

INDIAN INSTITUTE OF TECHNOLOGY INDORE

B.Tech. (CSE) Minor Project: CS207

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FDX: ER Analysis for Identification of Entity and Relationship Sets

Entity Relation for New Customer Registration

1. Customer (E):
 - Registration ID
 - Full Name
 - Mobile Number
 - Email Id
 - Address

Entity Relation for Product-Category

1. Product(E)
 - Product Name
 - Product ID
 - Product Description
 - Unit Price
 - Unit Weight
 - Discount
 - Picture
 - Supplier ID
2. Category(E)
 - Category name
 - Category ID
 - Picture
 - Description
3. Belongs To (R)
 - A relation between Product and Category

Entity Relation for Ordering

1. Order (E)
 - Order Number
 - Order Date

- Shipper ID
- 2. Shipper (E)
 - Shipper ID
 - Shipper Name
 - Mobile Number
- 3. Billing Information (E)
 - Billing ID
 - Billing Address
 - Billing Date
- 4. Generates (R)
- 5. Shipped By (R)

Entity Relation for Order Supply

- 1. Supplier (E)
 - Supplier ID
 - Supplier Name
 - Mobile Number
- 2. Product(E)
 - Product Name
 - Product ID
 - Product Description
 - Unit Price
 - Unit Weight
 - Discount
 - Picture
 - Supplier ID
- 3. Supplied By (R)

Entity Relation between Cart and Customer

- 1. Cart (WE)
 - Product IDs
 - Quantity of Products
 - Total Cost
- 2. Customer (E):
 - Registration ID
 - Full Name
 - Mobile Number
 - Email Id
 - Address

3. Has product in cart (R)

This is a relationship between weak entity set 'Cart' and strong entity set 'Person'.

Each customer has his/her cart which keeps the previously added products saved in the cart.

Entity Relation for placing an Order

1. Customer (E):

- Registration ID
- Full Name
- Mobile Number
- Email Id
- Address

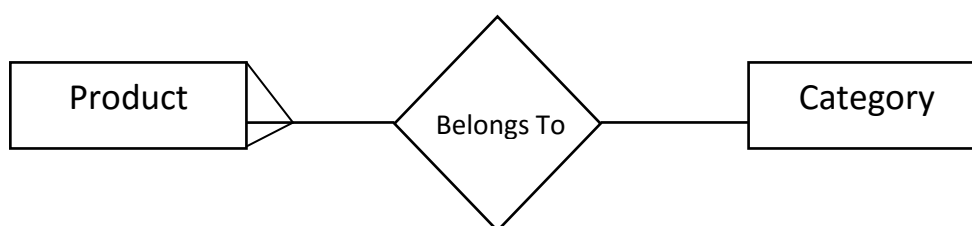
2. Order (E)

