

Database Management System

Assignment No. 2

1. Explain the distinctions among the terms primary key, candidate key, alternate key, surrogate key, and super key.
2. What do you mean by cardinality? What are its different types?
3. What are different types of attributes?
4. 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.
5. 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.
6. Explain the difference between a weak and a strong entity set.
7. We can convert any weak entity set to a strong entity set by simply adding appropriate attributes. Why, then, do we have weak entity sets?
8. Define the concept of aggregation. Give two examples of where this concept is useful.
9. A weak entity set can always be made into a strong entity set by adding to its attributes the primary key attributes of its identifying entity set. Outline what sort of redundancy will result if we do so.
10. Design a generalization–specialization hierarchy for a motor-vehicle sales company. The company sells motorcycles, passenger cars, vans, and buses. Justify your placement of attributes at each level of the hierarchy. Explain why they should not be placed at a higher or lower level.
11. Draw an ERD corresponding to publishing House Company.
12. Construct an ERD representing working of a college.
13. Design an ERD for keeping track of your favorite sports team.
14. How many types of relationship exist in database designing?
15. Define ERD for the following databases with specific data type and constraints, the table name and its fields name are to be taken from database description which are given below : A database is being constructed for storing **sales information system**. A product can be described with a unique product number, product name, selling price, manufacturer name. The product can sale to a particular client and each client have it own unique client number, client name, client addresses, city, pin code, state and total balance to be required to paid. Each client order to buy product from the salesman. In the order, it has unique sales order number, sales order date, client number, salesman number (unique), billed whole payment by the party or not and its delivery date. The salesman have the name, addresses, city, pin code, state, salary of the sales man, delivery date, total quantity ordered, product rate.

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16. A student is described by a unique Roll Number, Name Address, and Semester. Each student enrolls himself in an Academic programme offered by a Department. Academic programmes have programme name(unique), duration, a programme code(unique) and a list of courses (both core and elective course) while the departments have department code (unique), department name (unique), HoD who is a Teacher and list of courses offered by it. Each teacher is described by employee code (unique), name, department and designation. A student registers some courses in a semester. A course is described by a unique course number, title of the course, credit allotted for the course and offering department. Database stores the grades obtained by different student in different courses registered by him/her in different semesters. Database also stores information about the courses offered by a department in a semester, the corresponding teacher(s) for each course.
- 17.. A company keeps track of company employees, departments & projects. Company is organized into departments. Each department has a unique name, unique number & a particular employee who manage the department. The database also keeps track of start date when that employee begins managing that department. The database also keeps track of start date when that employee begins managing that department. A department may have several locations. A department controls number of projects each of which has a unique name, unique number & single location. Each employee's name, social security number, address, salary & birth date is also stored. An employee is assigned to one department, but may work on several projects which are not necessarily controlled by same department. Number of hours/week that an employee works on each project is also kept track of database also keeps track of direct supervision of each employee. Information about dependents of each employee for insurance purposes is also kept. Design an ER model.
18. Each pharmaceutical company is identified by a name & phone no. For each drug, the name & formula must be recorded. Each drug is sold by a given pharmaceutical company & the trade name identifies the drug uniquely from among the products of that company. Each pharmacy has a name, address & phone no. Every doctor has at least one patient. Each pharmacy sells several drugs & has a price for each. A drug could be sold at several pharmacies & a price would differ from one pharmacy to another. Doctors prescribe drugs for patients. A doctor could prescribe one or more drugs for several patients & patients could obtain prescription from several doctors. Each prescription has a date & a quantity associated with it. Pharmaceutical companies have long term contracts with pharmacies. A pharmaceutical company can have contract with several pharmacies & a pharmacy can have contract with several pharmaceutical companies. For each contract you need to store, start date, end date & terms of contract. Pharmacies appoint a supervisor for each contract. Patients are identified by SSNo end their names,

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age & address. Doctors are also identified by SSNo. For each doctor, name, specialty & years of experience must be recorded. Design an ER model.

19. Each hotel has a name, address & an owner name has 200 rooms & each room has a unique room no., a category & charges. Each hotel caters to the need of customers. It also has a no. of employees who serve the customers. For each employee his name, a unique emp-id, salary, his job profile & no. of working hours must be recorded. For each customer, his name, phone no, address, mode of payment & a unique customer-id must be recorded. A customer can order food having a price & category as veg or non-veg. For each order, order date, unique order no. & sales price should be saved. Design an ER model.

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