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**APPLIED DATABASE MANAGEMENT**

**Project Part One**

# Submitted To,

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**Entities**:

The following are the entitles we identified in the UFO use case.

1. **Customer** – A very important entity for UFO is customer. Its attributes are Customer account numbers, billing address, delivery address.

2. **Truck** – Tuck is used to deliver the orders made by a customer. Its attributes are vehicle number, license plate number, license expiration date, and inspection expiration date.

3. **Driver** – Driver, delivers the orders in a tuck. Its attributes are license number and license expiration date.

4. **Employee** – An Employee is responsible for the order made by a customer to be packaged and delivered correctly. Its attributes are social security number, name, address, and phone.

5. **Item** – Each customer may order one or multiple items. Its attributes are type, quantity in stock, item code.

6. **Orders** – Orders are given by customers. They may be delivered all together or in parts called shipments. Its attribute is number of shipments.

7. **SalesRep** – takes the order from the customer

8. **Shipment** – large orders are broken down as shipments.

**Relationship Matrix:**

The matrix below shows the relationship between entities mentioned above.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Entity** | **Customer** | **Truck** | **Driver** | **Employee** | **Item** | **Order** | **Shipment** | **Sales Rep** |
| **Customer** |  |  |  |  |  | places |  |  |
| **Truck** |  |  | is driven by |  |  |  | delivers |  |
| **Driver** |  | drives |  | is a kind of |  |  |  |  |
| **Employee** |  |  | can be a |  |  |  |  | can be a |
| **Item** |  |  |  |  |  | Is a part of |  |  |
| **Order** | placed by |  |  |  | includes |  | broken into | Taken by |
| **Shipment** |  | Delivered by |  |  |  | contains |  |  |
| **Sales Rep** |  |  |  | Is a kind of |  | takes |  |  |

**Business Rules:**

The following are the business rules we identified during our observation of this use case:

Customer:

1. Each Customer always places one or more Orders.

Each Order is always placed by one Customer.

Truck:

1. Each Truck is always driven by one Driver.

Each Driver always drives one Truck.

1. Each Truck always delivers one or more Shipments.

Each Shipment is always delivered by one Truck.

Driver:

1. Each Driver always drives one Truck.

Each Truck is always driven by one Driver.

1. Driver is always an Employee.

An Employee is sometimes a Driver.

Employee:

1. An Employee is sometimes a Driver.

Each Driver is always an Employee.

1. An Employee is sometimes a SalesRep.

Each SalesRep is always an Employee.

Item:

1. Each Item is sometimes part of one or more Orders.

Each Order always includes one or more Items.

Order:

1. Each Order is always placed by one Customer.

Each Customer always places one or more Orders.

2. Each Order always includes one or more Items.

Each Item is sometimes a part of one or more Orders.

1. Each Order is always taken by one SalesRep.

Each Sales Rep always takes one or more Orders.

1. Each Order always breaks into one or more Shipments.

Each Shipment always contains one Order.

Shipment:

1. Each Shipment is always delivered by one Truck.

Each truck sometimes delivers one or more Shipments.

1. Each Shipment is always an Order.

Each Order always broken into one or more Shipments.

SalesRep:

1. SalesRep is always an Employee.

An Employee is sometimes a SalesRep.

1. Each SalesRep always takes one or more Orders.

Each Order is always taken by one SalesRep.

**Supertype – Subtype:**

The following are the supertype- subtype relations we found in the UFO use case.

Employee – Driver and Employee - SalesRep.

* 1. Driver is a kind of Employee.

Employee can be a Driver.

* 1. SalesRep is a kind of Employee.

Employee can be a SalesRep.