Lectures #4 Applications

COME301 Database Management Systems

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Applications

Ex1: Use the following business rules to create a Crow's Foot ERD. Write all appropriate connectivities and cardinalities in the ERD.

- **A** department **employs** **many** employees, but **each** employee **is** employed by only **one** department. Some employees, known as "rovers," are **not assigned to any department**.

- **A** division **operates** **many departments**, but **each** department **is** operated by **only one** division.

Applications

Ex1:

- **An** employee **may** be assigned **many projects**, and **a** project **may** have **many employees** assigned to it. (M:M). **A** project **must** have **at least one employee** assigned to it.

- **One** of the employees **manages** **each** department, and **each** department **is** managed by only **one** employee.
- **One** of the employees **runs** **each** division, and **each** division **is** run by only **one** employee.

Applications

Ex2: The local city youth league needs a database system to help track children who sign up to play soccer. Data need to be kept on each **team** and the **children** who will be playing on each team and their **parents**. Also, data need to be kept on the **coaches** for each team.

Draw the data model described below.

Entities required: Team, Player, Coach, and Parent.

Applications

Ex2:

<u>Attributes required:</u>

Team: Team ID number, Team name, and Team colors.

Player: Player ID number, Player first name, Player last name, and Player age.

Coach: Coach ID number, Coach first name, Coach last name, and Coach home phone number.

Parent: Parent ID number, Parent last name, Parent first name, Home phone number, and Home Address (Street, City, State, and Zip Code).

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Ex2:

The following relationships must be defined:

- Team is related to Player.
- Team is related to Coach.
- Player is related to Parent.

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Ex2:
Connectivities and participations are defined as follows:

- **A** Team **may or may not** have **a** Player.
- **A** Team **may** have **many** Players.
- **A** Player **must** have **a** Team.
- **A** Player **has** only **one** Team.

- **A** Team **may or may not** have a Coach.
- **A** Team **may** have many Coaches.
- **A** Coach **must** have a Team.
- **A** Coach **has** only one Team.

- **A** Player **must** have **a** Parent.
- **A** Player **may** have **many** Parents.
- **A** Parent **must** have **a** Player.
- **A** Parent **may** have **many** Players.

End.