

## **ASSIGNMENT 1**

### **1. Explain and compare the cardinality of a relationship and the modality of a relationship.**

Within a business environment there are multiple entities, and they are related in one or multiple ways with one another. ERD is one of the ways to represent these relationships in a diagrammatic way. There are many ERD models and Crow's foot notation is one of the various data modeling techniques. This helps the business keep track of multiple instances of data and makes easy to navigate.

Cardinality and Modality are the indicators of business rules around the relationships within that business. Cardinality shows the maximum number of times an instance of entity can be related with other instance in the related entity. Similarly, modality is just about opposite of cardinality which shows the minimum number of relationships. In a Crow's foot notation, a straight line is used to represent the relationship, cardinality appears on the outside end of this relationship line closer to the entity and modality is placed inside near the cardinality symbol. It is important to note that there can be one to one, one to many or many to many and all these are shown with symbols in a Crow's Foot Notation.

### **2. What is intersection data in a many-to-many binary relationship? What does the intersection data describe?**

Although we say that this notation helps us store multiple data and keep track of multiple relationships, it is rather difficult task. In a many to many relationships there are various attributes within an entity that needs to be considered which is also known as Intersection of Entities in a many to many relationships. This rule keeps record of information on attributes that does not fit either of the entities in a many to many relationships. So, such attributes need to be stored in a separate entity which then will be related to both entities and is placed in between with additional attributes. This way many to many relationships becomes two one to many relationships which simplifies things and makes it easy to stores the relationship between the two entities.

### **3. What is an associative entity? How does intersection data relate to an associative entity?**

In a many to many relationships, there is a need to create an intersection or a base relation that separates it to 2 one to many relations. The new entity created to divide this M:M relation is the Associative entity that stores the information on the additional attributes that does not fit the existing entities together. So, we can already see that associative is related to an intersection entity as it is created out of it. Intersection data comprises the attributes of an associative entity. The two attributes that must be added to associative entity are the primary keys of the entities involved in the many-to-many relationship. So, intersection data relates to an associative entity.

**4. Draw an entity-relationship diagram that describes the following business environment.**

