**LAB 07**

We can identify the following entities, attributes, relationships, and their cardinalities:

**Entities:**

1. **Supplier:**

**Attributes:** SupplierID (Primary Key), Name, Contact Information

1. **Product:**

**Attributes:** ProductID (Primary Key), Name, Description, Category

1. **Category (WEAK ENTITY)**
2. **Customer:**

**Attributes:** CustomerID (Primary Key), Name, Contact Information

1. **Order:**

**Attributes:** OrderID (Primary Key), Date, Status

1. **Employee (Salesman):**

**Attributes:** EmployeeID (Primary Key), Name, Contact Information

1. **Shipper:**

**Attributes:** ShipperID (Primary Key), Name, Contact Information

**Relationships and Cardinalities:**

* **Supplier to Product:**
* A supplier can supply multiple products (1:N relationship).
* **Product to Category:**

A product belongs to one category, but a category can have multiple products (M:1 relationship).

* **Customer to Order:**

A customer can place multiple orders, but each order belongs to only one customer (1:N relationship).

* **Order to Product:**

An order can contain multiple products, and a product can be part of multiple orders (M:N relationship).

* **Employee (Salesman) to Order:**

An employee can handle multiple orders, but each order is handled by only one employee (1:N relationship).

* **Order to Shipper:**

An order can be shipped by one shipper, but a shipper can handle multiple orders (M:1 relationship).

* **Customer to Employee (Salesman):**

A customer can interact with multiple employees (M:N relationship).

* **Order to Supplier:**

An order can be associated with the supplier who supplied the products for that order. This relationship is based on the products included in the order.

* **Employee (Salesman) to Shipper:**

An employee (salesman) may consult with one or more shippers for order shipments (M:N relationship).

**Summary:**

This analysis identifies the main entities involved in the retail superstore scenario, along with their attributes, relationships, and cardinalities. The identified entities include Supplier, Product, Category, Customer, Order, Employee (Salesman), and Shipper. The relationships capture the interactions and associations between these entities, facilitating the tracking of product supply, customer orders, employee involvement, and order shipments within the superstore environment. In this ERD reports and category are the weak entities shown by double rectangle.