- Order Number
- Order Date
- Shipper ID

3. Places (R)

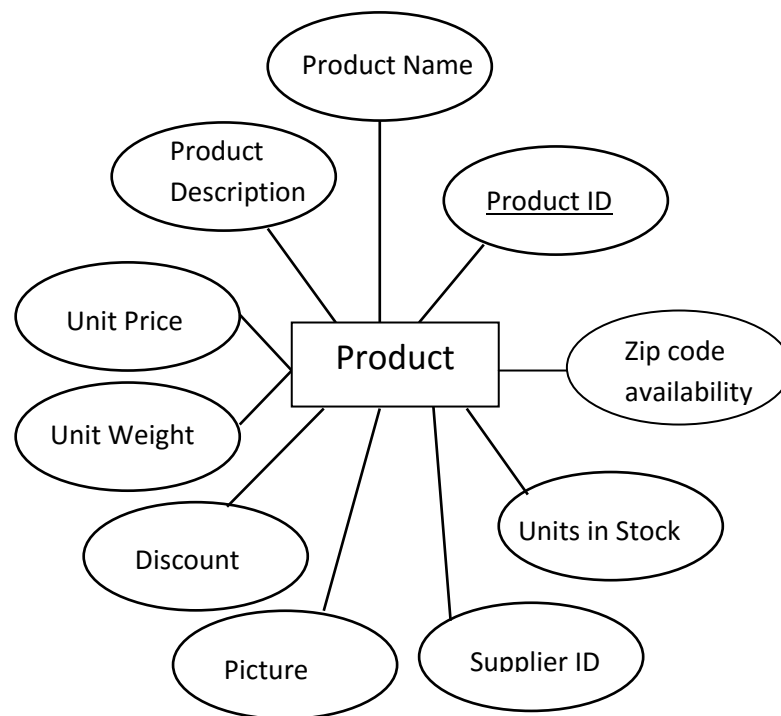
ER Diagrams

1. ER Diagram for Product Categories



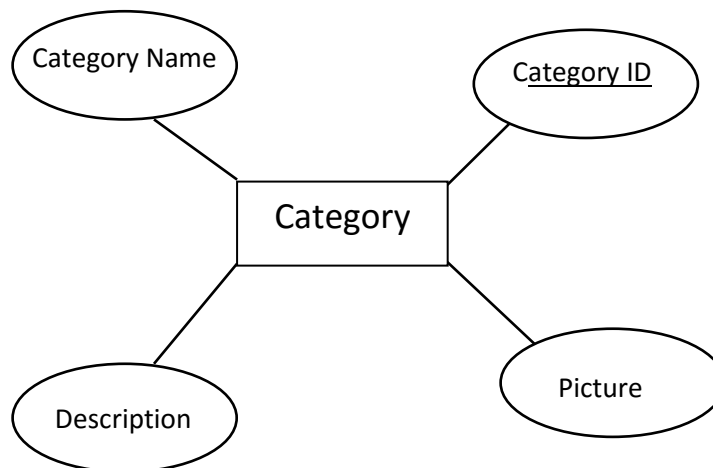
Products belong to category. Categories are based on regions and hence are exclusive i.e. one product can't belong to multiple categories. However one category can contain multiple products. Therefore this relationship is one-many relationship.

2. Attributes of Product

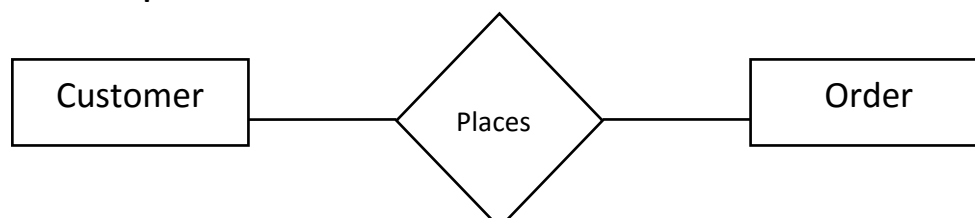


Product has a number of attributes which provide general information about the product. ZIP Code Availability attribute is added to provide utility to customers to check if a particular product is available in their locality or not.

