

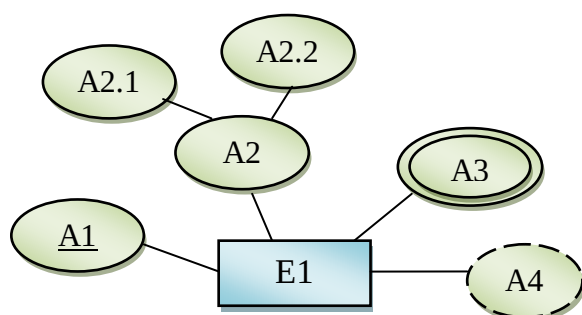
Course Name: **A Level (1st Sem)**
Topic: **ERD – Notations (Part 8)**

Subject : **Introduction to DBMS**
Date: **13-Apr-2020**

ERD – Notations

Suppose an *entity set* E1, with *simple* attribute A1, *composite* attribute A2 (A2.1, A2.2), *multi-valued* attribute A3, *derived* attribute A4, *primary key* A1. It can be presented in ERD by using two notation:

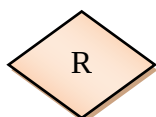
Notation 1



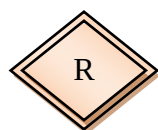
Weak Entity Set



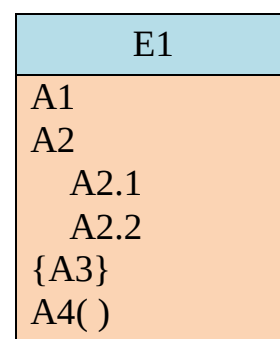
Relationship Set



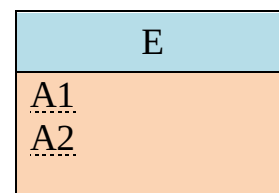
Relationship set for weak entity set



Notation 2 (Crow's Foot)



Attributes of weak entity set



 R

Note: Crow's foot diagrams represent entities as boxes, attributes as boxes below the entity's boxes and relationships as lines between the entity's boxes. Different shapes at the ends of these lines represent the relative cardinality of the relationship.

Notations for Relationship types

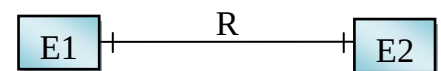
Suppose two entity set E1 and E2, and relationship between them is R

Notation 1

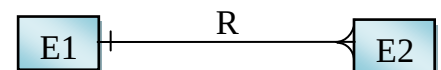
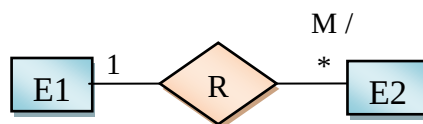
Notation 2

Notation 3 (Crow's Foot)

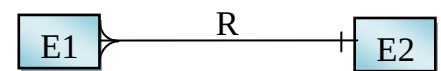
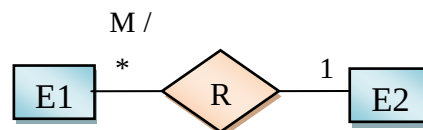
One to One Relationship



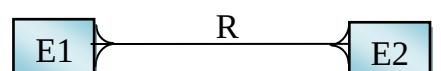
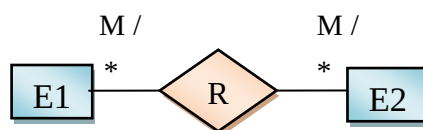
One to Many Relationship



Many to One Relationship

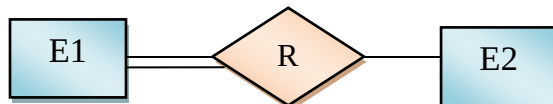


Many to Many Relationship



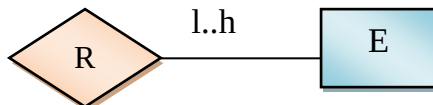
Notations for participation constraints

Notation 1



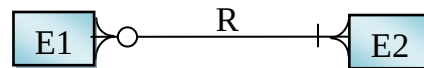
Participation in R: Total E1
Partial E2

Cardinality Limits

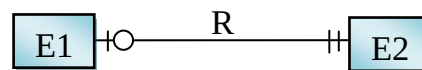


where l – lowest (min) cardinality
h – highest (max) cardinality

Notation 2 (Crow's Foot)



Participation in R: Total E1
Partial E2



Participation in R: Total E1
Partial E2

Important!

Note: Total participation is specified by a vertical bar (|), if the participation of entity set E1 in R is total then the vertical bar is placed on the opposite side adjacent to entity set E2.

Similarly, Partial participation is indicated by using a circle (○), again on the opposite side.

Exercises:

1. Represent the following entity set and its attributes using crow's foot notations:
Employee (emp_id, emp_name (fname, mname, lname), emp_address (house_no, street, city, state, zip), phone_no, dog, age)
2. Construct an ER diagram using Crow's foot notation for car insurance company whose customers own one or more cars. Each car has associated with zero to many numbers of recorded accidents. Each insurance policy covers one or more cars and has one or more premium payment associated due date, and date when the payment was received.

