

Assignment 03: Entity-Relationship(ER) Diagram Questions

Prashant Karna

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Question 1: Hayanju Traders Craft Trading Website

The craft trading website Hayanju Traders is setting up a database to record sellers and their products. This requires recording the following information:

- For each seller, their name, contact email, and postal address.
- For each product, its name, price, and number available.
- Which product is from which seller.
- A unique ID number for each product.

Draw an entity-relationship (ER) diagram that represents this information. Make sure to capture the constraints on the relationships involved and designate appropriate primary keys for the entities.

Question 2: Bidhi's Collections Pvt. Ltd. Company Database

A company database needs to store information about:

- Employees (identified by SSN, with salary and phone as attributes).
- Departments (identified by DNO, with DNAME and budget as attributes).
- Children of employees (with name and age as attributes).

Additional conditions:

- Employees work in departments; each department is managed by an employee.
- A child must be identified uniquely by name when the parent (who is an employee; assume that only one parent works for the company) is known.
- We are not interested in information about a child once the parent leaves the company.

Draw an ER diagram that captures this information.

Question 3: EXAM 2011 International Multi-Conference

The organizers of the EXAM 2011 international multi-conference need to keep track of a large collection of workshops associated with the event. Sudharshan and Radha is working on this project and they figured out the requirements. The requirements are as follows:

- Each workshop has a name and happens on a particular date (or multiple dates if it lasts more than one day).
- Several participants may sign up for one or more workshops.
- Each participant's name, email address, and selected workshops must be recorded.

- The conference venue contains multiple meeting rooms, each with a fixed capacity.
- Meeting rooms are identified by a floor and room number.
- Every workshop needs an allocated meeting room. If a workshop lasts multiple days, it uses the same room on all days.

Draw an entity-relationship diagram suitable for representing this information, particularly the connections between participants, workshops, rooms, and dates.

Question 4: Sujan's Soccer Teams and Matches

We have an application that models soccer teams, the games they play, and the players in each team. The following information needs to be captured:

- A set of teams, each with an ID (unique identifier), name, main stadium, and city.
- Each team has multiple players, with each player belonging to one team. Each player has a unique number, name, date of birth, start year, and shirt number.
- Teams play matches. Each match involves a host team and a guest team, played in the host team's stadium.
- Each match records:
 - The date of the game.
 - The final result.
 - Players who participated, along with goals scored, yellow cards, and red cards received.
 - Substitutions, including the player substituted and the time of substitution.
- Each match has exactly three referees (one main referee and two assistant referees). Each referee has an ID, name, date of birth, and years of experience.

Design an ER diagram to capture the above requirements. State any assumptions that affect your design. Ensure that cardinalities and primary keys are clearly specified.