CSE 4503/6503 Database Management Systems, Fall 2021
Project Part 1 Assignment, version 1.0

Objective

To provide a hands-on project experience designing a database.

Background

You are responsible for designing the database (and only the database) for the hypothetical project described below. This project addresses only a subset of a real system's requirements.

Statement of Need for a Hypothetical Project

The Computer Science and Engineering department currently uses paper-based waiting lists to compile and prioritize add requests once courses are listed as "full" in Banner. The department has decided to join the 21st century and use a web application to maintain the waiting lists for add requests (this is the hypothetical part). Students will use a web application to add themselves to the waiting list for a specific section of a specific course for the coming semester. The waiting list maintainer (usually the undergraduate director) will use the system to find out which course offerings have open seats (enrollment less than room capacity), prioritize the add requests based on student attributes, and then grant overrides to the chosen students.

There are some assumptions and details that you, the database designer, must decide. Be sure to document any assumptions that are not made clear in your design choices.

Additional Requirements

This system will be separate from Banner, the system must store all student, building, curriculum, course, and schedule information needed to prioritize add requests.

Students add themselves to one or more waiting lists by providing their NetID and expected graduation date if they are a senior. All other information needed by the system to prioritize add requests (major, curriculum, classification: senior, junior, etc.) should already be in the database.

The system must store information about the students currently enrolled in a course so that it can calculate if there are empty seats in a course offering.

You do not have to check course prerequisites. You may assume that everyone on the waiting list meets the course prerequisites.

Additional Requirements (continued)

Students are prioritized using the following rules.

Students whose major (and curriculum) requires the course:

1. Seniors graduating in the semester currently being registered
2. Seniors
3. Juniors
4. Sophomores
5. Freshmen

Students whose major (and curriculum) does not require the course:

6. Seniors graduating in the semester currently being registered
7. Seniors
8. Juniors
9. Sophomores
10. Freshmen

Within each group, students are prioritized based on when they added themselves to the waiting list.

If a student has been added to the waiting lists for two or more sections of a course, the act of giving them an override for one section will trigger the system to remove the student from the waiting lists of the other sections.

Domain Knowledge

You should base your database design on the statement of need and requirements listed above. Any additional assumptions should be valid for Mississippi State University and the Department of Computer Science and Engineering. Any terms that you need defined such as major, curriculum, course section, etc. should be researched using the Mississippi State University Undergraduate Catalog (URL: http://www.catalog.msstate.edu/undergraduate/)

Assignment Details

You will work with your group on this project.

You are expected to use the textbook, class notes, class slides. You may consult with the instructor during office hours or via an appointment. If you use information from another source, cite the source in a References section in your project report.

Assignment Details (continued)

Use a drawing application to produce your ER diagram. Web applications such as https://www.draw.io/ and https://www.google.com/slides are adequate for producing your diagram.

Deliverable

Your project report will be submitted via Canvas. **The project report must have a coversheet with your name(s), your class and section number, the date submitted, and a title.** The deliverable for this project assignment must be submitted as PDF documents (*.pdf).

The project report for part 1 will include an Entity-Relationship Diagram (including primary keys, cardinality, partial keys, key constraints, participation constraints and/or other concepts). The ER diagram should use the symbols used in the textbook. Define the minimal set of attributes based on the requirements given. Use notes to document information that is not in the diagram.

The project report should include a References section. If you did not use any additional reference, state that fact in the References section.