COSC265 EER Assignment 2023

Exam Administration System

Assignment Outline

This assignment focuses on the use of the EER model to design conceptual schema for various databases. You should complete your work with EER-Tutor found at https://ictg.cosc.canterbury.ac.nz:8005/.

This assignment is worth 24% of the overall grade for COSC265. It is made up of two components:

1. Assessed problems
    - Worth 8% of overall grade
    - Due 2023/08/11 at 17:00
2. Larger Problem
    - Worth 16% of overall grade
    - Due 2023/08/25 at 17:00

Assessed Problems

We have selected three problems in EER-Tutor for you to complete:

- 21 Car Rentals 2%
- 45 Nursing Home 3%
- 47 Olympic Games 3%

Submission Details

- Your solutions to these problems are due by 2023/08/11 at 17:00
- You can only submit a solution to each problem once. No feedback is given at the point of submission.
- Once the due date has passed an automated marker will compare your solution to the question author's solution. A difference score is produced. We will assign marks based on the degree of variation. Valid solutions may have minor variations from the question author's solution.

Larger Problem

Submission Details

This large problem is due on 2023/08/25 at 17:00. Submissions will be accepted for a week beyond this time, but a deduction of 15 marks will be made to your final grade. (So, if you got 80 of the 100 marks available, you would receive a final score of 65.) Submissions beyond this time will not be accepted.

You must prepare your final submission using EER-Tutor, using the free-hand mode (question 99). It is a good idea to develop your initial solution on paper.

You must also generate a report. This is a simple document that should list the set of assumptions that you are making about the mini-world you are modelling. Note that assumptions should not just be

restatements of the requirements or be obvious consequences of the requirements. You should aim to limit your report to approximately 500 words — exceeding this limit should be done with care!

You can submit your solution via AKO nearer to the due date. Your schema should be a .png image, and your report a .pdf document. Both should clearly display your full name and student ID.

Requirements

This fictional set of requirements is imagined fitting the needs of:

- UC Examinations Office, responsible for:
  - Ensuring the integrity of all exams at UC
  - Setting the exam timetable
  - Finding invigilator(s) for exams if needed
- UC Students
  - Who need to know when their exams have been scheduled
  - Sometimes have specialized requirements
- UC Academics
  - Who set exams
  - Decide exam conditions
  - From time to time need to be consulted

Users

- Has a unique email address and user code
- A password
- A user is one of:
  - Academic Staff
    - Users that are listed as course coordinators, or key contacts for exams
    - Have a unique six-digit staff number
    - A contact number
  - Casual Staff
    - Users that invigilate exam instances
    - Contract start date
    - Contract end date
    - A desired weekly work rate
    - Periods they are not available to work
    - Skills they have acquired e.g. invigilating online tests, acting as a reader writer, ...
    - Have a unique six-digit staff number
    - A contact number
  - Student
    - A unique student number

Learning Support Plans

- Each academic year a student may be issued a learning support plan
- It records common alterations that must be applied to an individual student's exam conditions:

    - Extra time per hour of exam, if any
    - If a reader/writer is required
    - Any other notes

Courses

- Each course has a subject code and a course number. Taken together they uniquely identify a course
- Each course also has a longer and more descriptive name
- Each course offers at least one instance
- An instance is differentiated by
    - The year that instance was offered
    - Semester indicator (S1, S2, W, ...)
    - Site Code (C, D, ...)
- An instance also records the start date and end date of the course
- Each instance of a course has an academic member of staff recorded as the course coordinator
- Students may enroll in courses

Exams

- Most courses will set an exam
- Some courses may have more than one exam, though this is rare
- Each exam has a type (invigilated on campus, Invigilated virtually, uninvigilated, take home exam)
- Common requirements are also recorded:
    - Closed, or open book
        - Some closed book exams allow set number extra material
        - In this case the title of the material, and the author should be recorded
        - Can the student take the exam script with them at the conclusion of the exam?
    - If a computer lab is needed
        - In this case a link to the online exam should provided
        - A list of websites that students may access during exam, if any
        - Any required software
    - If students can use a calculator, and if so what type
    - How students will record their answers,
        - UC answer book
        - Write on exam
    - The standard duration of the exam
    - Any extra notes not covered by the above
- An academic may be listed as the key contact for a given exam

Exam Instances

Each exam will have instance(s). Each instance records:

- Start time
- End time
- Each exam instance may have a room but may have at most one room

- If a room is in use then at least one casual staff member should be rostered to invigilate that exam instance
- A student who is enrolled in a course will be allocated to an exam instance

Rooms

A room may be either:

- Physical
  - Identified by the campus, building and room number
  - Have a capacity
  - Has a type (tutorial room, lecture theater, computer lab)
- Virtual
  - Identified by a unique URL
  - Has a date created

Use Cases

Your diagram should allow the following to meaningful encoding of the following use cases:

- COSC131 is a large course that wants to run the same exam, once in the morning, and once in the afternoon
- COSC480 has a student sitting the end of year exam in Canada. They need to be assigned a virtual exam room, and will sit the exam at a different time from the rest of the class
- Liam has failed ENGR101-22S1 and has enrolled in ENGR101-23S1. Both enrollments must be recorded in the database