ER Diagrams

ER DIAGRAMS:

- WERE PROPOSED BY PETER CHEN IN 1976.
- ARE WIDELY USED IN DATABASE DESIGN.
- REPRESENT CONCEPTUAL LEVEL OF A DATABASE SYSTEM.
- DESCRIBE ENTITIES AND THEIR RELATIONSHIPS IN HIGH LEVEL.

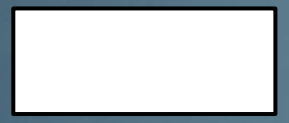
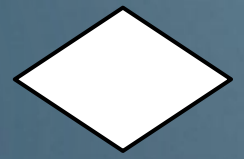
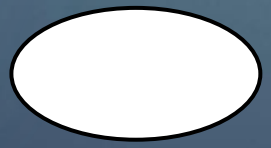
ER Diagrams (Contd.)

BASIC CONCEPTS REQUIRED FOR ER DIAGRAMS:

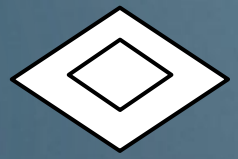
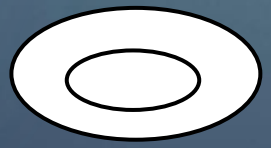
- **ENTITY** – AN ABSTRACTION OF SIMILAR THINGS, E.G. CARS, STUDENTS, AND EMPLOYEES.
  - An entity set contains many entities.
- **ATTRIBUTES**: COMMON PROPERTIES OF THE ENTITIES IN ENTITY SETS.
- **RELATIONSHIP** – SPECIFIES THE RELATIONS AMONG ENTITIES FROM TWO OR MORE ENTITY SETS.

ER Diagrams (Contd.)

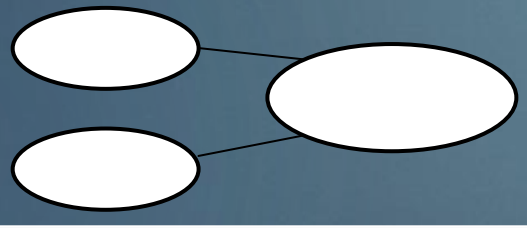
SYMBOLS AND NOTATIONS

Symbols	Notations
	Entity
	Relationship
	Attribute

ER Diagrams (Contd.)

Symbols	Notations
	Weak Entity
	Weak Entity Relationship
	Multivalued Attribute

ER Diagrams (Contd.)

Symbols	Notations
	Key Attribute
	Composite Attribute

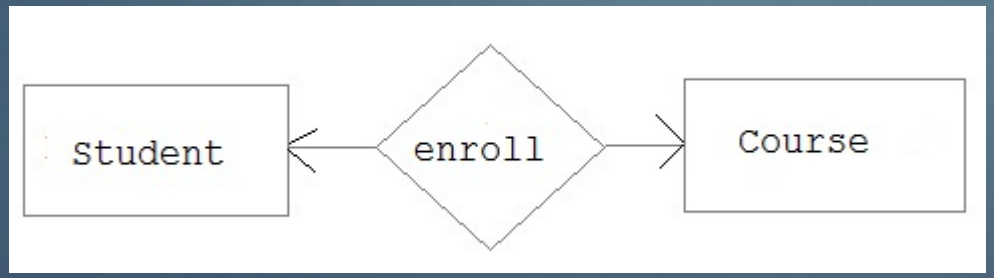
ER Diagrams (Contd.)

TYPES OF RELATIONSHIP THAT EXIST BETWEEN ENTITIES:

- **BINARY RELATIONSHIP**: MEANS RELATION BETWEEN TWO ENTITIES.
- **RECURSIVE RELATIONSHIP**: WHEN AN ENTITY IS RELATED WITH ITSELF.
- **TERNARY RELATIONSHIP**: RELATIONSHIP OF DEGREE THREE.

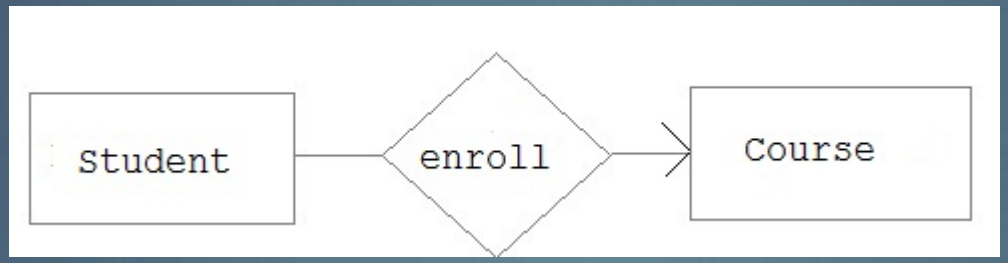
BINARY RELATIONSHIP IS FURTHER DIVIDED INTO THREE TYPES:

1. ONE-TO-ONE

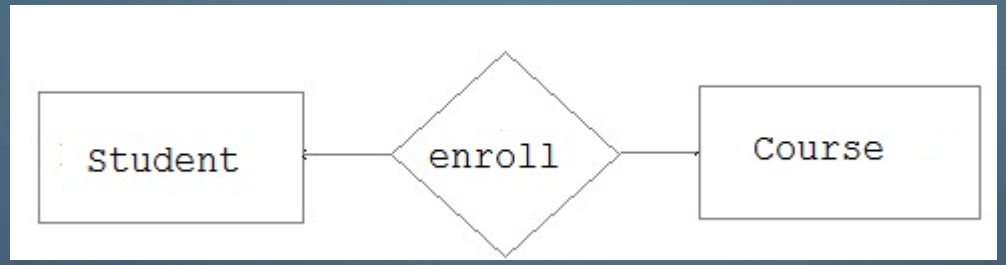


ER Diagrams (Contd.)

2. ONE-TO-MANY



3. MANY-TO-ONE



ER Diagrams (Contd.)

AN ER DIAGRAM: