ERD – Participation Constraints

**Participation Constraints**

The participation constraint specifies the number of instances of an entity can participate in a relationship set.

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**Types of Participation Constraints**

1. Total Participation
2. Partial Participation

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**Total Participation**

The Participation of an entity set E in a relationship set R is said to be **total** if every entity in E participates in at least one relationship in R.

The participation of entity set A in the relationship set is **total** because every entity of A participates in the relationship set.

and

The participation of entity set B in the relationship set is also **total** because every entity of B also participates in the relationship set.
### Partial Participation

The participation of an entity set E in relationship set R is said to be **partial** if only some entities in E participate in relationships in R.

The participation of entity set A in the relationship set is **partial** because only some entities of A participate in the relationship set.  

while  

The participation of entity set B in the relationship set is **total** because every entity of B participates in the relationship set.

In ERD, the total participation is denoted by **doubled-line** between entity set and relationship set and partial participation is denoted by **single line** between entity set and relationship set.

**Participation in R:**  
Partial A  
Total B
**Example:**

Suppose an entity set **Student** related to an entity set **Course** through **Enrolled** relationship set.

The participation of entity set course in enrolled relationship set is **partial** because a course may or may not have students enrolled in. It is possible that only some of the course entities are related to the student entity set through the enrolled relationship set.

The participation of entity set student in enrolled relationship set is **total** because every student is expect to relate at least one course through the enrolled relationship set.

![Diagram](image)

**Participation in Enrolled relationship set:** Partial Course  
Total Student

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**Exercise:**

1. Explain participation constraints using two real life examples and also represent it pictorially.