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?

Imperative is how to get it and Declarative is what you want to get

1. List three categories of command statements in SQL.

Data Definition Language, Data Manipulation Language, and Data Control Language

1. 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.”

A relational database is a database that stores data in a structured format with rows and columns. A human resources database is a database that stores data in multiple tables.

1. 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?

Minimal or no redundancy would be not repeating the same information when there is no need to but also finishing the model itself. This helps keep the information organized and the operation of the database smooth.

1. What is the difference between two-valued logic, three-valued logic, and four-valued logic? How does SQL implement three-valued predicate logic?

Two-valued is true or false, three-valued is true, false, or unknown, and four-valued is true, false, none, or both. SQL uses null to mark absent data.

1. How does SQL enforce *entity integrity*? What is entity integrity?

It makes sure that each row has a unique primary key. Entity integrity is making sure there are no duplicate records within the table.

1. How does SQL enforce *referential integrity*? What is referential integrity?

It requires that a foreign key must have a matching primary key. Referential integrity is used to build and maintain logical relationships, avoiding corruption of data.

1. What is a *relation* as defined in the textbook? A one word answer to this question is sufficient. Table
2. Is this table in first normal form? Why or why not? If it is not, how would you change it?

No, because there are atomic value in the last column. Remove the facCreds column and make it into it’s own table.

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 |

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

No, because all of the columns don’t relate to a primary key. I would make ownerID, ownerFirstName, and ownerLastName into a table then make petID, petName, and petType into a table then make a third table matching the ownerID to the petID.

create table pets ( ownerID int primary key, petID int primary key, ownerFirstName text, ownerLastName text,

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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 |

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

No, because a non-key column can’t depend on another non-key column. I would make Zip, State, and City into a separate table but keep the Zip on the end of the original table.

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 |

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

Instance, database, schema-qualified object name

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

Declaring data integrity is declaring constraints to the columns of a table while procedural data integrity enforces the same rule by using script.

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