Database Management System (DBMS)

Lecture-13

Dharmendra Kumar
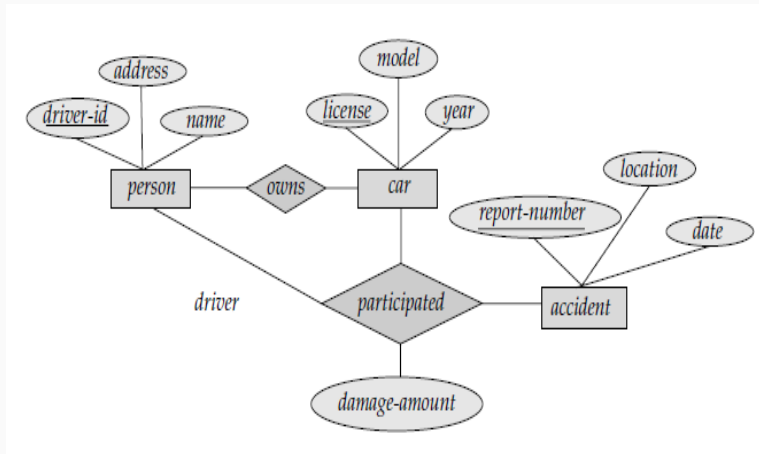
August 27, 2020

Exercise

Question-1

Construct an E-R diagram for a car-insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents.

Solution An E-R diagram for a car-insurance company is the following:-
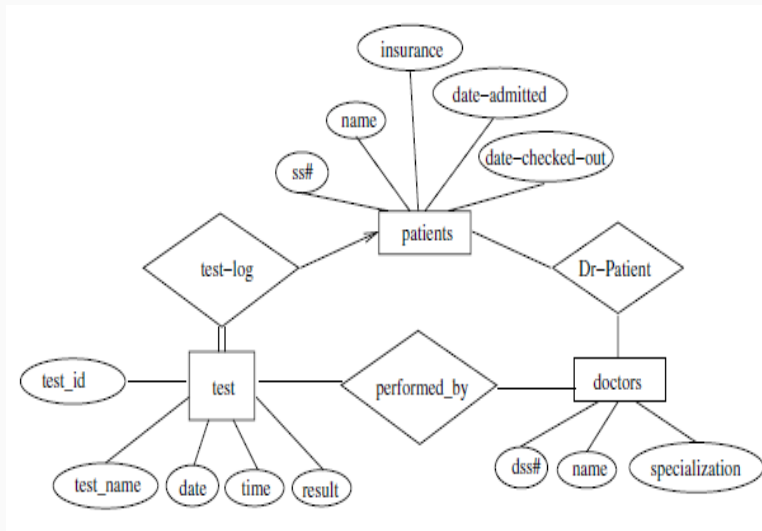
Question-2

Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted.

Exercise

Solution An E-R diagram for a hospital with a set of patients and a set of medical doctors is the following:-

Question-3

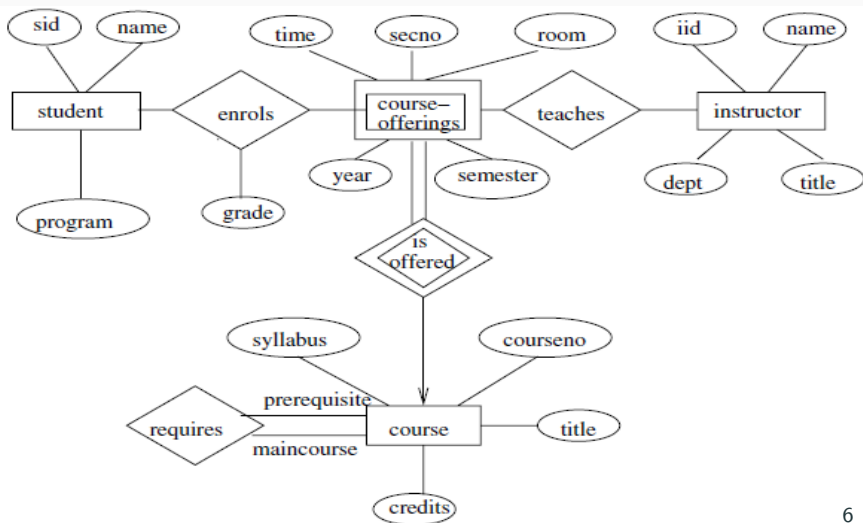A university registrar's office maintains data about the following entities:
(a) courses, including number, title, credits, syllabus, and prerequisites;
(b) course offerings, including course number, year, semester, section number, instructor(s), timings, and classroom;
(c) students, including student-id, name, and program; and
(d) instructors, including identification number, name, department, and title.
Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled.

Construct an E-R diagram for the registrar's office. Document all assumptions that you make about the mapping constraints.

Exercise

Solution An E-R diagram for the registrar's office is the following:-

6

Question

Construct appropriate tables for each of the E-R diagrams in Exercises 1 to 3.

Solution

Appropriate tables for each of the E-R diagrams used in exercises 1 to 3 are the following:-

(1) Car insurance tables:

person (driver-id, name, address)

car (license, year, model)

accident (report-number, date, location)

participated(driver-id, license, report-number, damage-amount)

Exercise

(2) Hospital tables:
patients (patient-id, name, insurance, date-admitted, date-checked-out)
doctors (doctor-id, name, specialization)
test (testid, testname, date, time, result)
doctor-patient (patient-id, doctor-id)
test-log (testid, patient-id)
performed-by (testid, doctor-id)
(3) University registrar's tables:
student (student-id, name, program)
course (courseno, title, syllabus, credits)
course-offering (courseno, secno, year, semester, time, room)
instructor (instructor-id, name, dept, title)
enrols (student-id, courseno, secno, semester, year, grade)
teaches (courseno, secno, semester, year, instructor-id)
requires (maincourse, prerequisite)