***ONLINE SUPPLY CHAIN MANAGEMENT SYSTEM***

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| Group No. | 9 |
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| Course Name | Database Management System |
| Course ID | CSE-4307 |
| Semester Info | 3rd Semester(2\_1) |
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**Entities :**

**1. Customer**

* **Primary Key**: Customer\_ID (PK)
* **Attributes**:
  + Customer\_Name
  + Phone\_Number
  + Email
  + Shipping\_Address
* **Relationship**: **Places** (1 to N relationship with Order)

**2. Order\_Product**

* **Primary Key**: Order\_ID (PK)
* **Attributes**:
  + Order\_Date
  + Order\_Status
  + Customer\_ID (FK)
* **Relationship**:
  + **Places** (N to 1 relationship with Customer)
  + **Contains** (N to M relationship with Product)

**3. Product**

* **Primary Key**: Product\_ID (PK)
* **Attributes**:
  + Product\_Name
  + Price
  + Stock\_Quantity
  + Category\_ID (FK)
* **Relationship**:
  + **Contains** (N to M relationship with Order)
  + **Belongs\_To** (1 to N relationship with Category)

**4. Category**

* **Primary Key**: Category\_ID (PK)
* **Attributes**:
  + Category\_Name
  + Description
* **Relationship**: **Belongs\_To** (1 to N relationship with Product)

**5. Supplier**

* **Primary Key**: Supplier\_ID (PK)
* **Attributes**:
  + Supplier\_Name
  + Supplier\_Location
  + Supplier\_Phone
* **Relationship**:
  + **Supplies** (1 to N relationship with Product)
  + **Delivers\_To** (1 to N relationship with Warehouse)

**6. Warehouse**

* **Primary Key**: Warehouse\_ID (PK)
* **Attributes**:
  + Warehouse\_Location
  + Capacity
  + Manager\_ID (FK)
* **Relationship**:
  + **Delivers\_To** (N to 1 relationship with Supplier)
  + **Stores** (1 to N relationship with Inventory)

**7. Inventory**

* **Primary Key**: Inventory\_ID (PK)
* **Attributes**:
  + Stock\_Level
  + Product\_ID (FK)
  + Warehouse\_ID (FK)
* **Relationship**:
  + **Stores** (N to 1 relationship with Warehouse)
  + **Tracks** (1 to N relationship with Product)

**8. Manager**

* **Primary Key**: Manager\_ID (PK)
* **Attributes**:
  + Manager\_Name
  + Email
  + Phone\_Number
  + Warehouse\_ID (FK)
* **Relationship**: **Manages** (1 to 1 relationship with Warehouse)

**9. Shipment**

* **Primary Key**: Shipment\_ID (PK)
* **Attributes**:
  + Shipment\_Date
  + Delivery\_Date
  + Order\_ID (FK)
  + Warehouse\_ID (FK)
* **Relationship**:
  + **Ships** (N to 1 relationship with Order)

**10. Delivery\_Agent**

* **Primary Key**: Agent\_ID (PK)
* **Attributes**:
  + Agent\_Name
  + Agent\_Phone
  + Company
* **Relationship**: **Delivers** (1 to N relationship with Shipment)

**11. Invoice**

* **Primary Key**: Invoice\_ID (PK)
* **Attributes**:
  + Invoice\_Amount
  + Invoice\_Date
  + Order\_ID (FK)
* **Relationship**: **Issues** (N to 1 relationship with Order)

**Total Participation:**

* Customer – Order : A customer must have at least one
* Order – Product : An order must contain one or more products
* Supplier – Product : A supplier must supply at least one product
* Warehouse – Inventory : A warehouse must store inventory items
* Manager – Warehouse : A warehouse must have a manager
* Shipment – Delivery\_Agent : A shipment must be done by a delivery agent

**Partial Participation:**

* Product – Category : Not every product belongs to a category
* Supplier – Warehouse : Not every supplier delivers products to a warehouse
* Inventory – Product : Not every product is tracked in inventory
* Order – Shipment : Not every order has a shipment
* Delivery Agent – Shipment : Not every shipment is delivered by a delivery agent

**\*\*All Entities present in here are STRONG enitities\*\***