# Database Management Systems

# COP5725

*Online Customer Sales Management*

*Project Phase- III*
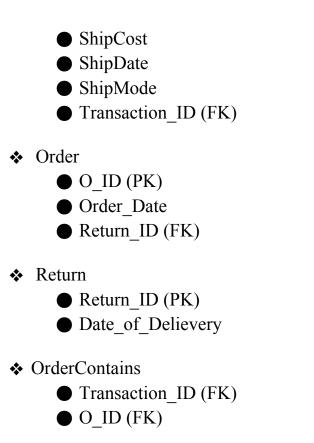
## ENTITIES AND ATTRIBUTES DEFINED

❖ (a) Person
- ● Email (PK)
- ● Name
- ● Phone Number

(b) Head ( IS A Person)

(c) Customer ( IS A PERSON)
- CustomerSegment
- Province
- Region
- Regional_Manager_Email (FK)

(d) Regional Manager (IS A Person)
- Region
- Supervisor_Head_Email (FK)

❖ Credentials ( Head HAS )
- Username (PK)
- Head_Email (FK)
- Password

❖ Orders
- Customer_Email (FK)
- O_ID (FK)

❖ Product
- Transaction_Id (PK)
- P_Name
- Container
- OrderPriority
- Sales
- Discount
- Profit
- Per_Unit_Cost
- Category
- SubCategory
- OrderQuantity
- BaseMargin

❖ Shipping
- Shipment_ID (PK)

- ● ShipCost
- ● ShipDate
- ● ShipMode
- ● Transaction_ID (FK)

- ❖ Order
  - ● O_ID (PK)
  - ● Order_Date
  - ● Return_ID (FK)

- ❖ Return
  - ● Return_ID (PK)
  - ● Date_of_Delievery

- ❖ OrderContains
  - ● Transaction_ID (FK)
  - ● O_ID (FK)

# *RELATIONSHIPS AND CARDINALITIES*

**1.Supervises**
Entity 'Head' and 'Regional Manager' participates in Supervises relationship
**Cardinality**: 1:n
Since a head can supervise multiple Regional Managers, thus its cardinality is one to many. We are adding primary key of Head as foreign key of Regional Manager.

**2. Deals With**
Entity 'Regional Manager' and 'Customer' participates in Deals With Relationship
**Cardinality**: 1:m
A regional manager si in the capacity to deal with multiple customers, thus it ah been assigned as one to many cardinality.

### 3. Orders

Entities 'Customer' and 'Order' are associated with Orders Relationship

**Cardinality**: m:n

Any number of customers can place multiple orders and same type of order can be placed by multiple customers, hence cardinality of m:n has been assigned to it.

### 4. Return Required:

Entities 'Order' and 'Return' participates in relationship Return required

**Cardinality:** m:1

Multiple orders can be returned at one type while only return is entertained at one time. This gives it a cardinality of m:1.

### 5. Deliver

Entities 'Product' and 'Shipping' participated in Delivery Relationship.

**Cardinality**：1：1

One product can be shipped at one time and similarly shipping details can be associated with one product only. Thus it is a one to one relationship.

# *DATABASE SCHEMA*

- Product ( <u>Transaction_ID</u>, P_name, Container, Order_Priority, Sales, Discount, Profit, Per_unit_Cost, Category, Sub_Category, Order_Quantity, Base Margin)
- Shipping(ShipCost, ShipDate, <u>Shipment_ID</u>, ShipMode)
  - ○ *Foreign Key*: Transaction_ID
- Customer(<u>Email,</u> Region, Province, Customer_Segment)
  - ○ *Foreign Key*: Regional_Manager_Email
- Order(<u>O_ID</u>, Order_Date)
  - ○ *Foreign Key*: Return_ID
- Return( Date_of_Delievery, <u>Return_Id</u>)

● Person (<u>Email</u>, Name, Phone_No)
● Orders (<u>O_ID, Customer_Email</u>)
　　○ *Foreign Keys*: O_ID, Customer_Email
● Regional Manager (<u>Email</u>,Region)
　　○ *Foreign Key*: Supervisor_Head_Email
● Credentials (Password,<u>Username</u>)
　　○ *Foreign Key*: Head_Email
● OrderContains ( <u>Transaction_ID, O_ID</u>)
　　○ *Foreign Key*: Transaction_ID, O_ID

# *SQL Queries*

❖ Create table **Product(**

```
Transaction_ID        VARCHAR2(8) PRIMARY KEY NOT NULL,
P_Name                VARCHAR2(20)    ,
Container             VARCHAR2(20) CONSTRAINT  Container_Check
CHECK  (Container in ( 'SmallBox',
'MediumBox','LargeBox',JumboBox' )) ,

Order_Priority  VARCHAR2(20) CONSTRAINT Order_Priority_Check
CHECK  (Order_Priority in ( 'Low',     'High','Medium','Not
Specified' )) ,
Sales                 VARCHAR2(20)  ,
Discount              NUMBER(5,2)        ,
Profit                NUMBER (7,4)  ,
Per_unit_Cost    NUMBER (5,2)   ,
Category         VARCHAR2(20) CONSTRAINT Category_Check CHECK
(Category in ( 'Customer', 'Business' )) ,

Sub_Category     VARCHAR2(20)   ,
Order_Quantity   NUMBER                    ,
BaseMargin            NUMBER (4,2)
);
```

❖ Create table **Shipping(**

```
Shipment_ID            PRIMARY KEY NOT NULL,
ShipCost               VARCHAR2(15),
shipMode               VARCHAR2(10)CONSTRAINT ShipMode_Check CHECK
(ShipMode in ( 'Regular Air', 'Delivery Truck' )) ,
Ship_Date        DATE,
FOREIGN KEY (Transcation_Id) References Product (Transcation_Id)
);
```

❖ create table **Person**(
```
Email                 VARCHAR2(30)   PRIMARY KEY,
Name                  VARCHAR2(20)   NOT NULL,
Phone_No  VARCHAR(20)
);
```

❖ Create table **Credentials**(
```
Password       VARCHAR2(20),
Username       VARCHAR(20) PRIMARY KEY,
FOREIGN KEY (Head_Email) References Person (Email)

);
```

❖ Create table **Customer**(
```
Email                 VARCHAR(30) PRIMARY KEY
Region                VARCHAR(40),
Province              VARCHAR(25),
CustomerSegment VARCHAR (10) CONSTRAINT CustomerSegment_Check CHECK
(CustomerSegment in ( 'Small Business', 'Consumer', 'Corporate','Home
Office' )) ,
FOREIGN KEY (Regional_Manager_Email) References Regional Manager
(Email)
);
```

❖ Create table **Return**
```
(
Return_Id NUMBER          PRIMARY KEY,
Date_of_Delievery        DATE
);
```

❖ Create table **Order**
```
(
```

```
 O_ID                  NUMBER PRIMARY KEY,
 Order_Date            DATE
FOREIGN KEY (O_Id) References Return (Return_Id)),
);
```

❖ Create table **OrderContains**
```
(
    Transcation_ID NUMBER,
    O_ID NUMBER,
    PRIMARY KEY(O_ID, Transcation_ID),
    FOREIGN KEY (O_Id) References Order (O_ID)),
    FOREIGN KEY (Transcation_ID) References
Product(Transcation_ID)
);
```

❖ Create table **Orders**
```
(
    O_ID NUMBER,
    Customer_Email varchar2,
    PRIMARY KEY(O_ID, Customer_Email),
    FOREIGN KEY (O_Id) References Order (O_ID)),
    FOREIGN KEY (Customer_email) References Customer (Email)
);
```

## *Group 13 - Member Details*

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