CSC 430/530: Database Theory (project description)

Project scope

Design & implement a database for a chosen domain, using MySQL RDBMS.

Domain ideas to choose from

Hotel reservation management system.
Restaurant reservation management system.
Airline tickets reservation management system.
Car rental management system.
Apartment rental management system.
Hospital operations management system.
Online retail store management system.
Real estate management system.
Insurance company management system.
Suggest your own (5 bonus points).

Deliverables & requirements

Part 1:

A. Description of the mini-world (write-up).
B. Enhanced entity-relationship (EER) diagram with specified cardinality ratio and participation constraints.
   - Minimum of five (5) strong entities.
     - At least one (1) multivalued attribute.
     - At least one (1) composite attribute.
   - Minimum of one (1) weak entity.
   - Minimum of three (3) relationships.
     - At least one (1) ternary relationship.
   - Minimum of one (1) specialization.
C. Description of EER to relational data model mapping process (write-up).
D. Relational schema diagram in MySQL Workbench Models format (.mwb).
   - Relations & attributes.
   - Constraints.
     - Define domains of attributes.
     - Specify primary keys.
     - Specify foreign keys and referential integrity constraints.

Upload compressed folder that contains:
- Write-up of the mini-world (A).
- EER diagram (B).
- Write-up of the EER-to-relational mapping (C).
- Relational schema diagram (D).

DUE DATE – July 13.

Part 2:

Implementation & utilization.

- SQL DDL commands.
  - Commands used to create & define schema and create & define constraints.
- SQL DML commands.
  - Insert, delete, and update.
    - At least one (1) example of each command (three (3) in total).
  - Retrieval queries.
    - At least five (5) examples of retrieval queries.
      - At least two (2) must be complex (nested, aggregate, group by, having, etc.)
- Triggers.
  - At least one (3) example of defined trigger.
    - At least one (1) example of each trigger execution.
- Views.
  - At least three (3) examples of defined views (virtual tables).
    - At least one (1) example of each view query.
- Schema modifications.
  - At least one (1) example of ALTER command.
- Each SQL query must be accompanied by the comment describing query purpose.

Upload compressed folder that contains all required **SQL queries** (DDL, DML, triggers, views, schema modifications) in a single *.sql* file and **data files** in *.csv*, *.json* or *.dat* format (if applicable). **DUE DATE – August 3.**
In addition, each team is expected to conduct a project **presentation** with a **demo** of database functionality. The demo must include examples of *DML commands*, *triggers*, and *views*. **PRESENTATION DATE – August 3.**