3. Attributes of Category

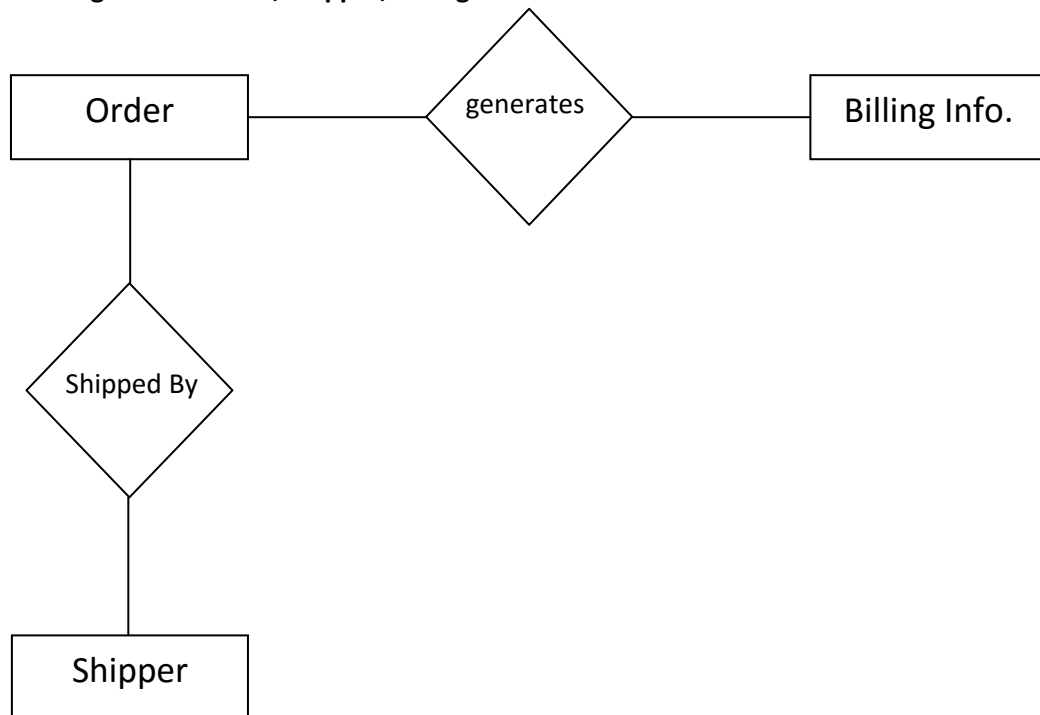


4. Relationship between Customer and Order



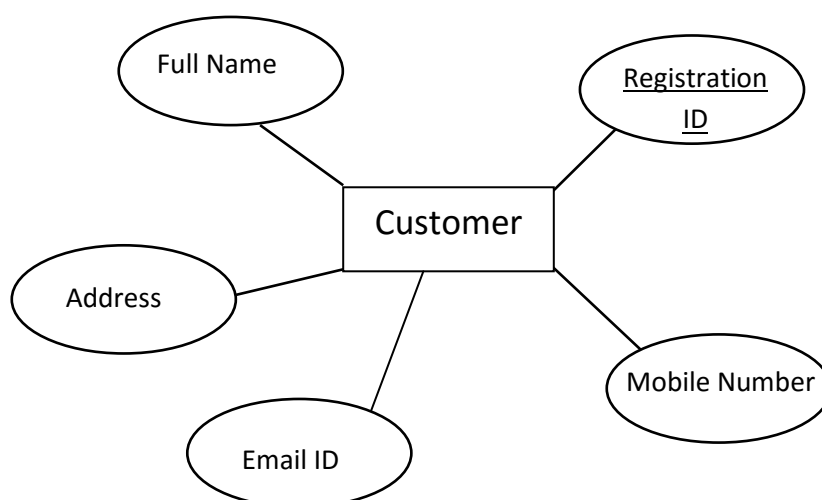
This is the relationship between Customer and Order. When the customer clicks on 'Place Order' button, the cost, description and other details are actually fetched from the cart. However this process is not depicted in the diagram as it is an operational process.

5. ER Diagram for Order, Shipper, Billing Info.



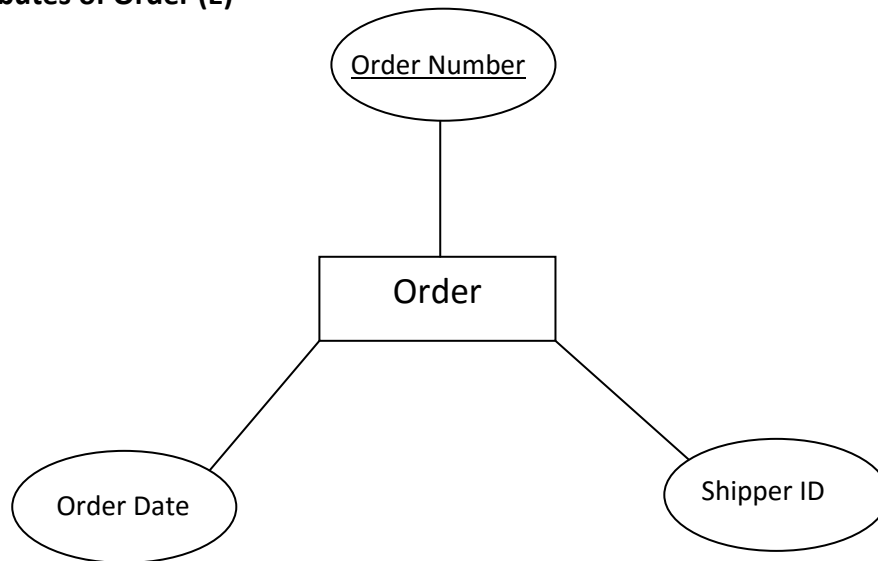
Each order is shipped by a shipper and has billing information. Therefore these entity sets are related as depicted in the ER diagram. Since each order has one billing information and a single shipper, both the relationships are one-one.

