PB_05_Kushagra Suryawanshi (B1)

TY. B Tech DBMS : Lab-1 03/08/21

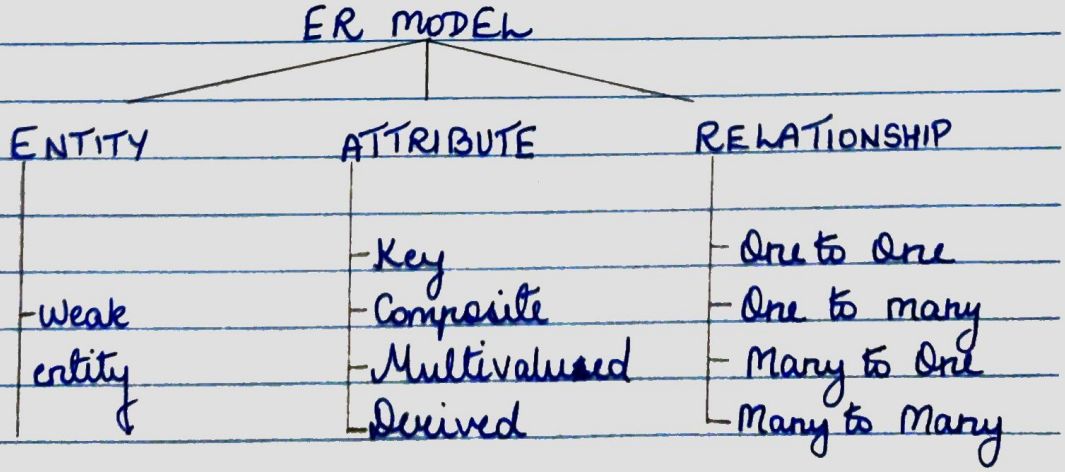
Aim : Draw an ER diagram for different case studies.

Objective : To study creation of an ER diagram.

Theory :

- ER diagram stands for Entity Relationship Diagram.
It displays the relationship of entity sets stored in a database. It helps to explain the logical structure of database.

The components of ER diagram are :




Entity : is an object or concept about which you want to store information.

