

# **Attributes to Relationships in ER Model**

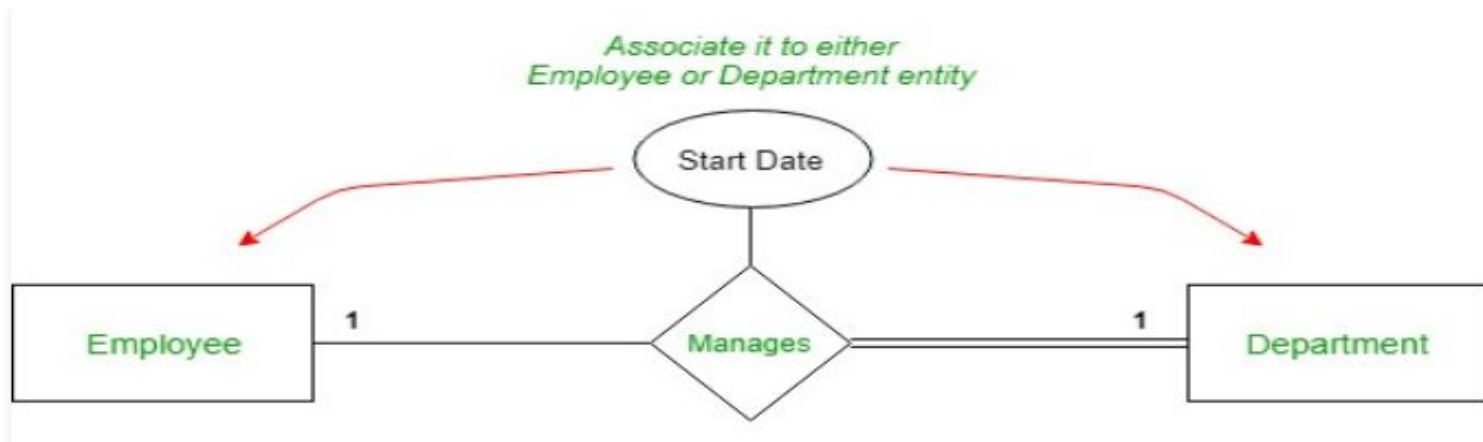
- In ER model, entities have attributes which can be of various types like
  - single-valued, multi-valued, composite, simple, derived and complex.
- But relationships can also have attributes associated to them.
- Generally **it is not recommended to give attributes** to the relationships if not required because while converting the ER model into Relational model,
- things may get complex and we may require to create a separate table for representing the relationship.
- Let us see various cases and when we need to give attributes to the relationship with the help of examples:

# 1. One to one relationship:

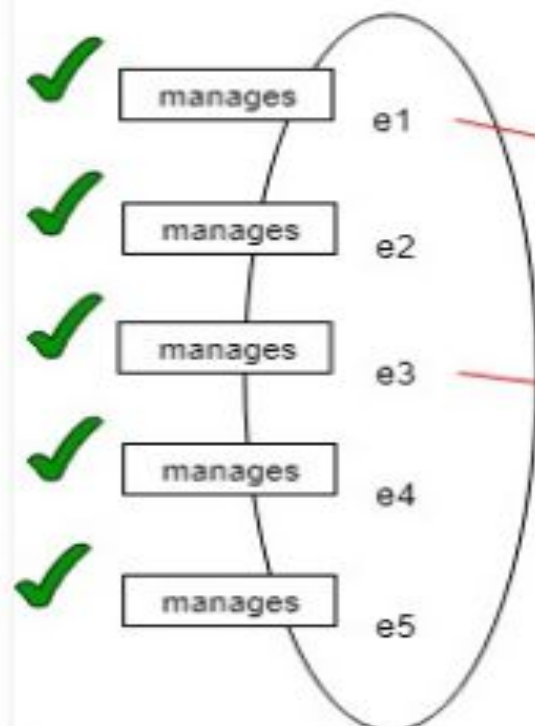
- In an organisation an employee manages a department and each department is managed by some employee. So, there is a total participation of employee to Department entity and there is *one to one* relationship between the given entities.



