
Assignment 5 – Database Constraints (50 points)

Due Date: Tuesday, February 18th, 11:59 PM

Objectives

The purpose of the assignment is to understand how to create tables and design integrity constraints. In this assignment, you will need to create a database, construct tables, insert data into the database, modify individual columns of a table, and execute queries.

The assignment reinforces the following objectives:

- learn how to create table structures
- learn how to insert database data
- learn how to modify and delete data from a database
- learn how to query a database

Read the directions carefully. If a query says it uses four SQL statements, then you must use exactly four SQL statements for that query or you will receive no points. At various points, the query instructs you to include select statements to display table data. Do not include other table displays in your final script.

Additional files

- create_schema_library_database
- create_tables_library_database
- insert_data_library_database.sql

The library has decided to keep track of the library staff members and computers used by the staff. To complete this task, four new tables will be added to the database.

staff (staff_id, fname, lname, phone, email)
computer (serial_number , make , model, processor_type, speed, main_memory, disk_size)
computer_staff (serial_number , staff_id, date_assigned)
branch_staff (branch_id , contact, staff_id)

Staff records are never deleted from the database. A computer's serial number never changes, so there is no need to cascade updates. When a computer is at the end of its life, the record in the computer table for that specific computer as well as all associated records in *computer_staff* table are deleted from the database.

The schema has the following four foreign keys:

1. The attribute *serial_number* of relation computer_staff to reference relation computer.
2. The attribute *staff_id* in relation computer_staff to reference relation staff.
3. The attribute *branch_id* in relation branch_staff to reference relation branch.
4. The attribute *staff_id* in relation branch_staff to reference relation staff.

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Write SQL statements to perform the following queries:

Query 1: Create the following four tables:

- the staff table
- the computer_staff table
- the branch_staff table
- the computer table

Specify the keys and foreign key constraints.

Since you will be creating tables, the first SQL statements will drop the tables.

```
Drop table if exists branch_staff;
Drop table if exists computer_staff;
Drop table if exists staff;
Drop table if exists computer;
```

Query 2: The script *insert_data_computer.sql* contains the SQL to populate the tables needed for this part of the assignment. Run the SQL script to populate the tables.

Use the **\.** command to run the script. (You can run it via copy and paste techniques.)

Query 3: Display the serial numbers and models of all the computers.

Query 4: Add a *date_added* column for the date and time the book was added to the books table.

Display column names and datatypes for the books table.

Query 5: Modify the staff table created in query 1, so the lname column cannot store NULL values and can contain a maximum of 30 characters.
Display column names and datatypes for the staff table.

Query 6: Add a column named salary with a datatype of decimal(7,2) to the staff table.

Query 7: Display all columns of all rows of computer_staff table. Do not use the asterisk (*) notation.

Query 8: Delete the *date_added* column from the books table.

Query 9: Create a separate table with the same structure as the books table to hold archive records. The table name should be books_archive.

Display the names of the tables in your current database.

Query 10: Remove the books_archive table from the database. Display the names of the tables in your current database.

Submission Instructions:

- For each of the queries above, submit the query and the result from running the query.
- You will need to label your assignment with your first initial, last name, and the name of the assignment. **Example:** *hibrahim_assignment5.sql* and *hibrahim_assignment5.txt*
- Zip the two files together to create one compressed file. **Example**: *hibrahim_assignment5.zip*
- Upload the compressed file into Canvas.
- Remember to include the query number as a comment at each step.
- Read your output TXT file before you submit it.