Ex.No. 5

ER Model

Aim:

To construct an Entity Relationship diagram for the "_____".

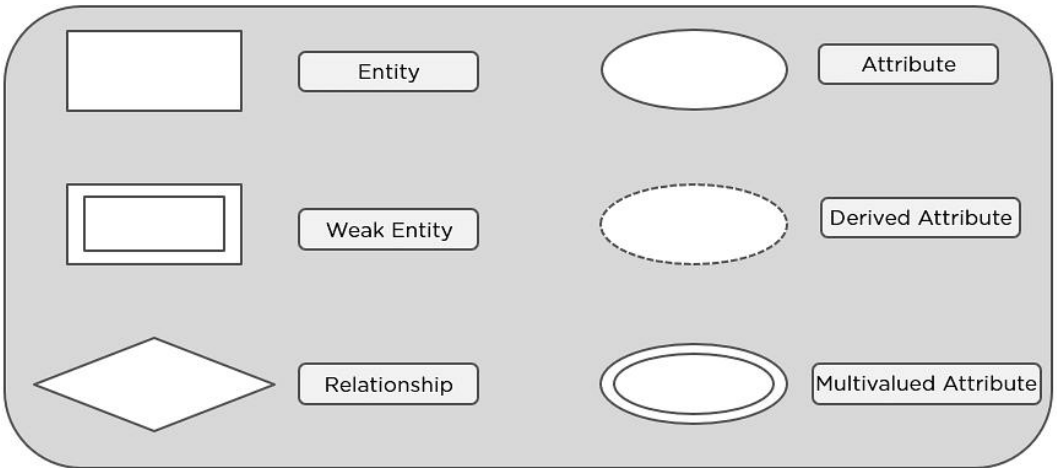
Entity Relationship model

ER Model stands for Entity Relationship Model is a high-level conceptual data model diagram. ER model helps to systematically analyze data requirements to produce a well-designed database. The ER Model represents real-world entities and the relationships between them.

ER Modeling helps to analyze data requirements systematically to produce a well-designed database. So, it is considered a best practice to complete ER modeling before implementing our database.

Symbols Used in ER Diagrams

- Rectangles: This Entity Relationship Diagram symbol represents entity types
- Ellipses: This symbol represents attributes
- Diamonds: This symbol represents relationship types
- Lines: It links attributes to entity types and entity types with other relationship types
- Primary key: Here, it underlines the attributes
- Double Ellipses: Represents multi-valued attributes



Entities

An entity can be either a living or non-living component. It showcases an entity as a rectangle in an ER diagram.

Weak Entity

An entity that makes reliance over another entity is called a weak entity

Attribute

An attribute exhibits the properties of an entity. You can illustrate an attribute with an oval shape in an ER diagram.

Key Attribute

Key attribute uniquely identifies an entity from an entity set. It underlines the text of a key attribute.

Composite Attribute

An attribute that is composed of several other attributes is known as a composite attribute. An oval showcases the composite attribute, and the composite attribute oval is further connected with other ovals.

Multivalued Attribute

Some attributes can possess over one value, those attributes are called multivalued attributes. The double oval shape is used to represent a multivalued attribute.

Derived Attribute

An attribute that can be derived from other attributes of the entity is known as a derived attribute. In the ER diagram, the dashed oval represents the derived attribute.

Relationship

The diamond shape showcases a relationship in the ER diagram. It depicts the relationship between two entities.

One-to-One Relationship

When a single element of an entity is associated with a single element of another entity, it is called a one-to-one relationship.

One-to-Many Relationship

When a single element of an entity is associated with more than one element of another entity, it is called a one-to-many relationship

Many-to-One Relationship

When more than one element of an entity is related to a single element of another entity, then it is called a many-to-one relationship.

Many-to-Many Relationship

When more than one element of an entity is associated with more than one element of another entity, this is called a many-to-many relationship.

Steps to draw ER diagram:

- Identify all the Entities. Embed all the entities in a rectangle and label them properly.
- Identify relationships between entities and connect them using a diamond in the middle, illustrating the relationship. Do not connect relationships with each other.
- Connect attributes for entities and label them properly.
- Eradicate any redundant entities or relationships.
- Make sure your ER Diagram supports all the data provided to design the database.