TSQL Homework 01

Chapter 1, T-SQL Query Fundamentals

Readings

Read Chapter 1 *T-SQL Query Fundamentals*.

Homework Questions

1. How does the book describe the difference between *imperative* and *declarative* languages?
2. List three categories of command statements in SQL.
3. Give an informal definition of *database* as used in the expression "relational database management system." Give an informal definition of *database* as used in the expression "Human Resources database."
4. The book states that, "[t]he goal of the relational model is to enable consistent representation of data with minimal or no redundancy and without sacrificing completeness..." Briefly state your understanding of *minimal or no redundancy* and *completeness*. Why do you think that these values are important?
5. What is the difference between two-valued logic, three-valued logic, and four-valued logic? How does SQL implement three-valued predicate logic?
6. How does SQL enforce *entity integrity*? What is entity integrity?
7. How does SQL enforce *referential integrity*? What is referential integrity?
8. What is a *relation* as defined in the textbook? A one word answer to this question is sufficient.
9. 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

10. 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

11. 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

12. List the components of a *four-part object name*.

13. What is the difference between *declarative data integrity* and *procedural data integrity*?

Homework Exercises

1. Install SQL Server Express on a personal computer. See the appendix of the book, Getting Started, if you run into problems. Please, *please* check the system requirements before you do this. You cannot install SQL Server on a hand held device or an internet appliance. This may take a couple of hours but you can read the text book while you are waiting.

2. Install SQL Server Management Studio on a personal computer. See the cautions above. This may take a long time as well.

3. We will be downloading and installing the database the text uses. Read the Introduction. This can be obtained from `http://aka.ms/T-SQLFund3e/downloads`.

4. We will also be using SQLite. Download it at `https://sqlite.org/download.html`, extract the zipped file, extract the `sqlite3.exe` executable, and copy it to a safe place. You will be needing it.

5. You will also need the data file named `nw-150810.db`. You can download this from `https://github.com/ccc31807/ISTA420/blob/master/data/nw-150810.db`.