6. Attributes of Customer (E)



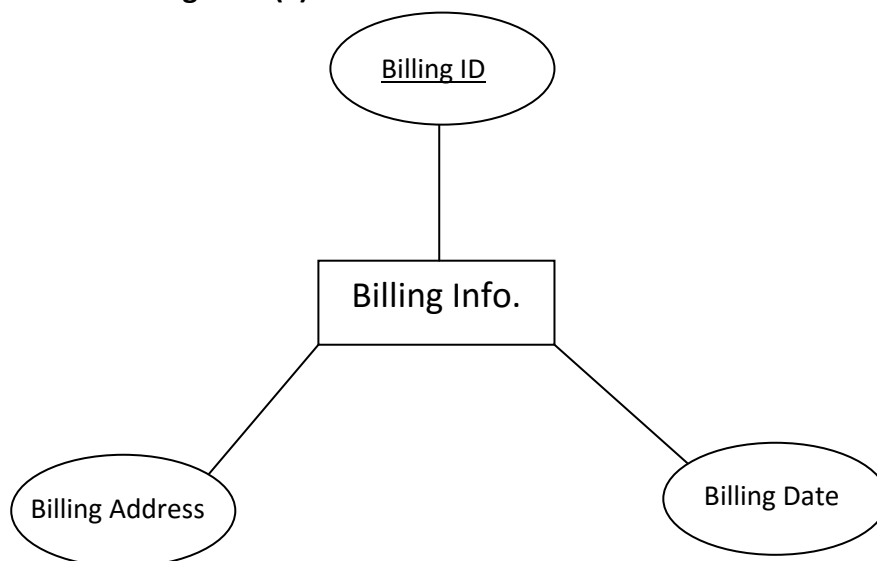
The Customer entity set contains information of all the registered users of our web service. The attributes contain all information required for online purchase and other utilities.

7. Attributes of Order (E)



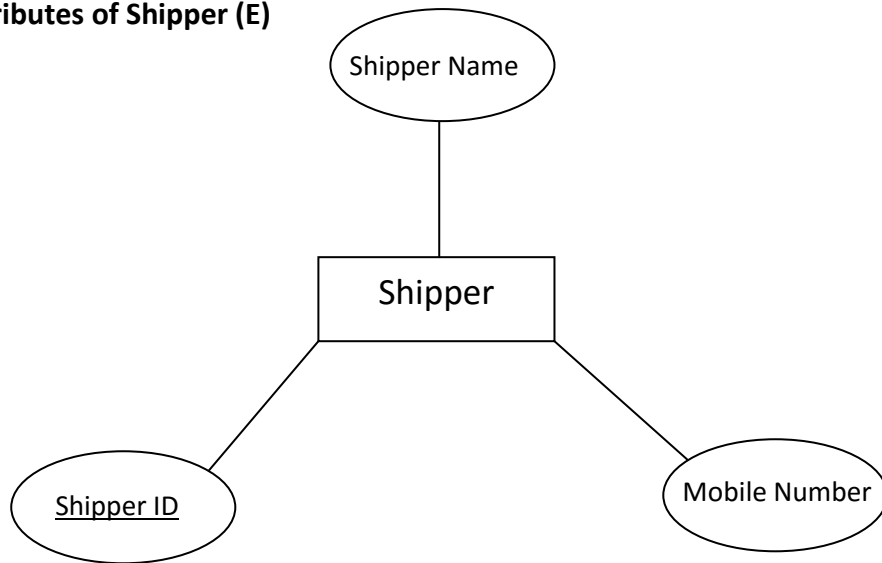
The above diagram depicts the attributes of the entity set 'Order'. Order has a unique 'Order Number' (primary key). Order also has attributes 'Shipper ID' and 'Order Date'. These attributes help in tracking of order (which is a utility provided in our website).

8. Attributes of Billing Info. (E)



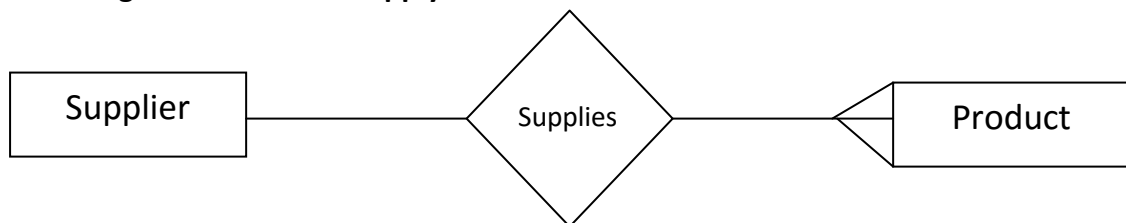
Billing Info. has attributes 'Billing Address', 'Billing Date' and 'Billing ID'. All these are the basic requirements for generating a bill and completing an order.