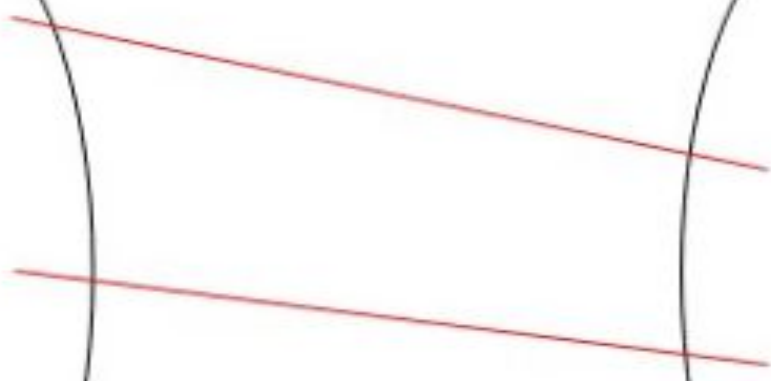
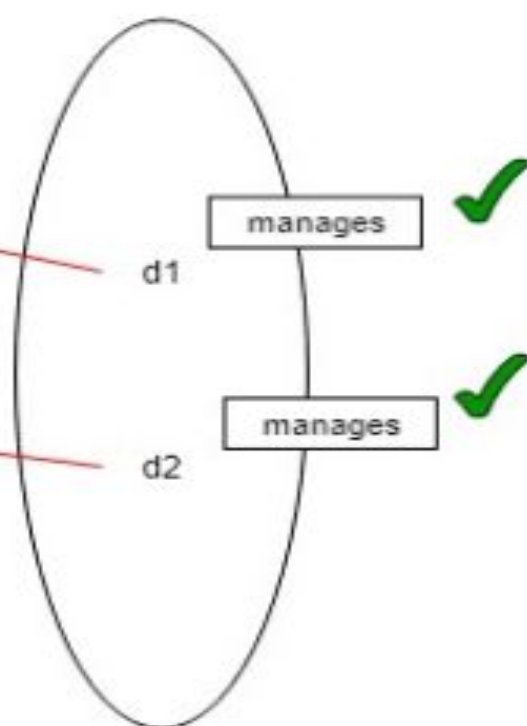
- Now, if we want to store the *Start\_Date* from which the employee started managing the department then we may think that we can give the *Start\_Date* attribute to the relationship *manages*.
- But, in this case we may avoid it by associating the *Start\_Date* attribute to either *Employee* or *Department* entity.



