# EXPERIMENT NO.: 02

AIM: Identify the case study and detailed statement of problem. Design an ER/EER model.

PROBLEM DEFINITION: To design an ER Diagram for developing a Digital Library formed by the readers community.

THEORY:

Entity: An entity maybe an object with physical or conceptual existence.

Entity Set: An entity set is a collection of similar types of entities.

Attributes: Attributes are properties which define entity types.

Types of Attributes:

1. Simple Attribute: These are atomic values which cannot be divided further.
2. Composite Attribute: These are composed of many other attributes.
3. Multivalued Attribute: It consists of more than one value.
4. Derived Attribute: These can be derived from other attributes.

Keys: These are attributes or collection of attributes.

Types of Keys:

1. Super key: Set of attributes that collectively identify an attribute in an entity set.
2. Candidate key: A minimal super key.
3. Primary key: A primary key is one of the candidate keys chosen by database designer to uniquely identify entities in an entity set.
4. Composite key: It is when more than one attribute is in primary key.
5. Alternate key: it is the key which is not primary among the other candidate keys.
6. Foreign key: It is a primary key of some other entity set.

Relationship Set: it represents association between entity sets.

Cardinality: The number of times an entity participates in a relationship set.

One to one: When each entry in entity set takes part only once in relationship set.

Many to one: When entities in one entity set can take part only once in the relationship set but those from the other entity set can take part more than once.

Many to many: When entities from all entity set participate more than once in the relationship set.

Total Participation: Each entity in entity set must participate in relationship.

Partial Participation: The entities in an entity set may or may not participate in the relationship.

Strong Entity: An entity which can be fully identified by its own attribute.

Weak Entity: An entity which cannot be fully identified by its own attribute.

Steps for constructing ER/EER Diagram:

1. Identify entity type:

Strong entities: User, Files, Links, Posts, Topics

No weak entities.

1. Identify attributes & primary key:

User = {id, name, contact, email, pwd, dob, address, gender}

Files = {id, name, path, type, author}

Links = {id, url, description}

Posts = {id, content, timestamp}

Topics = {id, name, field}

1. Identify relationship set & its cardinalities:

Follows: user-user (M:M)

Uploads: user-files (1:M)

Log: user-posts (1:M)

Refer: user-links (1:M)

Likes: user-topics (M:M)

Related: posts-topics (M:M)

Upvotes: user-posts (M:M)

CONCLUSION: Hence case study has been done and ER model has been drawn.