9. Attributes of Shipper (E)



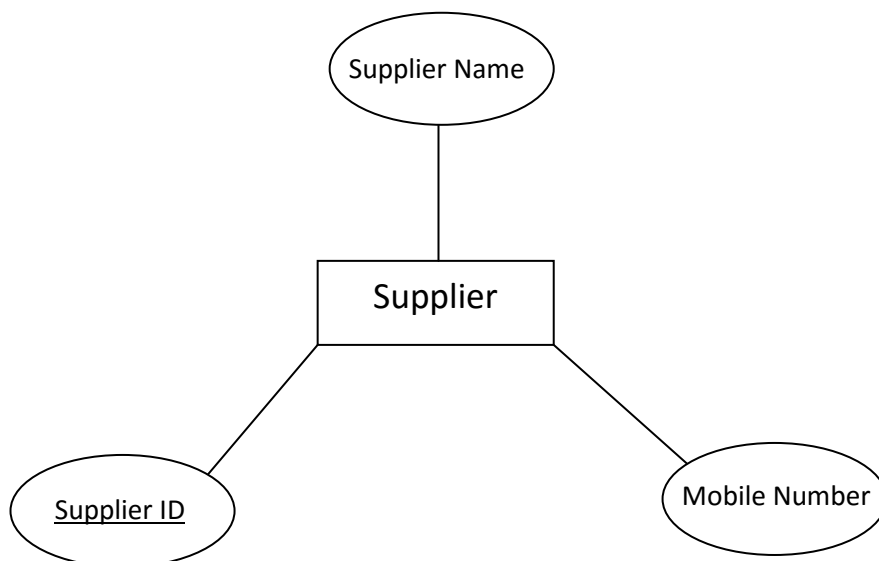
Each shipper has a unique Shipper ID. Name of the shipping company and their contact information (mobile number) are other attributes. Shipper ships the order. Since order contains the billing information, shipper gets the billing address and other details required to ship the product.

10. ER Diagram for Product Supply



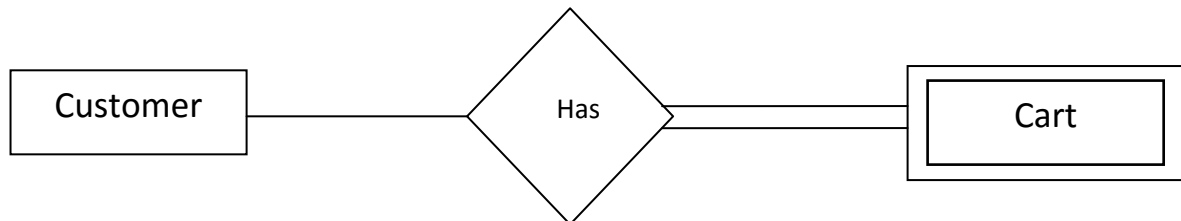
Supplier supplies the product. Since one supplier may supply multiple products, but each product will have only one supplier (as per our model), this is a one-many relationship.

11. Attributes of Supplier (E)



Each supplier has a unique Supplier ID which allows us to uniquely identify a supplier among all other suppliers. The other details include contact information (mobile number).