Employee

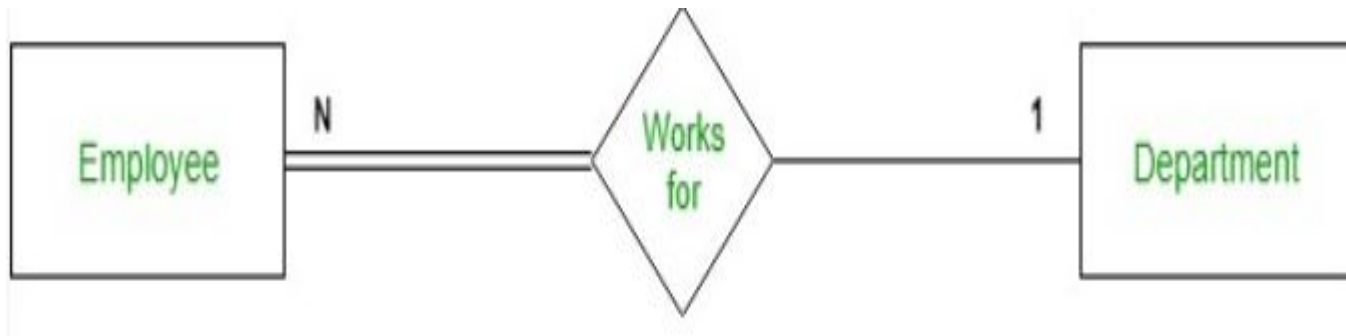


Department

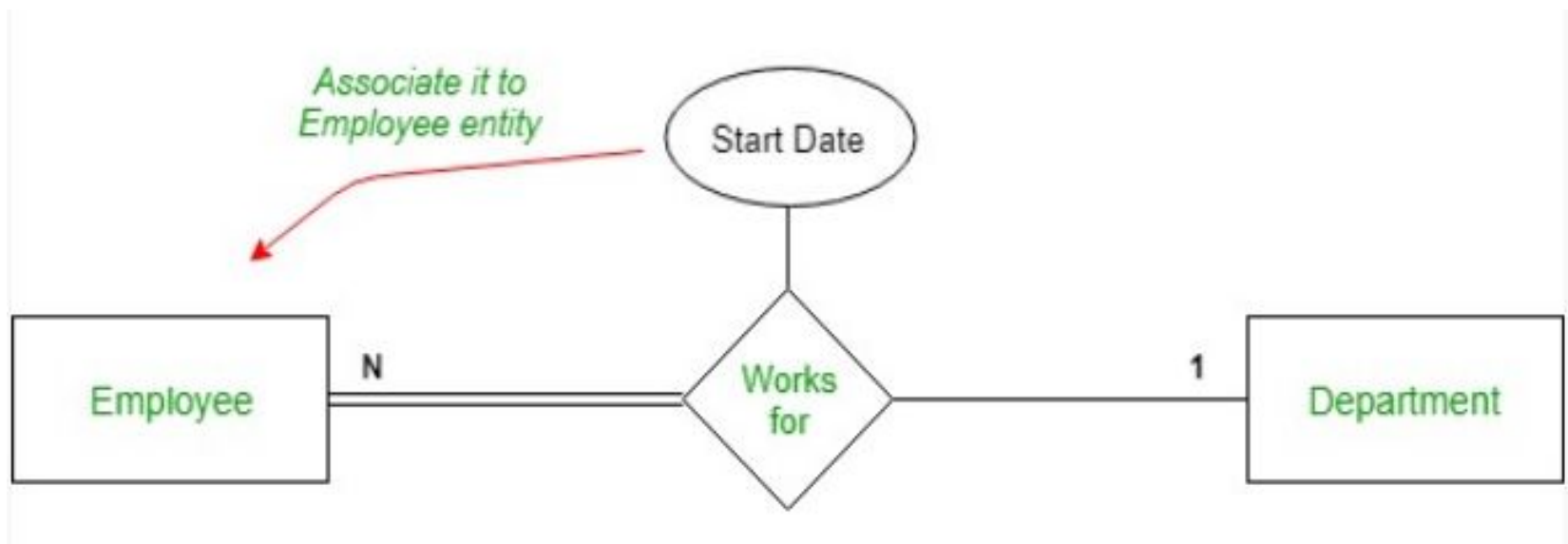


## 2. One to many relationship:

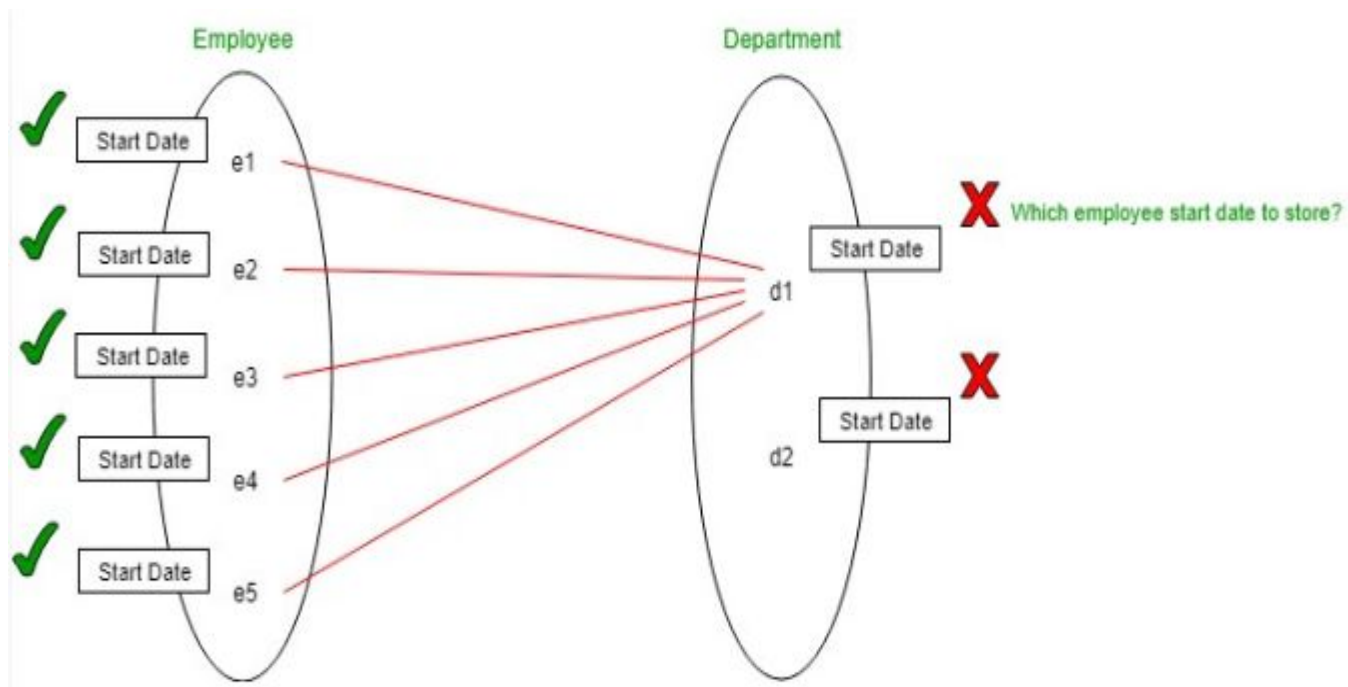
- In an organisation many employees can work for a department but each employee can work for only a single department. So, there is a *one to many* relationship between the entities.



