UNIVERSIDAD DE PUERTO RICO

RECINTO UNIVERSITARIO DE MAYAGÜEZ

ICOM5016/CIIC4060 - Introduction to Database Systems

Term Project - Backend System for Disaster Site Resource Locator

Phase 2 - Conceptual Design

ER Diagram Report

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Entities

1. **Person -** This entity is in charge of managing the attributes of a person, which can be an administrator, a supplier or a consumer. It is the first in the hierarchy and generalizes common attributes between the ones mentioned before. It has the following attributes:
   a. **pid** - Person id. It is also a primary key with a serial type so that it can be auto generated.
   b. **pfirst_name** - Person's first name. It has a Variable Char type.
   c. **plast_name** - Person's last name. It has a Variable Char type.
   d. **pphone_number** - Person's phone number. It has a Multi Value type.

2. **Administrator -** This entity is in charge of managing the administrator's attributes. This entity only counts with an administrator id because its other attributes are derived from its parent (Person). It has the following attribute:
   a. **aid -** Administrator id. It is also a primary key with a serial type so that it can be auto generated.
   b. **pid -** Person id. It is a foreign key to retrieve information from its parent entity 'Person'.

3. **Supplier -** This entity is in charge of managing the supplier attributes. This entity counts with a supplier id as well as company name. The rest of the attributes are derived from its parent (Person). It has the following attributes:
   a. **sid** - Supplier id. It is a serial primary key.
   b. **scompany_name** - Supplier Company Name. This attribute is utilized to store the suppliers company name.
   c. **pid -** Person id. It is a foreign key to retrieve information from its parent entity 'Person'.

4. **Consumer** - This entity is in charge of managing the consumer attributes. This entity only counts with a customer id because its other attributes are derived from its parent (Person). It has the following attribute:
   a. **cid** - Consumer id. It is also a primary serial key.
   b. **pid -** Person id. It is a foreign key to retrieve information from its parent entity 'Person'.

5. **Order** - This entity is in charge of managing the order attributes. This entity counts with an order id, a supplier id, a resource id and an order type. It has the following attributes:
   a. **oid** - Order id. This is a primary serial key.
   b. **cid** - Consumer id. This is a foreign key from the Consumer Entity.
   c. **rid** - Resource id. This is a foreign key from the Resource Entity.
   d. **pmethod** - Payment method. This attribute indicates the payment method used in the order.

6. **Resource** - This entity is in charge of managing the resource attributes. This entity counts with a resource id, resource quantity, resource type and resource price. It has the following attributes:

a. **rid** - Resource id. This is a primary serial key.
b. **rquantity** - Resource Quantity. This is an integer that keeps track of the amount of a specific resource.
c. **rprice** - Resource price. This is a float that stores the price for the resource.
d. **rlatitude -** This attribute with double precision indicates the latitude of the resource's position.
e. **rlongitude -** This attribute with double precision indicates the longitude of the resource's position.

7. **Baby food -** This entity is charge of managing everything related to baby food. This has the 'Resource' entity as its parent. It has the following attributes:
   a. **tid -** This is the primary key that represents this entity.
   b. **type -** This attribute contains information about the resource specific type.
   c. **rid -** Resource id. This is a foreign key used to retrieve the data of the resource.

8. **Batteries -** This entity is charge of managing everything related to batteries. This has the 'Resource' entity as its parent. It has the following attributes:
   a. **tid -** This is the primary key that represents this entity.
   b. **type -** This attribute contains information about the resource specific type.
   c. **rid -** Resource id. This is a foreign key used to retrieve the data of the resource.

9. **Canned food -** This entity is charge of managing everything related to canned food. This has the 'Resource' entity as its parent. It has the following attributes:
   a. **tid -** This is the primary key that represents this entity.
   b. **type -** This attribute contains information about the resource specific type.
   c. **rid -** Resource id. This is a foreign key used to retrieve the data of the resource.

10. **Clothing -** This entity is charge of managing everything related to clothing. This has the 'Resource' entity as its parent. It has the following attributes:
    a. **tid -** This is the primary key that represents this entity.
    b. **type -** This attribute contains information about the resource specific type.
    c. **rid -** Resource id. This is a foreign key used to retrieve the data of the resource.

