

Experiment 02 – ER Diagram

Learning Objective: Draw ER Diagram for any case study.

Tools: StarUML , etc.

Theory:

ER Diagram:

- **What is an ER Diagram ?**

An Entity-Relationship (ER) diagram is a visual representation of the entities within a system and the relationships between those entities. It is commonly used in database design and modeling to illustrate the structure of a database and how different data elements relate to one another.

- **What is Entity in ER Diagram ?**

These are objects or concepts that can have data stored about them. Examples include "Customer," "Order," or "Product." Entities are typically represented by rectangles.

- **What is Relationship in ER Diagram ?**


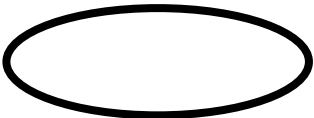
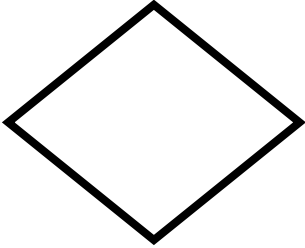
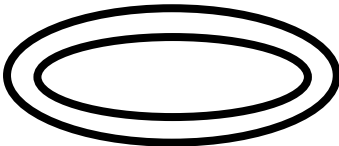
These show how entities are related to one another. For example, a "Customer" might place an "Order." Relationships are typically represented by diamonds and are connected to the entities involved. The types of relationships are as follows:

1. One-to-One (1:1)
2. One-to-Many (1:M)
3. Many-to-One (M:1)
4. Many-to-Many (M:N)

- **Attributes:** These are the data we want to store for each entity. For instance, a "Customer" entity might have attributes such as "CustomerID," "Name," and "Email." Attributes are usually represented by ovals connected to their entity.

- **Primary Keys:** These are unique identifiers for entities. For instance, "CustomerID" might be the primary key for the "Customer" entity. Primary keys are often underlined.
- **Foreign Keys:** These are attributes that create a link between two entities. For example, an "Order" might have a "CustomerID" that links back to the "Customer" entity.
- **Participations :** Participation refers to the extent to which entities in a relationship must participate. There are two main types of participation:
 1. Total Participation
 2. Partial Participation

Symbols & Their Meaning in ER Diagram:

Figure Name	Symbol	Description
Rectangle		Represents Entity in ER Diagram.
Ellipse		Represents Attributes in ER Diagram.
Diamond		Represents Relationship in ER Diagram.
Double Ellipse		Represents Multivalued Attributes in ER Diagram.

Single Line	_____	Represents Partial Participation in ER Diagram.
Double Line	_____ _____	Represents Total Participation in ER Diagram.

ER Diagram:

Learning Outcomes: The student should have the ability to
 LO1: construct ER Diagram for case study.

Course Outcomes: Upon completion of the course students will be able to understand the basics of ER diagram and its construction.

Conclusion:

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Correction Parameters	Formative Assessment [40%]	Timely completion of Practical [40%]	Attendance / Learning Attitude [20%]	
Marks Obtained				