

Exercise 1

A university DB contains information about professors (identified by SIN) and courses (identified by course ID). Professors teach courses; each of the following situations concerns the Teaches relationship set.

List all candidate keys of the Teaches relationship set.

- a. Professors can teach the same course in several semesters, and each offering must be recorded.

Answer:-

- professor: with SIN underlined as the primary key,
- course: with CID underlined as the primary key,
- semester: with SID underlined as the primary key.

The candidate key of the teachesrelationship: {SIN, COURSE_ID, SEMESTER_ID}.

- b. Professors can teach the same course in several semesters, but only the most recent such offering needs to be records.

Answer:-The key of teaches is {SIN, COURSE_ID}.

Assume the above Situation (b) applies in all subsequent situations.

List all the keys possible in each of the following situations.

- a. Every professor teaches a course, and every course is taught by some professor.

Answer:-Total participation from professors and total participation from courses. Because it is still m-to-m, the candidate key remains are {SIN, COURSE_ID}.

- b. Every professor teaches exactly one course, and every course is taught by exactly one professor.

Answer:-This time the relationship is 1-to-1. There are now two candidate keys are either {SIN} or {COURSE_ID}.

