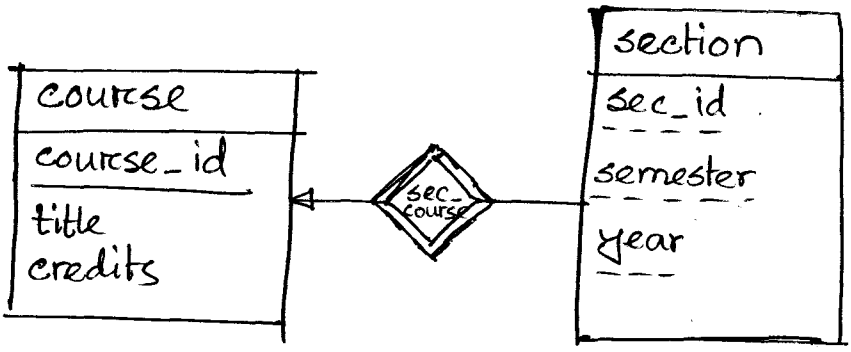
Lecture 7 Notes

* Reduction to Relational Schemas (Contd.)

Special case

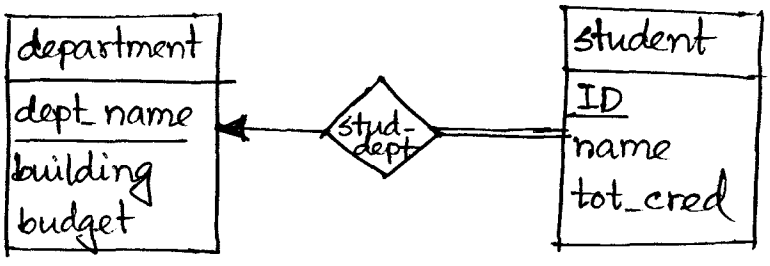
* **Weak relationships :**



sec_course (course_id, sec_id, semester, year)

is unnecessary, since these are already stored in section relation.

* Combination of Schemas (Many-to-One Relationships)



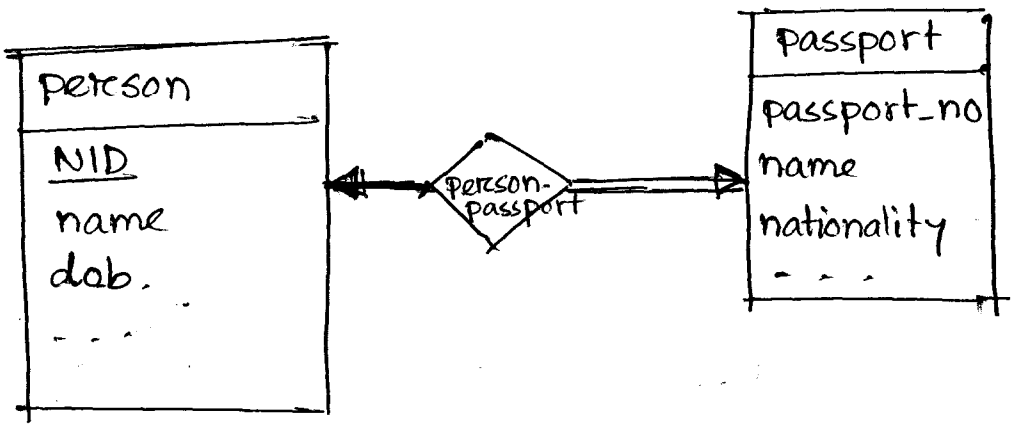
department (dept_name, building, budget)

student (ID, name, tot_cred)

stud_dept (ID, dept_name)

→ student (ID, name, tot_cred, dept_name)

* One-to-one relationships



person (NID, name, dob, ...)
person_passport (NID, passport_no)
passport (passport_no, name, nationality, ...)

combine → person (NID, name, dob, passport_no, ...
passport (passport_no, name, nationality, ...

You could have also combined person_passport and passport together.

* We can combine even if the participation is not tota (in that case, NULL value must be permitted).

* Foreign Key Constraint

An attribute must refer to some tuple in anoth (foreign) relation,

* foreign key → an attribute of a relation, which is primary key of another relation.

Final Schema for the ERD :-

classroom (building, room_number, capacity)

department (dept_name, building, budget)

student (ID, name, total_credit, dept_name (FK), advisor ↑ if NULL

instructor (ID, name, salary, dept_name)

course (course_id, title, credits, dept_name, prereq- ↑ if NUL

time_slot (time_slot_id, day, start_time, end-time)

section (course_id, sec_id, semester, year, time_slot_i

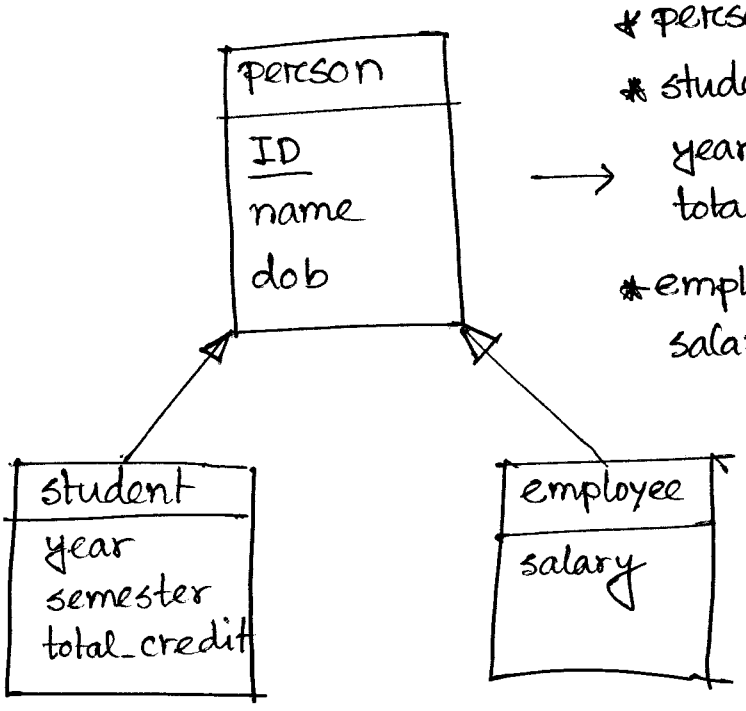
building (FK), room_number (FK))

teaches (inst_id (FK), course_id (FK), sec_id (FK), semester (FK), year (FK),

takes (student_id (FK), course_id (FK), sec_id (FK), semester (FK), year (FK), gra

~~prereq(...)~~

II Specialization / Generalization



* person (ID, name, ...

* student (person_i... year, semester, total_credit)

* employee (person_... salary)