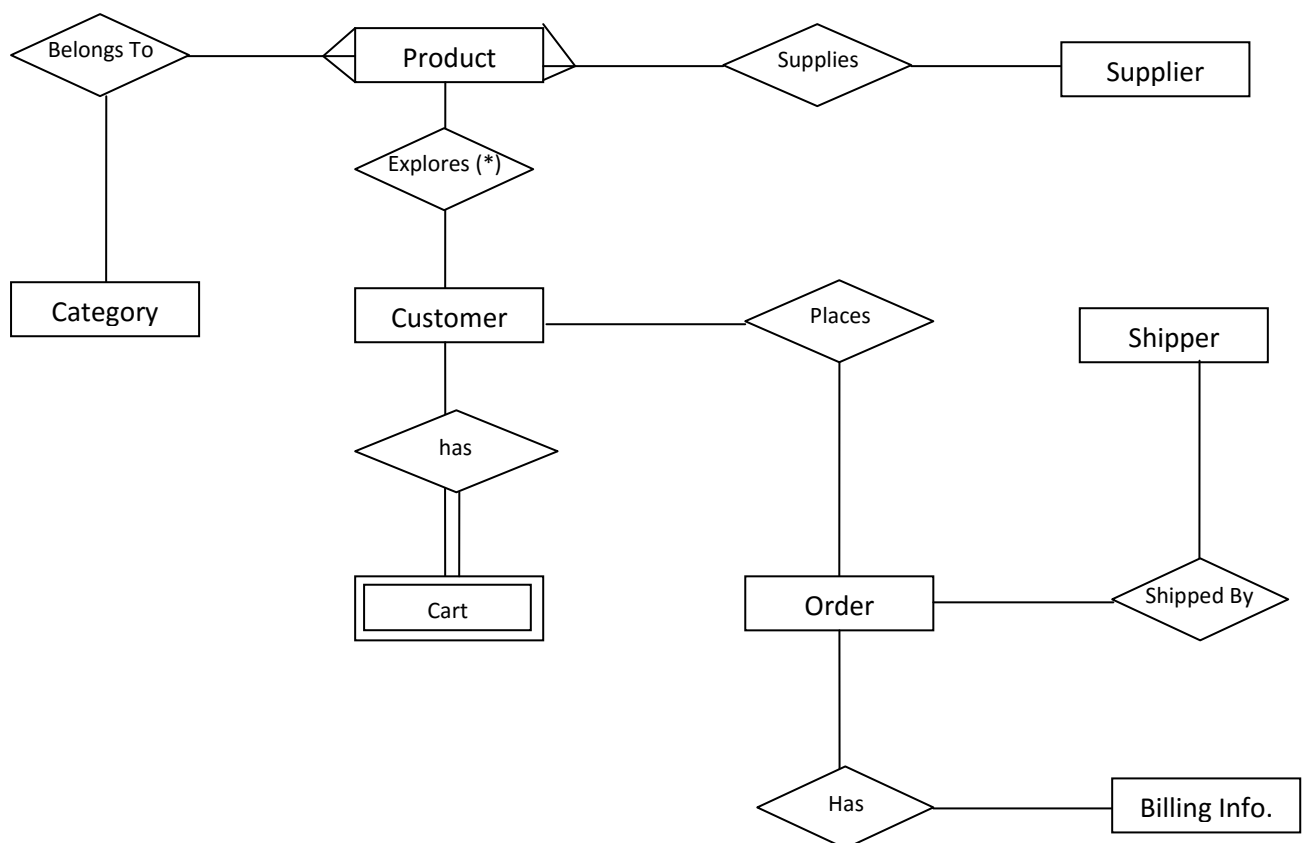
12. Relationship between Customer and Cart



Here customer presses 'Add to Cart' button to add product to the cart. Since this is an operational part, this is not shown in the ER Diagram.

We treat Cart as a weak entity set of customer, hence in order to access a particular cart, we use Customer ID only.

13. Overall ER diagram



(*) 'Explores' is just an operation and not really a relationship.

Table Formats as deduced from ER Diagram

For every strong entity set, we make a separate table. The tables drawn here are just for representation purpose and are not the final tables.

1. Customer Table

Registration ID	Full Name	Address	Mobile Number	Email ID
...

On a new customer registration, he/she will be assigned a cart where all the products he/she while exploring adds to the cart gets added under that temporary attribute. As the table is only for representation purpose, we haven't shown the cart attribute differently as this comes under operational part.

2. Table for Products

Product ID	Product Name	Product Description	Unit Price	Unit Wt.	Discount	Picture	Supplier ID
...

3. Table for Category

Category ID	Category Name	Picture	Description
...

4. Table for Orders

Order Number	Order Date	Shipper
...

5. Table for Shipper

Shipper ID	Shipper Name	Mobile Number
...

6. Table for Billing Info.

Billing ID	Billing Address	Billing Date
...

This could be a database that we need every financial year for preparing the annual report of the company and hence we will clear this table annually to start afresh.

7. Table for Supplier

Supplier ID	Supplier Name	Mobile Number
...

Every product in our model will have a single unique supplier to ensure the quality of goods and prevent unnecessary bargains.