CS/DSA 4513 – Online Sections 995-999 - Fall 2021 - Dr. Le Gruenwald

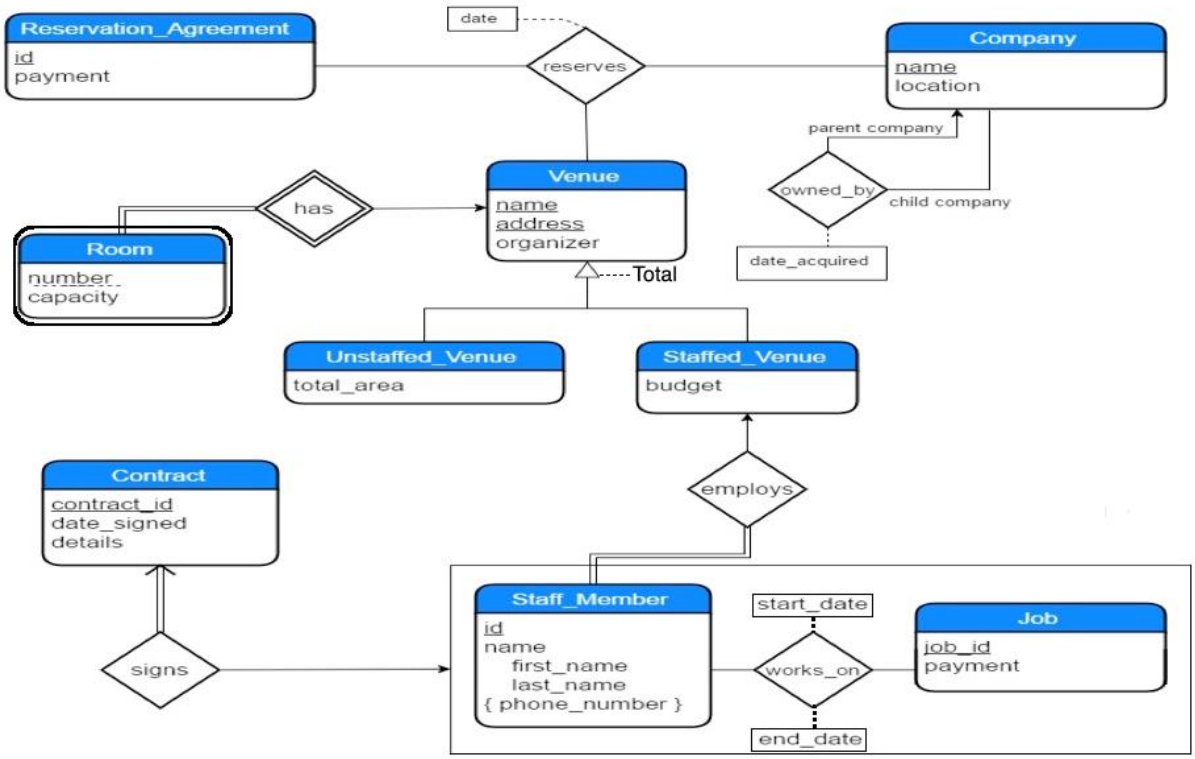
GRADED HOMEWORK 2 (Maximum Points: 100 points)

Assigned: 9/22/2021 at 1:30 PM (CST); Due: 10/4/2021 at 11:59 PM (CST) on Canvas

Late submissions will be accepted until 11:59 PM on the date following the due date with 5% penalty. Any late submission after this time will not be graded.

Problem 1:
You do not need Azure SQL Database for this problem. Do the following:

a) Using the same description format as that of Problem 1 in Graded Homework 1, write a description for the attached ER diagram.
b) Convert the attached ER diagram to a Relational Database.
c) Draw a Schema Diagram for the relational database.



Problem 2:
Given a relational database that consists of the following relations:

Performer (pid: integer, pname: string, years_of_experience: integer, age: integer)
Movie (mname: string, genre: string, minutes: integer, release_year: integer, did: integer)
Acted (pid: integer, mname: string)
Director (did: integer, dname: string, earnings: real)

Do the following using Azure SQL Database:
a) Use SQL statements to create the relations. Include foreign key constraints whenever appropriate.
b) Populate the relations using SQL statements with the given data posted on Canvas.

c) Implement the SQL queries for the following:

1. Display all the data you store in the database to verify that you have populated the relations correctly.
2. Find the names of all Action movies.
3. For each genre, display the genre and the average length (minutes) of movies for that genre.
4. Find the names of all performers with at least 20 years of experience who have acted in a movie directed by Black.
5. Find the age of the oldest performer who is either named "Hanks" or has acted in a movie named "The Departed".
6. Find the names of all movies that are either a Comedy or have had more than one performer act in them.
7. Find the names and pid's of all performers who have acted in at least two movies that have the same genre.
8. Decrease the earnings of all directors who directed "Up" by 10%.
9. Delete all movies released in the 70's and 80's (1970 <= release_year <= 1989).

You will need to create an SQL file to store your SQL statements. This SQL file must have *sql* as its extension. You must also use Azure Portal or Azure Data Studio to collect **cropped screenshots** of your query outputs and compile them into a single PDF file.

SUBMISSION INSTRUCTIONS:

- All your text and graphics solutions must be generated using computer. No hand-written descriptions or hand-drawn diagrams will be accepted.
- Submit your solutions for Problem 1 in ONE single PDF file to Canvas using the file name convention "HW2_Problem1_your last name_your first name", e.g. "HW2_Problem1_Smith_Joe".
- Submit your solutions for Problem 2 in TWO files: one SQL file (extension *sql*) containing all your DDL and DML SQL statements and one PDF file (extension *pdf*) containing the execution results of your SQL statements. Use the file name convention "HW2_Problem2_your last name_your first name". We will be using your submitted SQL files to test your solutions.
- Attach to the PDF file containing your answers for Problem 1 a cover page that contains the following information:

  NAME: <Write your name here>
  STUDENT ID: <Write your student ID here>
  GRADED HOMEWORK NUMBER: 1
  COURSE: CS/DSA 4513 - DATABASE MANAGEMENT
  SECTION: ONLINE
  SEMESTER: FALL 2021
  INSTRUCTOR: DR. LE GRUENWALD
  SCORE: <we will your total score for both problems 1 and 2 here>>

NOTES:

- Instructions for setting up Azure SQL Database are available on Canvas.
- If you have questions concerning this homework or Azure SQL Database, see your TA during his office hours or post your questions on Canvas. The TA's office hours and contact information are on the Home Page on Canvas.
- Start this project early to avoid last-minute system problems.