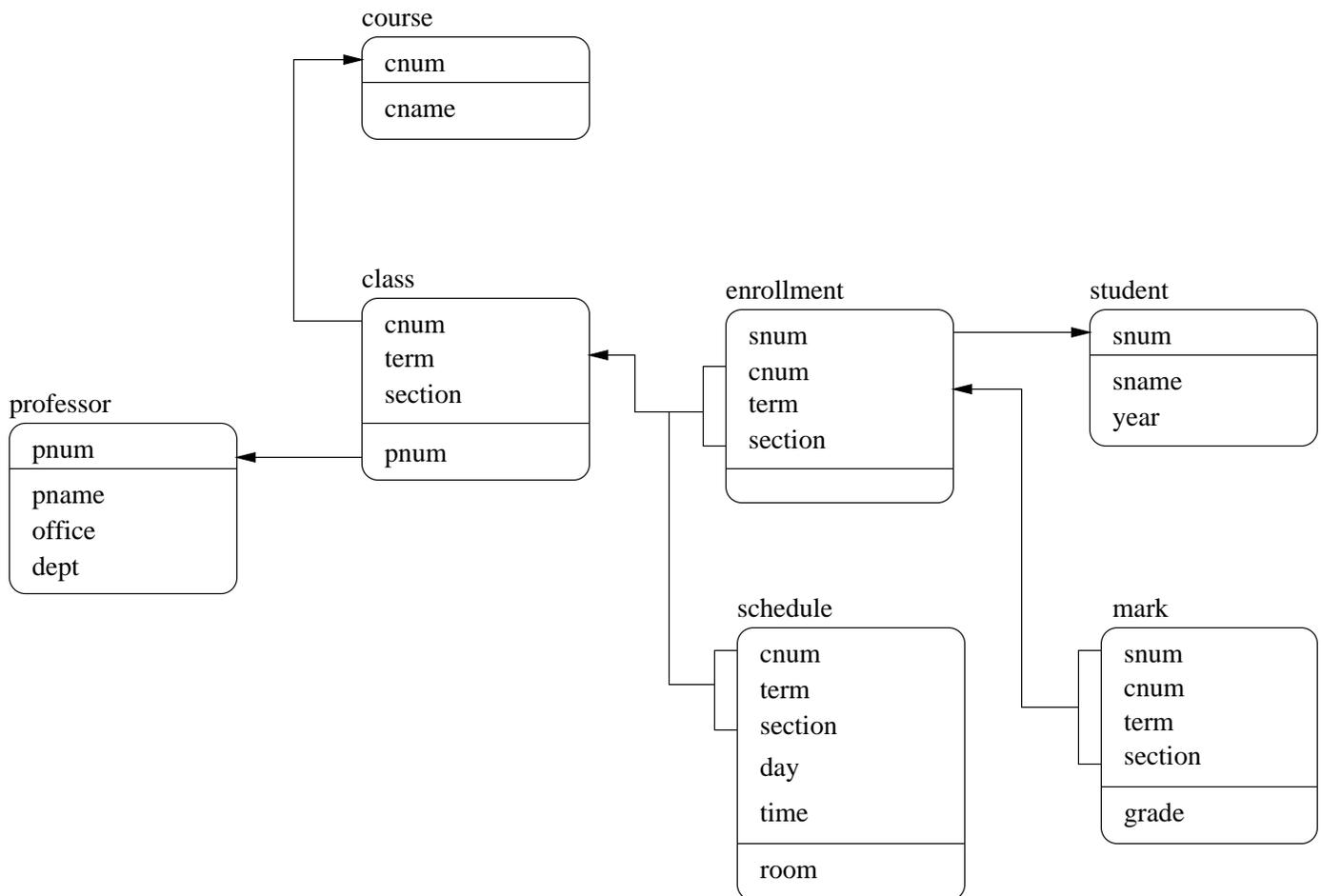


CS338: Computer Applications in Business: Databases

(Fall, 2009)

Assignment 1 (due Tuesday, October 15th)

Overview: For the first question, you must use your Unix accounts and DB2 to compose and evaluate a number of SQL queries for a database that records information about courses. The schema for the database is illustrated by the following relational database schema that includes an indication of primary and foreign key constraints in the manner discussed in class. Sample commands for defining the base tables for this schema can be downloaded from the course web site. Note that the schema stores information about both ongoing and past classes for a course. Also note that no marks are recorded for any enrollment of an ongoing class, and that, for a past class, a mark is recorded for each of its enrollments. Finally, you may assume that each class has at least one enrollment.



Assignment submission: By 11:55pm on the assignment due date, you are to submit online a listing of SQL queries that implement each of the requests for information given in Question 1. You are also to submit in class at the start of the lecture on the due date your answers to Question 2. For the online submission, put all your queries (in the order specified in this handout) in one file named `A1.sql`. We should be able to run the queries using the command `db2 -f A1.sql`. Assume a database connection already exists (i.e., you do not need `connect` or `disconnect` statements in your submitted file). To submit your assignment use `submit cs338 A1 A1.sql`.

Question 1: Write SQL queries that implement each of the following.

1. The number, name and department of each instructor who is currently teaching on Thursdays.
2. The number of instructors who have taught CS348 in the past.
3. The course number, course name and grade of each course completed by a student whose student number is 1234.
4. The number, name and year of each student who has a final grade of at least 90 in every course that she/he has completed and that was not taught by a professor in the philosophy department.
5. The number, name and department of each professor who has no current teaching commitments on Mondays or on Fridays, sorted by department and then by the professor's name.
6. The course number, term and section number of each class taught in the past by some professor, together with the number and name of that professor.
7. The course numbers and total enrollment of courses with total enrollment counts among the three lowest. (Note that one possible result could be: ['CS448', 120], ['CS446', 120], ['CS341', 105], ['CS246', 110]. Also note that all classes, past and ongoing, need to be considered.)
8. The number of different second year students in each section of each course taught by each professor in the current term. The result should include the professor number, professor name, course number and section, and should also be sorted first by the name of the professor, then by the professor number, third by the course number, and finally by section. (Note that a section is identified by a term and a section number. Also assume that sorting by section means sorting by term and then by section number. The result will therefore have a total of six columns.)
9. The percentage of departments with professors who have taught in the past more than one class in the same term.

Question 2: Write queries in the relational algebra for parts 1, 3, 4, and 6 of Question 1 above.