

Sample Scenarios for Quiz-1

Draw ERD and transform the ERD into relational schema and write DDL according to the relation schema for the following questions

Q. 1: A person is described by id, name (first name, middle name, last name), multiple qualifications (degree, grade), multiple trainings (title, country, duration), present address (street no, street name, city) and permanent address (street no, street name, city) date of birth and age.

Q. 2: There are many teachers in the university. Teacher has Id, name, salary. Among the teachers, Head of the department is appointed for a certain period of time (start date and end date). A teacher may be appointed Head many times. In different times, different teachers are appointed as Head.

Q.3: A teacher can teach many courses and a course is taught by exactly one teacher. A teacher has id, name and degree. A course has course-id, title and credit.

Q.4: There are many foot ball teams participated in world cup 2022. A team has id and country. A team plays with another team in a particular date and a title of the play e.g., round 1, semi-final etc.

Q.5: A teacher can teach many courses and a course can be taught by many teachers. A course has course_id, title and credit_hour and a teacher has T_id, name, designation salary. You have to record the semester and year of teaching of these courses by the teachers.

Q.6: A mother can have many children and a child must have only one child. A mother has birth registration (M_BRN) number and a child have also birth registration number (C_BRN). A mother is described by date of birth, profession and income. A child is described by date of birth, height and weight.

Q.7: An apartment must be owned by exactly one person and a person may own maximum one apartment. A person has NID, name, date of birth, street, city and income. An apartment has app_id, size, app_name, floor_number, location and price.

Q.8: A course has course_id, title and credit_hour. A section has sec_id, semester and year. A course has many sections and a section has exactly one course. The section id cannot identify the section uniquely a section because the same section id is used for different courses. The section id, semester and year jointly cannot identify a section uniquely. So section has no primary key.

Q.9: An instructor can advise many students but a student must have exactly one adviser. An instructor has id, name, dept_name and salary. A student has id, name, street, city, CGPA and tot_credit.

Q.10: A student can enroll a maximum of 45 courses and a minimum of 3 courses. A course can be enrolled by minimum 15 students and a maximum of 40 students. A student has id, name, street, city, CGPA and tot_credit. A course has course_id, title and credit_hour.

Q.11: There are many projects developed by many students and supervised by instructors. An instructor can supervise many projects developed by many students but any project-student pair must be supervised by only one instructor. A project has P_id, location and budget. A student has id, name, street, city, CGPA and tot_credit. A supervisor has s_id, name, date of birth and salary.

Q. 12: Explain the terms logical schema and physical schema.

Q. 13: Explain data model.

Q 14: Explain database instance with example.

Q 15: Show examples of database users as given in the following figure

