

CS464/564 Spring 2021

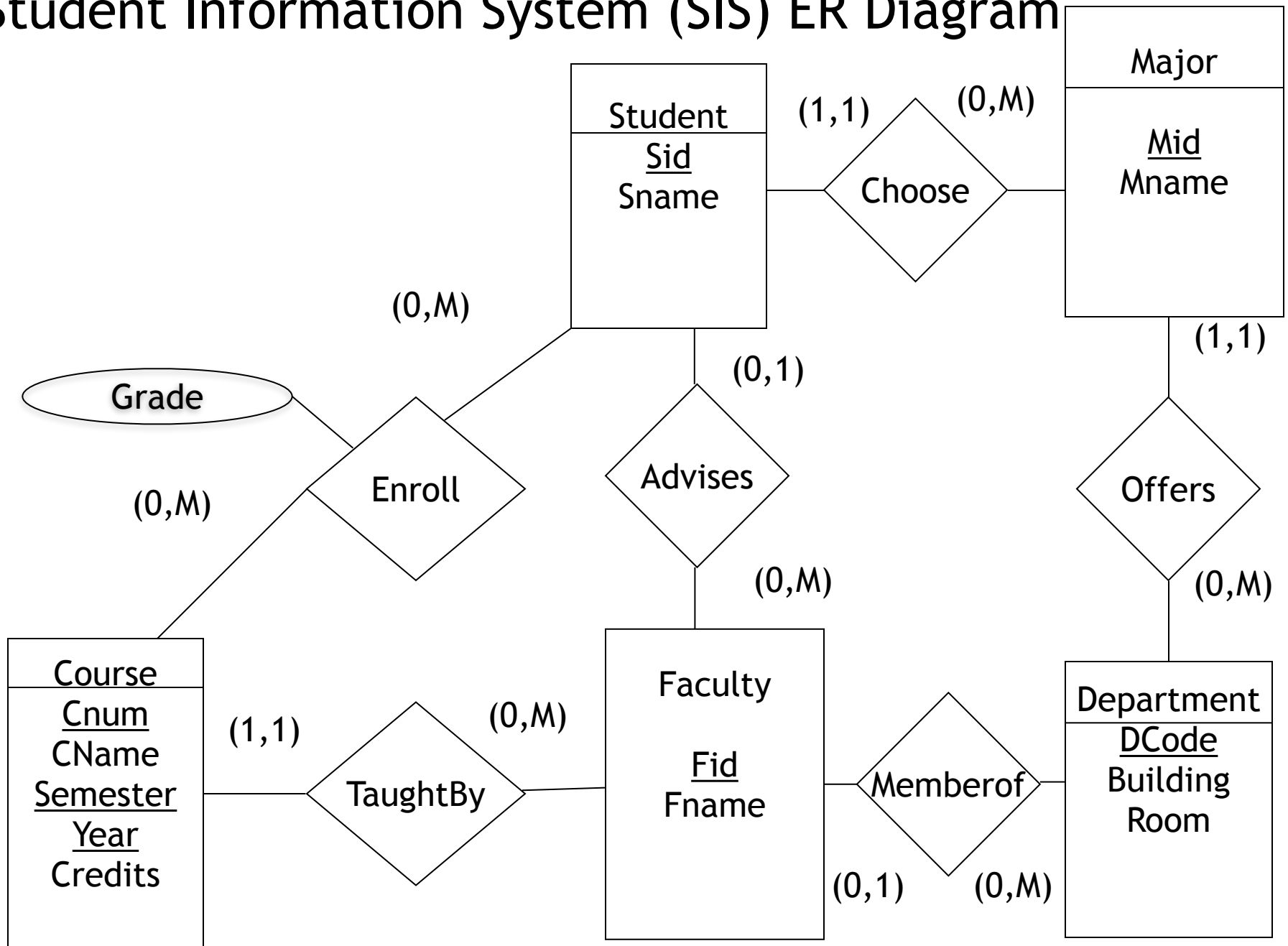
Homework 1 and 2

“Due” Monday March 8

Homework 1

- Implement the *Movie* database as described in the *seven databases* book and in the lecture *postgres4*
- Write Queries to answer the following questions
- Find the names of actors who acted in movies that have 'Star Wars' in the movie title
- Find the titles of movies that have a role played by an actor whose last name is Marx

Student Information System (SIS) ER Diagram



Homework 2

Implement the ER diagram shown in the previous slide. The data type for Sid, Mid and Fid is serial. The data type for year, credits and room is integer. The value of Year must be in the range 1900 to 2099 inclusive. The value for credits must be in the range 1 to 12 inclusive. The data type for grade is varchar(2). The possible values for grade are A, AB, B, BC, C, D, F, I. Dcode is a varchar(3). CNum is a varchar(6). The first three characters of a Cnum must match some Dcode. Semester is a varchar(6). The values of semester must be one of Fall, Spring and Summer. The combination of Cnum, Semester and Year uniquely identity a row in course. All the other attributes are varchars. The lengths of the varchars for Sname, Fname, MName, Building and Cname are 40, 40, 10, 20 and 30 respectively.

Homework 2

Enforce the following additional constraints.

If a student has an advisor, the advisor must be a member of the department that offers the student's major.

A faculty member can only be assigned to teach courses that are offered by the faculty member's department (the first three characters of a Cnum determine the department (Dcode) that offers the course).

When a constraint only requires checking attributes in one table implement the constraint with a named constraint in the create table statement. For constraints that require checking multiple tables implement the constraint with a trigger.

Homework 2

Write copy statements to load data into the tables you create. I will give you some example data.

Write a stored procedure to calculate a student's GPA given the student's id number. The calculation assigns the usual numeric value to the letter grades (4.0 for an A, 3.5 for an AB, etc.). Since students can take a course more than once the calculation should only count the most recent time the student took the course and received a grade of A to F (i.e. Incompletes (I) do not count as completing the course)

Write a stored procedure to change a student's major given the student's id, the major id and a faculty id . If the faculty id is not null this procedure should also change the student's advisor. If the faculty id is null, there is no change to the student's advisor.

Homework 1 and 2

- You must use Postgres to implement the database for both homework 1 and 2.
- You will demonstrate both homework 1 and 2 to me during the week of March 8.
- After the demonstration you will upload to Canvas **one** zip file that contains files with the create table statements, the copy statements, the stored procedures and the triggers for homework 2.