COMP 3311: Database Management Systems

Lecture 2 Exercises
Entity-Relationship (E-R) Model and Database Design

Exercise 1: We want to record information about students, departments, courses and course teaching teams.

- For each student we store the student id, name and majors.
- For each department we store a unique code and name.
- For each course we store a unique course id, name, department and prerequisites.
- For each offering of a course we store the section, semester and year.
- Each student must enroll in one to five course offerings.
- Each course offering can enroll zero to sixty students.
- For each course offering that a student takes we store the grade.
- Each course offering's teaching team has one or more staff, who is either an instructor or a TA.
- For each staff assigned to a course offering's teaching team we store the hkid, name, department and office number.
- For each instructor we store their academic title (e.g., professor).

In the space below, construct an E-R diagram for the university application.

Name: (1) _____/_____ **Student#:** (1) _____ **Date:** _____
Last/Family (PRINT) Given/First (PRINT)

Name: (2) _____/_____ **Student#:** (2) _____
Last/Family (PRINT) Given/First (PRINT)

NOTE: You are highly encouraged to do this exercise with a partner.

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Exercise 2: We want to keep track of bus routes and schedules for a bus company.

- Each bus route has a unique route number, a departure station and a destination station.
- For each bus route, there is a schedule, which records the departure times of buses.
- For each departure time of each route, a driver and a bus can be assigned. However, information about the driver or the bus may sometimes be missing.
- A driver has a unique employee id, a name and a phone number.
- A bus is identified by its license number and has a maximum seating capacity.

In the space below, construct an E-R diagram for the bus company application.

You must upload this completed exercise sheet to Canvas by **11:00 p.m. today.**