11. **Dry food -** This entity is charge of managing everything related to dry food. This has the 'Resource' entity as its parent. It has the following attributes:
    a. **tid -** This is the primary key that represents this entity.

      b. type - This attribute contains information about the resource specific type.

      c. rid - Resource id. This is a foreign key used to retrieve the data of the resource.

12. **Fuel** - This entity is charge of managing everything related to fuel. This has the 'Resource' entity as its parent. It has the following attributes:

      a. tid - This is the primary key that represents this entity.

      b. type - This attribute contains information about the resource specific type.

      c. rid - Resource id. This is a foreign key used to retrieve the data of the resource.

13. **Heavy equipment** - This entity is charge of managing everything related to heavy equipment. This has the 'Resource' entity as its parent. It has the following attributes:

      a. tid - This is the primary key that represents this entity.

      b. type - This attribute contains information about the resource specific type.

      c. rid - Resource id. This is a foreign key used to retrieve the data of the resource.

14. **Ice** - This entity is charge of managing everything related to ice. This has the 'Resource' entity as its parent. It has the following attributes:

      a. tid - This is the primary key that represents this entity.

      b. type - This attribute contains information about the resource specific type.

      c. rid - Resource id. This is a foreign key used to retrieve the data of the resource.

15. **Medical devices** - This entity is charge of managing everything related to medical devices. This has the 'Resource' entity as its parent. It has the following attributes:

      a. tid - This is the primary key that represents this entity.

      b. type - This attribute contains information about the resource specific type.

      c. rid - Resource id. This is a foreign key used to retrieve the data of the resource.

16. **Medications** - This entity is charge of managing everything related to medications. This has the 'Resource' entity as its parent. It has the following attributes:

      a. tid - This is the primary key that represents this entity.

      b. type - This attribute contains information about the resource specific type.

      c. rid - Resource id. This is a foreign key used to retrieve the data of the resource.

17. **Power generator** - This entity is charge of managing everything related to power generator. This has the 'Resource' entity as its parent. It has the following attributes:
    a. **tid** - This is the primary key that represents this entity.
    b. **type** - This attribute contains information about the resource specific type.
    c. **rid** - Resource id. This is a foreign key used to retrieve the data of the resource.
18. **Tools** - This entity is charge of managing everything related to tools. This has the 'Resource' entity as its parent. It has the following attributes:
    a. **tid** - This is the primary key that represents this entity.
    b. **type** - This attribute contains information about the resource specific type.
    c. **rid** - Resource id. This is a foreign key used to retrieve the data of the resource.
19. **Water** - This entity is charge of managing everything related to water. This has the 'Resource' entity as its parent. It has the following attributes:
    a. **tid** - This is the primary key that represents this entity.
    b. **type** - This attribute contains information about the resource specific type.
    c. **rid** - Resource id. This is a foreign key used to retrieve the data of the resource.
20. **Request** - This entity manages the requests for an article that is currently not available. It has the following attributes:
    a. **rqid** - Request id. This is the primary key of the entity.
    b. **cid** - Consumer id. This is a foreign key used to retrieve the data of the consumer requesting a certain resource.
    c. **rid** - Resource id. This is a foreign key used to retrieve the data of the resource being requested.

Relationships
1. **Manages** - This relationship is between a person and an administrator. It has a one-to-many relationship. This is because one administrator can manage many persons but not vice versa.
2. **Is a** - This relationship is between two sets of entities. This relationship is linked between the following entities: Person, Administrator, Supplier and Consumer. In all cases it is a one-to-one relationship.
3. **Supplies** - This is a relationship between a supplier and a resource. It is a many-to-many relationship. This is because many suppliers can supply many resources. At the same time, many resources can be supplied by a number of suppliers.

4. **Places -** This relationship is between a consumer and an order. This is a one-to-many relationship because a consumer can place many orders but a specific order must have just a consumer linked to it.
5. **Belongs -** This relationship is one between a resource and an order. It is a many-to-many relationship because many resources can be present in many orders and at the same time, many orders can have different resources linked to it.