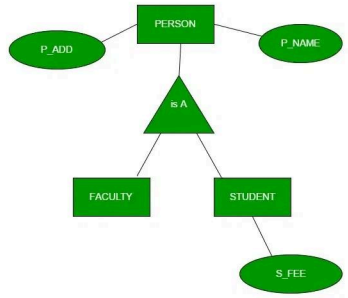
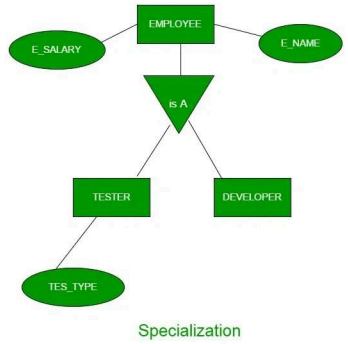
Generalization

Generalization is the process of extracting common properties from a set of entities and creating a generalized entity from it. It is a bottom-up approach in which two or more entities can be generalized to a higher-level entity if they have some attributes in common.



Specialization

In specialization, an entity is divided into sub-entities based on its characteristics. It is a top-down approach where the higher-level entity is specialized into two or more lower-level entities.

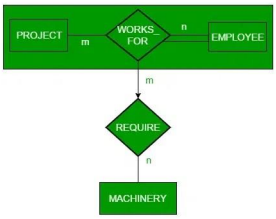


Specialization

Aggregation

An ER diagram is not capable of representing the relationship between an entity and a relationship which may be required in some scenarios. In those cases, a relationship with its corresponding entities is aggregated into a higher-level entity. Aggregation is an abstraction through which we can represent relationships as higher-level entity sets.

For Example, an Employee working on a project may require some machinery. So, REQUIRE relationship is needed between the relationship WORKS_FOR and entity MACHINERY. Using aggregation, WORKS_FOR relationship with its entities EMPLOYEE and PROJECT is aggregated into a single entity and relationship REQUIRE is created between the aggregated entity and MACHINERY.



Aggregation