DSAA 5012

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.**

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Entity-Relationship (E-R) Model and Database Design

**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 all 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.**