

B.Sc. (Computer Science)-Part-III
Subject Name- “DBMS”
Paper-I (Video Part –IV)



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Unit- III: Concept of DBMS and Data Models

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Content

1. E-R MODEL
2. ENTITY
3. ATTRIBUTE
4. RELATIONSHIP
5. RELATHIONSHIP CARDINALITY
6. STRONG AND WEAK ENTITY

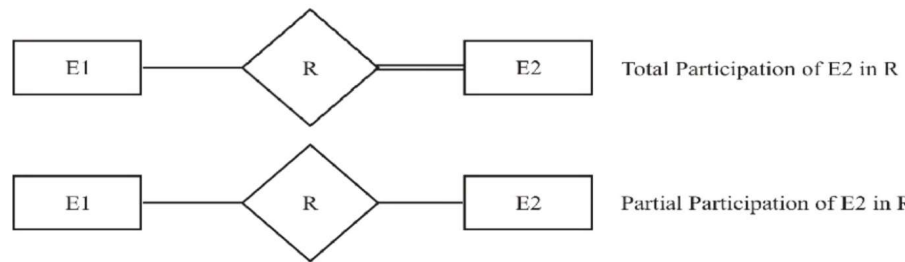
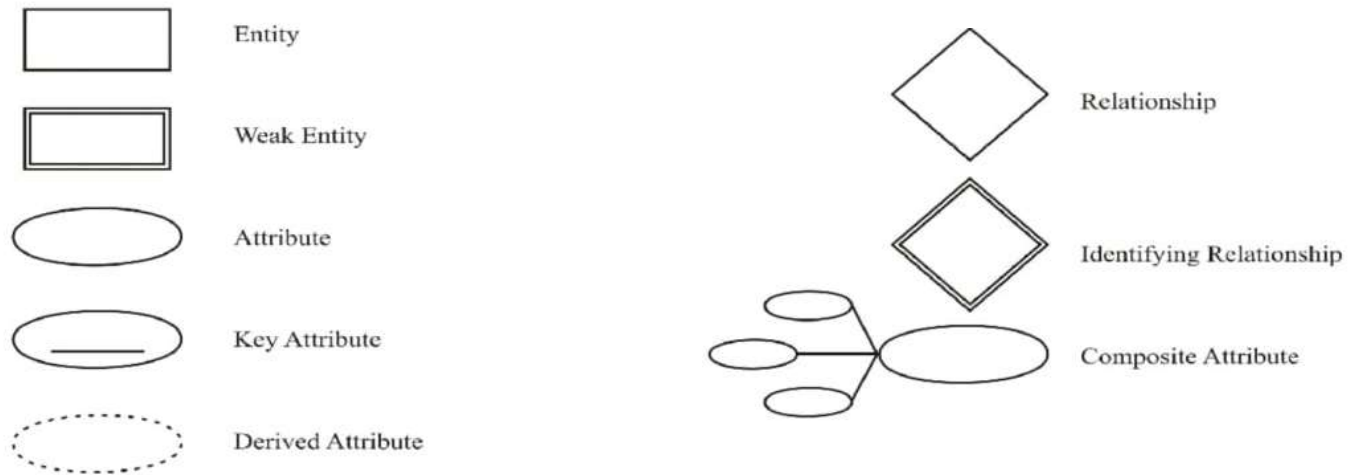
Objective

- Draw an E-R diagram for a given problem
- Convert an E-R diagram to a relational database.

E-R Diagram

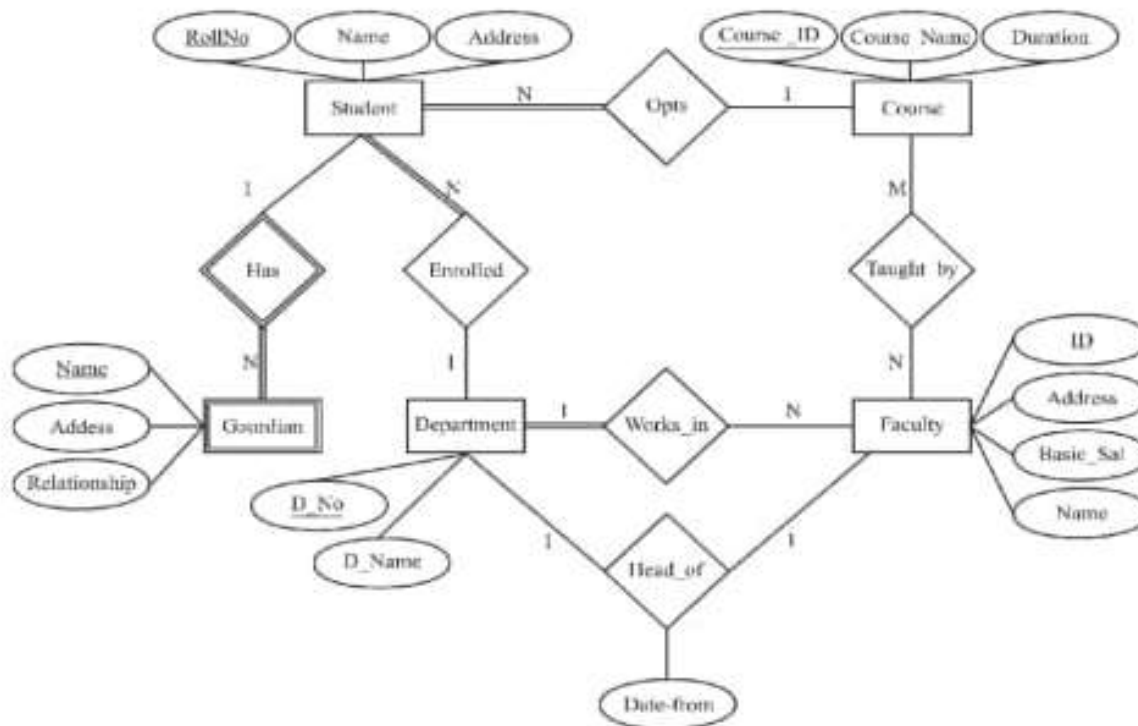
- ER diagrams are composed of:
- **rectangles** representing entity sets.
- **ellipses** representing attributes.
- **diamonds** representing relationship sets