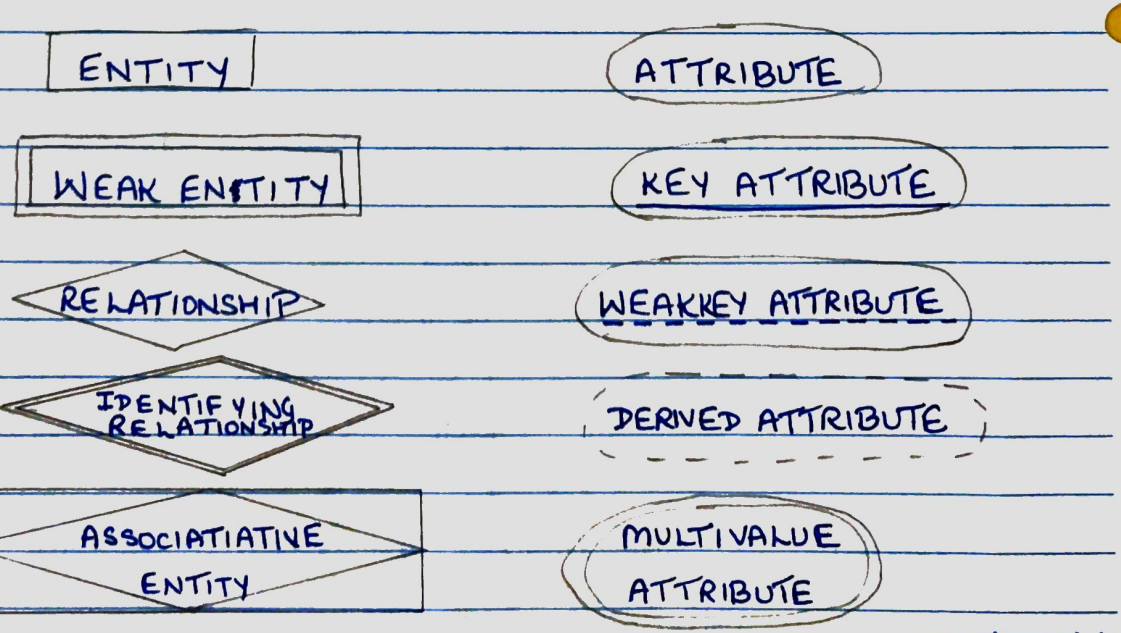
Attribute : characteristic of an entity

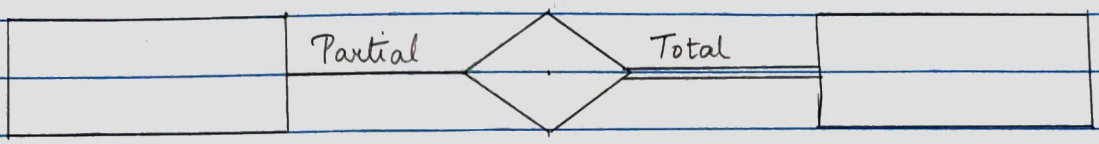
- Key attribute : unique distinguishing characteristic of the entity.
- Multivalued attribute : this attribute can have more than one value.
- Derived attribute : based on another attribute

Relationship : connects entities together and shows cardinality of the relation.

- Participation constraints :
- Total participation - Each entity is involved in the relationship.
- Partial participation - Not all entities are involved in the relationship. It is represented by single lines.

Notations :






Platform : draw.io

Conclusion : Thus, we have learned to create ER diagram.

FAQs :

1. What are the different types of attributes.

→ i. Key attribute : an attribute or a set of attributes that help to uniquely identify a tuple in a relation.

ii. Composite Attribute : values that are to be stored in an attribute that can be further divided into meaningful values.

iii. Multivalued Attribute : an attribute that can hold multiple values is called a multivalued attribute.

iv. Derived Attribute : the attributes that do not exist in the physical database, but their values are derived from other attributes present in the database.

2. What do you mean by primary key and foreign key?

→ Primary key: A primary key is a field in a table which uniquely identifies each row/record. Primary keys must contain unique values and shouldn't be null values.

Foreign key: It is a column or group of columns in a relational database table that provides a link between data in two tables. It acts as a cross-reference between tables because it references the primary key of another table, thereby establishing a link between them.

3. What is weak entity?

→ In a relational database, a weak entity is an entity that cannot be uniquely identified by its attributes alone; hence, it must use a foreign key in conjunction with its attributes to create a primary key.

# DBMS LAB 1 PROBLEM STATEMENTS: BATCH B1

Construct a clean and concise ER diagram for the NHL database.

Suppose you are given the following requirements for a simple database for theNational Hockey League (NHL):

- •the NHL has many teams,
- •each team has a name, a city, a coach, a captain, and a set of players,
- •each player belongs to only one team,
- •each player has a name, a position (such as left wing or goalie), a skill level, and a set of injury records,
- •a team captain is also a player,
- •a game is played between two teams (referred to as host_teamand guest_team)and has a date (such as May 11th, 1999) and a score (such as 4 to 2).Construct a clean and concise ER diagram for the NHL database.

Draw ER diagram for Music Library System

Consider music database stores details of a personal music library, and could be used to manage your MP3, CD, or vinyl collection. Because this database is for a personal collection, it's relatively simple and stores only the relationships between artists, albums, and tracks. It ignores the requirements of many music genres, making it most useful for storing popular music and less useful for storing jazz or classical music.

We first draw up a clear list of requirements for our database:

- The collection consists of albums.
- An album is made by exactly one artist.
- An artist makes one or more albums.
- An album contains one or more tracks
- Artists, albums, and tracks each have a name.
- Each track is on exactly one album.
- Each track has a time length, measured in seconds.