- Now if we want to store the *Start\_Date* when employee started working for the department, then instead of assigning it to the relationship we should assign it to the *Employee* entity.



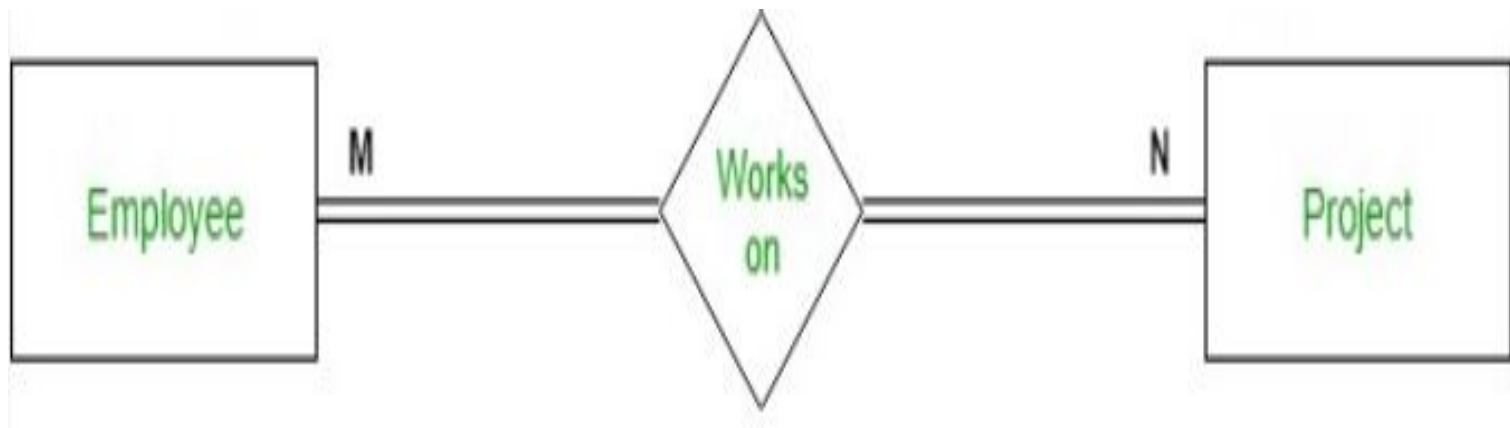
- Assigning it to the *employee* entity makes sense as each employee can work for only single department but on the other hand one department can have many employees working under it and hence, it wouldn't make sense if we assign Start\_Date attribute to Department.



