

Tutorial

ER Modelling & Design

COMP3278B

Introduction to Database Management Systems

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Question 1

ER

Model

Question 1a (2min)

- “A person can own a number of cars, but each car must be owned by exactly one person.”

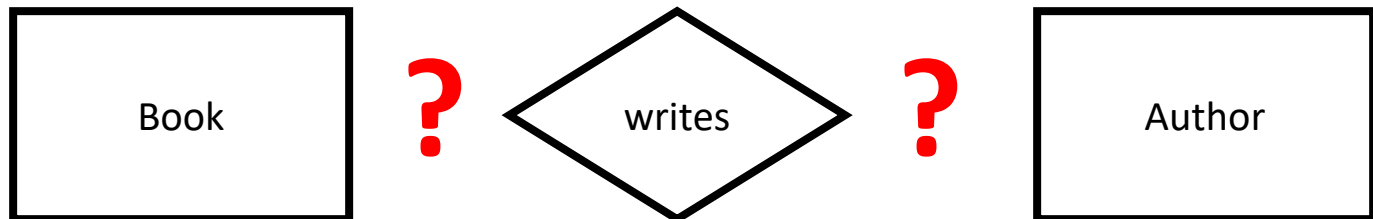
Can you draw an ER-diagram to model the data of this application?



Question 1b (2min)

- A. X: \equiv , Y: \equiv
- B. X: \equiv , Y: \equiv
- C. X: \equiv , Y: \equiv
- D. X: \equiv , Y: \equiv
- E. X: \equiv , Y: \Rightarrow

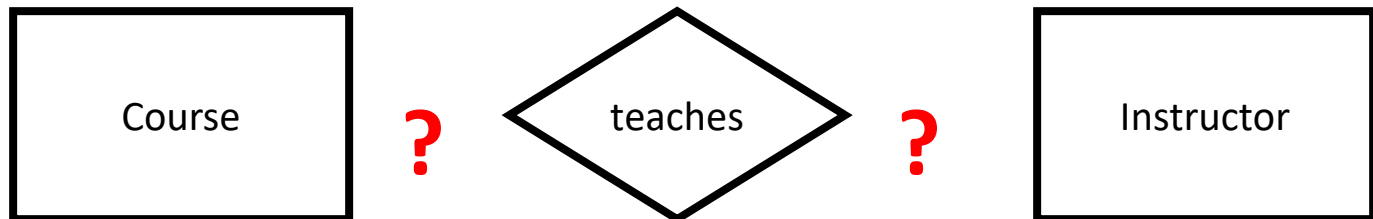
- “A book is written by one or more authors. In our database, we only keep the information of authors who have written some books in our database.”



Question 1c (2min)

- A. $X: \leftarrow$ and $Y: \text{---}$
- B. $X: \text{---}$ and $Y: \rightarrow$
- C. $X: \leftarrow$ and $Y: =$
- D. $X: =$ and $Y: \rightarrow$
- E. $X: =$ and $Y: \Rightarrow$

- “Each course must be taught by an instructor. An instructor must teach at least one course.”



Question 4

Weak

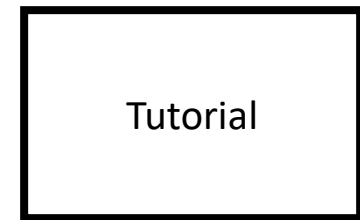
Entity Set

Question 4 (3min)

- You are required to record course name and course code for the **courses**. A course may hold some tutorials. For each **tutorial**, we need to store the tutorial number (e.g., tutorial 1 of course CSIS0278B), the date and venue.



Step 1.1. Identify the entity & entity sets.



Past paper Questions

Question 5 (5min)

- You are asked to design a database for a small IT company. Each employee of the company has at least one of the special IT skills that the company needs. The description of the special IT skills that the company needs will be stored in the database. The name and start date of employment will be recorded for each employee. The database would also keep track on the jobs information. Employee would be assigned to work on one or more jobs. The job description and time estimation for the job duration would also be recorded.



Step 1.1. Identify the entity & entity sets.

Employee

IT Skill

Job

Question 6 (10min)

- You are required to design a database to store the information of the soccer association.
 - The **ID** of the team, **name**, **address** and **phone number** should be stored for each soccer team.
 - Each soccer player must belong to a team with a **“playerNumber”**, **salary** and **description**.
 - Note that playerNumber is not unique. To identify a soccer player, the playerNumber has to be used together with the ID of the team.
 - The soccer teams can have some sponsors.
 - The **name** and the **phone number** should be recorded for each sponsor.
 - A team can have more than one sponsor, and a sponsor can support more than one team.
 - We only store the information of those sponsors who have sponsored some team.
 - The **starting sponsor date** between a particular sponsor and team should be noted.



Past

Assignments

Question 7 [30min]

more on next slide

- CreativeGames, a game design company is designing a mobile app called *HK Online*. As the chief designer of *HK Online*, you are going to design a database system to maintain information for the game. The scenario is described below.
- **There is a player information system**
 - For each **player**, his/her name, phone number(s), date of birth (compose of day, month and year) are recorded.
 - Each player of HKOnline has a unique ID (called *playerID*).
 - Player must belong to either ***paid players*** or ***non-paid players*** (but not both).
 - A player can refer another player to HK Online. We will keep track of the referral information. A player can be referred by none or one player only.
 - For paid players his/her credit points will be stored.

● There is an advertisement system

- For each **advertisement**, we store the advertisement number, starting date, duration and the finishing date.
- The finishing date can be derived from the starting date and duration.
- Each **advertisement** belongs to one and only one **category**. (A category can have no advertisement)
- Each **category** consists of a name, which serves as the identifier of the category.
- There is no identifier for **advertisement** and they have an advertisement number which is unique among the **category** it belongs to, but not globally among all advertisements.

● All non-paid players will subscribe to a **category** in the advertisement system. We will maintain the hit count of each non-paid player in their subscription.

End of question.

We are happy to help you!



“If you face any problem in understanding the materials in lectures or the tutorials, **please feel free to contact us.**

We are very happy to help you!

We wish you enjoy learning Database in this course.”

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END

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