook? A one word answer to this question is sufficient.

6. Is this table in first normal form? Why or why not? If it is not, how would you change it?

```
create table faculty (
    facID int primary key,
    facName text,
    facCreds text);
```

facID	facName	facCreds
1	Alan Alda	BA, MA
2	Bridgette Bardot	BS, MS, PhD
3	Casey Cason	AA, BBA, MBA, DEd

7. Is this table in second normal form? Why or why not? If it is not, how would you change it?

```
create table pets (
    ownerID int primary key,
    petID int primary key,
    ownerFirstName text,
    ownerLastName text,
    petName text,
    petType text);
```

ownerID	petID	ownerFirstName	ownerLastName	petName	petType
1	1	Dom	Delouise	Rex	German Shepherd
1	2	Dom	Delouise	Lacy	Border Collie
2	3	Emilio	Estevez	Midnight	Persian Cat

8. Is this table in third normal form? Why or why not? If it is not, how would you change it?

```
create table friends (
    friendID int primary key,
    friendName text,
    friendStreet text,
    friendCity text,
    friendState text,
    friendZip text);
```

ID	FirstName	LastName	Street	City	State	Zip
1	Fred	Flintstone	123 Rock Quarry Rd	Bedrock	GA	31905
2	Greta	Garbo	456 Starlit Ave	Paris	FL	30019
3	Harry	Houdini	789 Hidden Glen Lane	Alcatraz	CA	00000

9. What is an *OLTP database*? What operations is it optimized for?

10. What is a *star schema*? What operations is it optimized for?

2 In Class Labs

2.1 Installing TSQLV4

We will download and install the database the text book uses. We will do this on the machine that you installed SQL Server and SSMS on. You will be using this for the homework.

2.2 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 are the regions?

2. What are the cities?

3. What are the cities in the Southern region?

4. How do you run this query with the fully qualified column name?

5. How do you run this query with a table alias?

6. What is the contact name, telephone number, and city for each customer?

7. What are the products currently out of stock?

8. What are the ten products currently in stock with the least amount on hand?

9. What are the five most expensive products in stock?

10. How many products does Northwind have? How many customers? How many suppliers?

3 Homework

3.1 Readings

Read chapter 2 of the textbook T-SQL Fundamentals, pages 27 through 52.

3.2 Exercises

1. Review the documentation and tutorials on the following web sites.

   - Microsoft documentation, `https://docs.microsoft.com/en-us/sql/t-sql/queries/queries`
   - General SQL documentation, `https://sqlite.org/syntaxdiagrams.html`
   - SQL tutorial, `https://www.w3schools.com/sql/default.asp`
   - SQL tutorial, `https://www.tutorialspoint.com/t_sql/index.htm`