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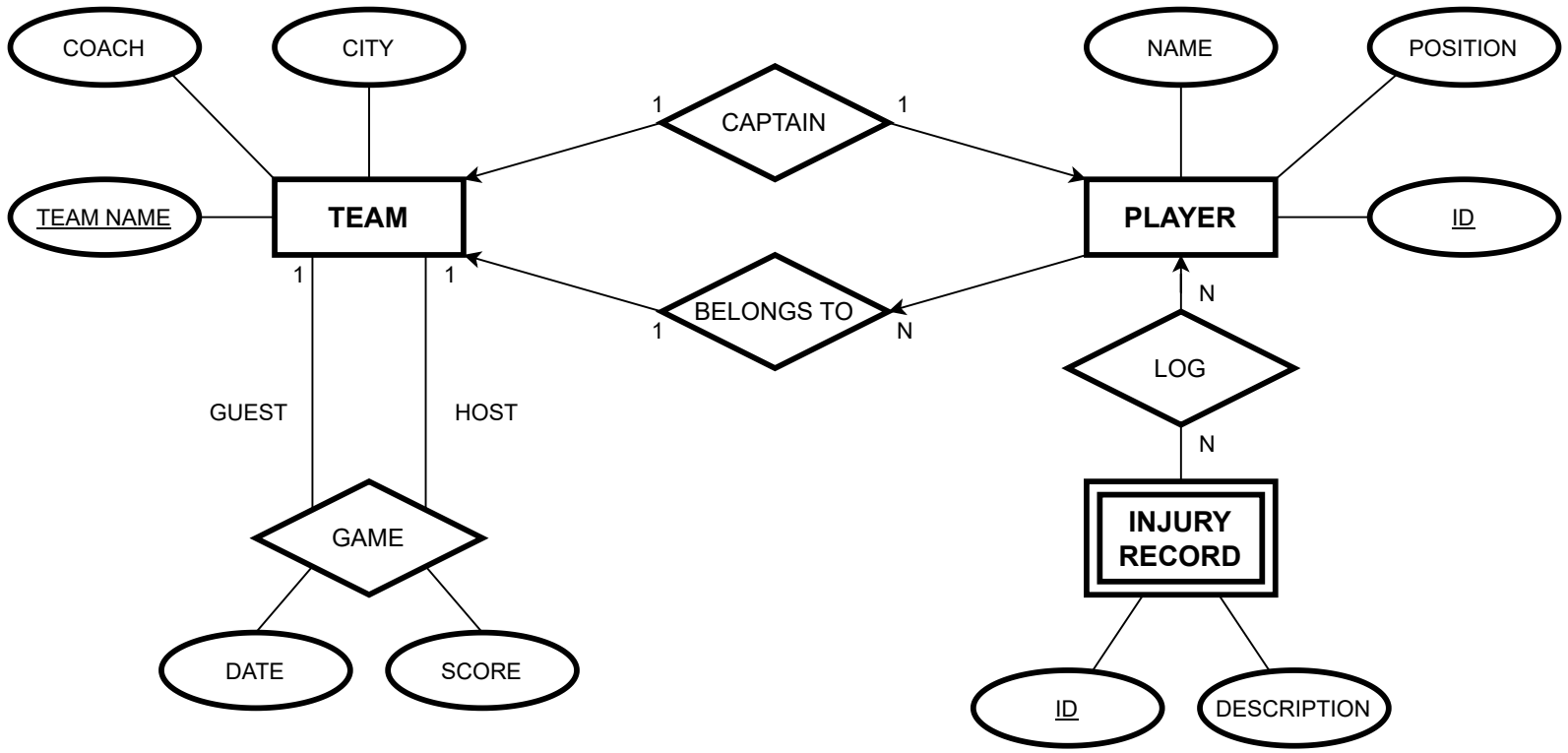

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