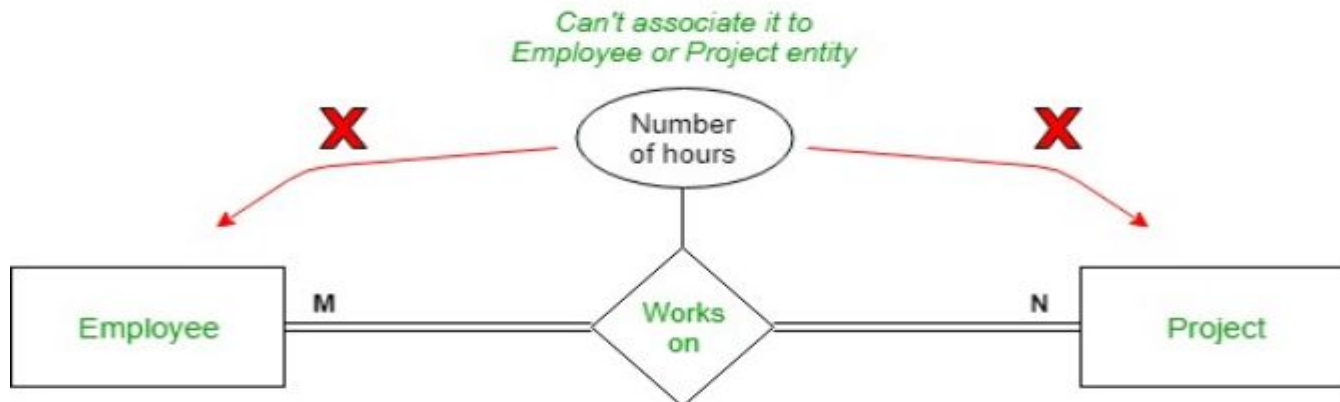


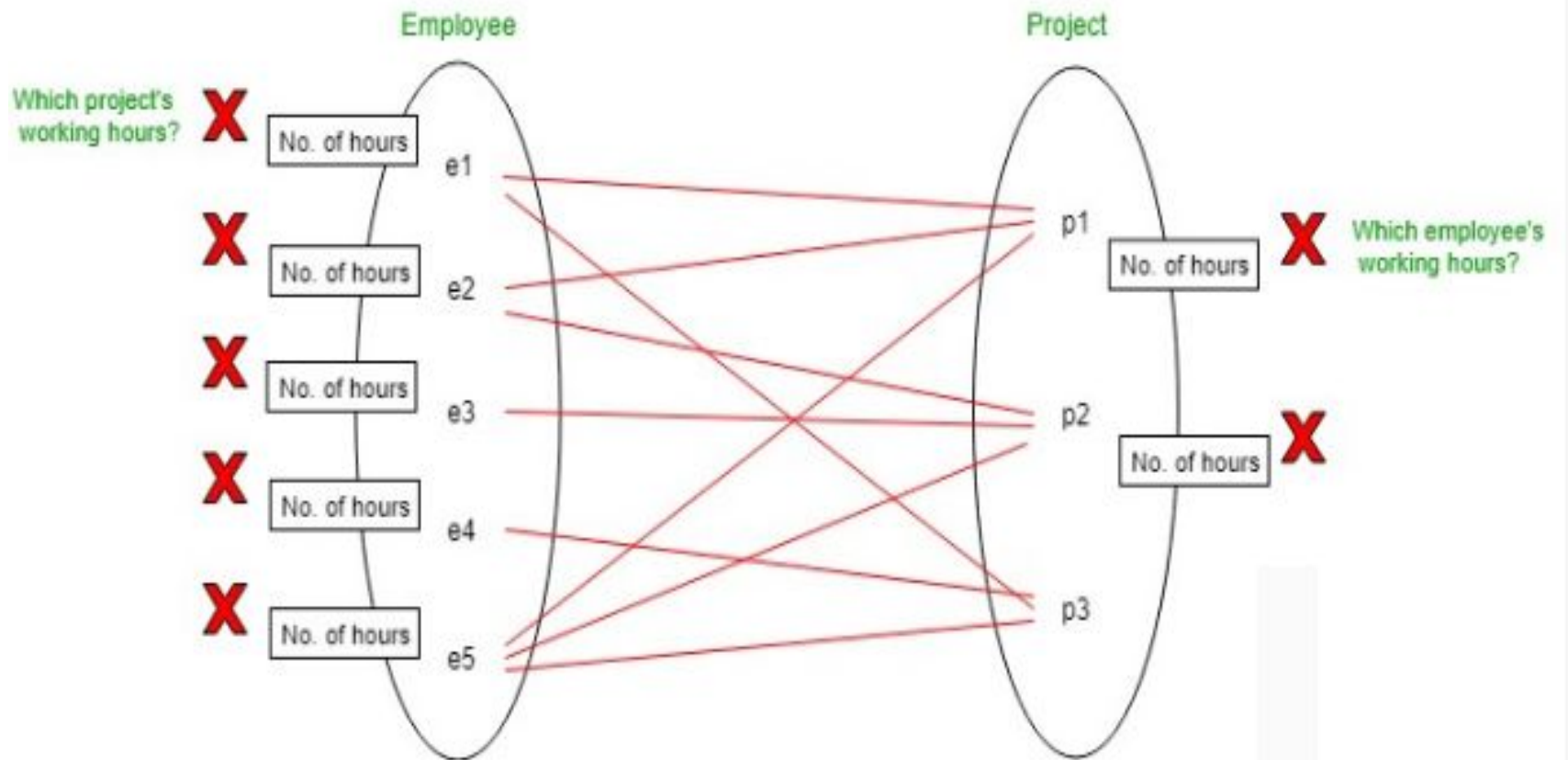
### 3. Many to many relationship:

- In an organisation an employee can work on many projects simultaneously and each project can have many employees working on it.
- Hence, it's a *many to many* relationship.



- So here assigning the *Number\_of\_Working\_hours* to the employee will not work as the question will be that it will store which project's working hours because a single employee can work on multiple projects.
- Similar the case with the *project* entity.
- Hence, we are forced to assign the *Number\_of\_Working\_hours* attribute to the relationship.





- **Conclusion:** Give attributes to a relationship only in the case of **many to many** relationship.