

HOMEWORK - 2

TEAM NUMBER: 12

TEAM MEMBERS:

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ASSIGNED MINIWORLD : (STAR WARS)

https://iiitaphyd-my.sharepoint.com/:b:/g/personal/venika_annam_students_iiit_ac_in/EZdmt0YaDINKg7WCAOcFXZMBnPI8gw0k02X7HDyghysosA?e=XlcRne

Analysis of the assigned MiniWorld

The requirements documented provided missed the following aspects :

1. For “LOCATION” as the weak entity, no identifying relationship was defined with any other entity type.
2. There were no Compound or Multivalued attributes specified in the entire MiniWorld, we have included them in our assumptions.

The following requirements were incorrectly included in the given requirements document :

1. An attribute of an entity cannot be an entity in itself. For example, Planets and Troops being an entity cannot be attributes of the entity character. Similarly, Troop cannot be an attribute of Planet and Planet cannot be an attribute of Location.
2. Alliance cannot be a Primary Key for the entity type Troop as there can be multiple troops that work for a particular Alliance.
3. For the relationship "BELONGS TO", the (min,max) constraint between Planet, Character should be (0,N) as a Planet can consist of upto N Characters.
4. For the relationship "TRAVELS TO", the (min,max) constraint between Character, Location, Planet should be (0,M), (0,N), (0,P) as a Character does not necessarily travel and a Planet or Location is not necessarily be traveled to.
5. For the relationship "KILLS", the (min,max) constraint between Character, Character should be (0,N) and (0,1) because a Character can kill upto N characters, and a character can be killed by either 0 or 1 characters.
6. For the relationship "DESTROYED BY", the (min,max) constraint between Planet, Troop should be (0,1) for a Planet as it can be destroyed at most once and (0,N) for Troop as a Troop can destroy upto N Planets.
7. The attribute "TROOP OF" was changed to "FORMS" as Characters FORM Troops or a Troop is formed by Characters.
8. The relationship "FORM" between Character and Troop is more appropriate than "TROOP OF" as Characters form a Troop, and a Troop is formed by Characters

The ER diagram was difficult to design due to the following reasons :

1. Under the relationship types section, the (min,max) constraint for a particular entity participating in a particular relationship was not clear.
2. Many attributes, relationships, (min,max) constraints were wrong and the rectification is mentioned above.

Assumptions in our modified MiniWorld :

1. For "LOCATION" as the weak entity type, we have defined an identifying relationship "Belongs To" with "PLANET" as "A Location Belongs To a Planet".
2. A Troop does not have to necessarily destroy a Planet.
3. Troop ID is unique for a particular Troop and is thus the Primary Key of Troop.
4. A Planet should consist of at least one Location.
5. It is not necessary that a Character will kill another Character.
6. The incorrect relationship "TROOP OF" between Character and Troop was replaced by "FORM".
7. We can assume the attribute "Weapons" under the entity "Character" to be Multivalued.
8. The attribute "Name" for the entity "Character" can be a Compound attribute consisting of First Name, Middle Name and Last Name.
9. Attributes which are already entities such as Troop, Planet for Character are completely removed, as that information is provided by the relationships between those entities.

ER Model