E-R Diagram : Symbols



E-R Diagram : Example

- ER diagram of a College Database



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CONVERSION OF ER DIAGRAM TO RELATIONAL DATABASE

- For every ER diagram we can construct a relational database which is a collection of tables.
- Following are the set of steps used for conversion of ER diagram to a relational database.

Conversion of entity sets:

1) For each strong entity type E in the ER diagram, we create a relation R containing all the simple attributes of E. The primary key of the relation R will be one of the key attributes of R.

- For example, the STUDENT, FACULTY, COURSE and DEPARTMENT tables in following Example:

CONVERSION OF ER DIAGRAM TO RELATIONAL DATABASE

Conversion of Strong Entities into tables

STUDENT

ROLLNO: Primary Key	NAME	ADDRESS

DEPARTMENT

D_NO: Primary Key	D_NAME

FACULTY

ID: Primary Key	NAME	ADDRESS	BASIC_SAL

COURSE

COURSE_ID: Primary Key	COURSE_NAME	DURATION

CONVERSION OF ER DIAGRAM TO RELATIONAL DATABASE

Conversion of Weak Entities into tables

- II) For each weak entity type W in the E R Diagram, we create another relation R that contains all simple attributes of W .
- If E is an owner entity of W then key attribute of E is also included in R . This key attribute of R is set as a foreign key attribute of R .
- Now the combination of primary key attribute of owner entity type and partial key of weak entity type will form the key of the weak entity type.

Figure 1 shows the weak entity GUARDIAN, where the key field of student entity RollNo has been added.

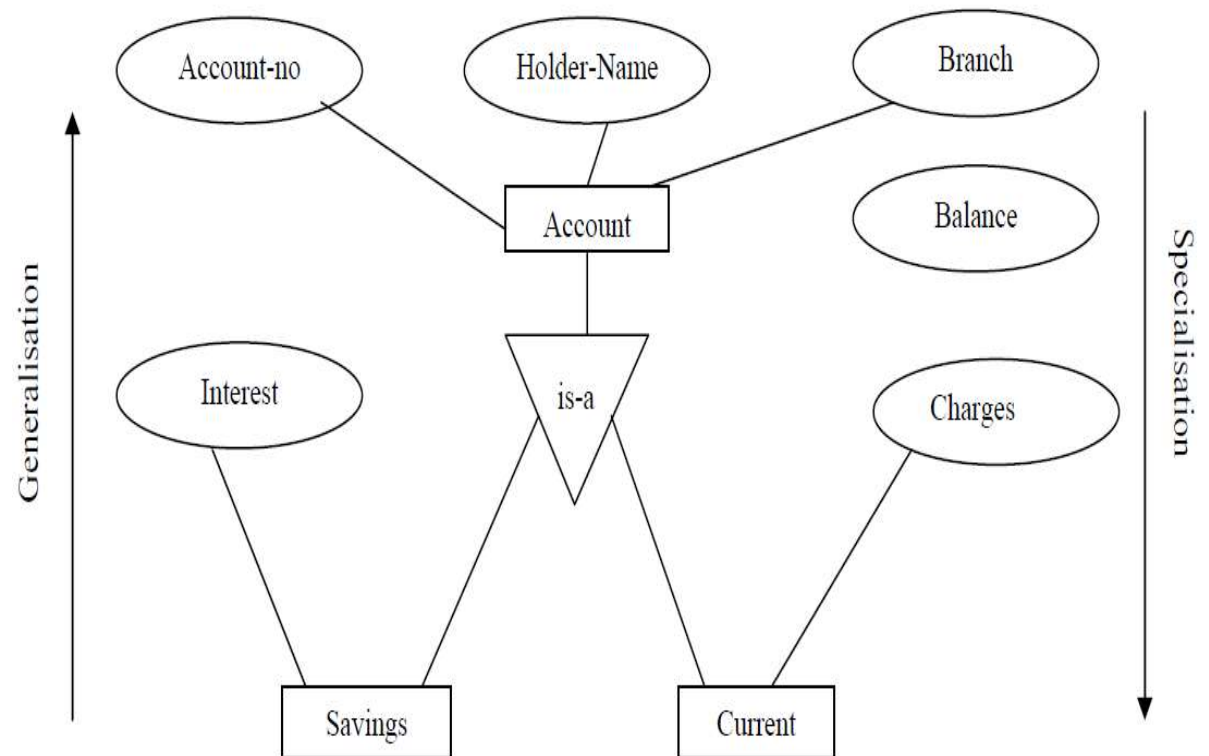
<u>RollNo</u>	<u>Name</u>	Address	Relationship
(Primary Key)			

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Extended E-R features

A bank has an account entity set. The accounts of the bank can be of two types:

- Savings account
- Current account
- The statement as above represents a specialization/generalization hierarchy. It can be shown as:



Thank You

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