Assignment 1

Database Technology

Name: - Rishabh Nilesh Trivedi
Batch: - PG-DAC September 2022
Centre: CDAC Hyderabad
PRN No: - 220950320132

Question:

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.

b. Professors can teach the same course in several semesters, but only the most recent such offering needs to be records. Assume the above Situation (b) applies in all subsequent situations.

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

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

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

Answers:

List of entities and attributes:
1) Professor: SIN, professor_Name, professor_Dept
2) Course: CID, course_Name, Course_duration
3) Semester: SID, Semester_Name

a) Professor with SIN considered as the primary key.
Course with CID considered as the primary key.
Semester with SID considered as the primary key.
Candidate key = {CID, SID, SIN}

b) The key of teaches is {SIN, CID}.

c) The candidate key remains {SIN, CID}.

d) The relationship is 1-to-1. There are now two candidate keys: either {SIN} or {CID}.