

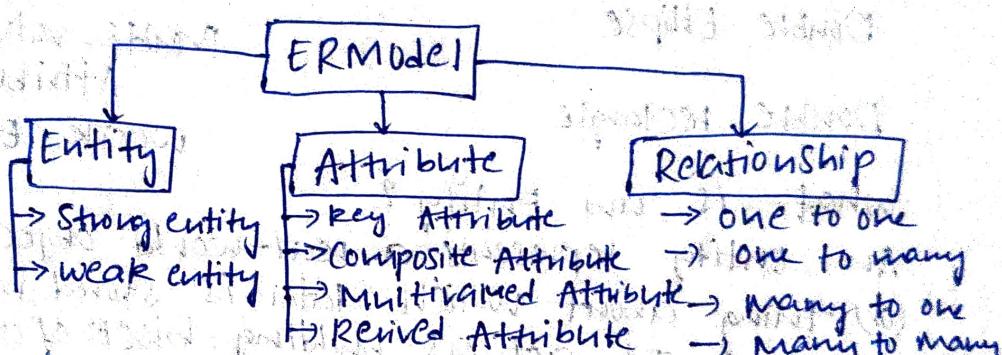
25/7/25

Task-1(a): Introduction of 'ER' Model

Introduction to ER Model :

The Entity - Relationship Model (ER Model) is a conceptual model for designing a database. This model represents the logical structures of a database, including entities, their attributes and relationship between them.

- Entity : An object that is stored as data such as student, course (or) company.
- Attribute : Properties that describes an entity such as Student ID, Course Name, (or) Employee Email.
- Relationship : A connection b/w entities such as a student enrolls in a course.



- The graphical representation of this model is called an Entity - Relation Diagram (ERD).

ER Model in Database Design process :

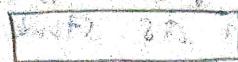
- We typically follow the below steps for designing a database for an application.
- ~~Gather the requirements (functional and data) by asking questions to the database users.~~
- Create a logical (or) conceptual design of the database. This is where ER model plays a role.
- After this focus on physical database design (like indexing) and external design (like views).

Symbols Used in ER Model :

- Rectangles : It represents entities in ER
- Ellipses : It represents attributes in ER
- Diamond : It represents Relationship among

- Entities
- Lines : Represent Attributes to Entities by Entity sets
- Double Ellipse : Represent Multi-valued attributes.
- Double Rectangle : Represents weak Entities which depend on other entities for identification

Rectangle



Entities in ER Model

Ellipse



Attributes in ER Model

Diamond



Relationship among Entities

Line



Attribute to Entity

Double Ellipse



Multi-valued Attributes

Double rectangle



weak Entity

What is an Entity?

An Entity represents a real-world objects concept (or) thing about which data is stored in a database. It act as building block of a database.

Examples of Entity:

- Real-world objects : Person, Car, Employee etc
- Concepts : course, Event, Reservation etc
- Things : product, Document, Device etc

1. Strong Entity

A Strong Entity is a type of Entity that has key attributes that can uniquely identify each instance of the entity. A Strong Entity does not depend on any other entity in the schema for its identification. It has a primary key that ensures its uniqueness and is represented by a rectangle in an ER diagram.

2. Weak Entity:

A weak Entity cannot be uniquely identified by its own attributes alone. It depends on a strong entity to be identified. A

weak entity are represented by a double rectangle. The participation of weak entity types is always total.

Ex: A company may store the information of dependents of an employee. But the dependents can't exist without the employee will be identifying entity type for dependent, which means it is strong entity type.

Types of Attributes:

1. Key Attribute:

The attribute which uniquely identifies each entity in the entity set is called key attribute. For example, Roll No will be unique for each student.

ROLL NO

2. Composite Attribute:

An attribute composed of many other attributes is called a composite attribute. For example the address attribute of the student entity type consists of street, city, state, and country.



3. Multivalued Attribute

An attribute consisting of more than one value for a given entity. For example, phone No can be more than one for a given student.

Phone - NO

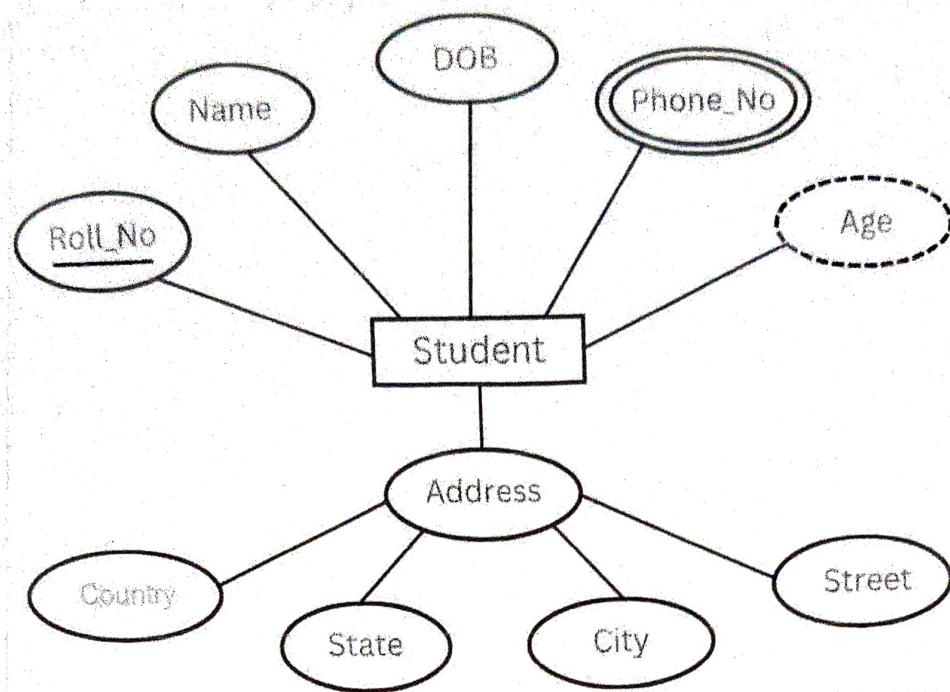
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4. Derived Attribute

An attribute that can be derived from other attributes of the entity type is known as a derived attribute. e.g. Age.

TASK: 1(B) USING Creatly TOOL



Result :- Thus, the ER diagram executed by using Creatly tool successfully.

VEL TECH - CSE	
EX NO.	1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	5
TOTAL (20)	20
SIGN WITH DATE	21/11/2023

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