Electronica E-commerce

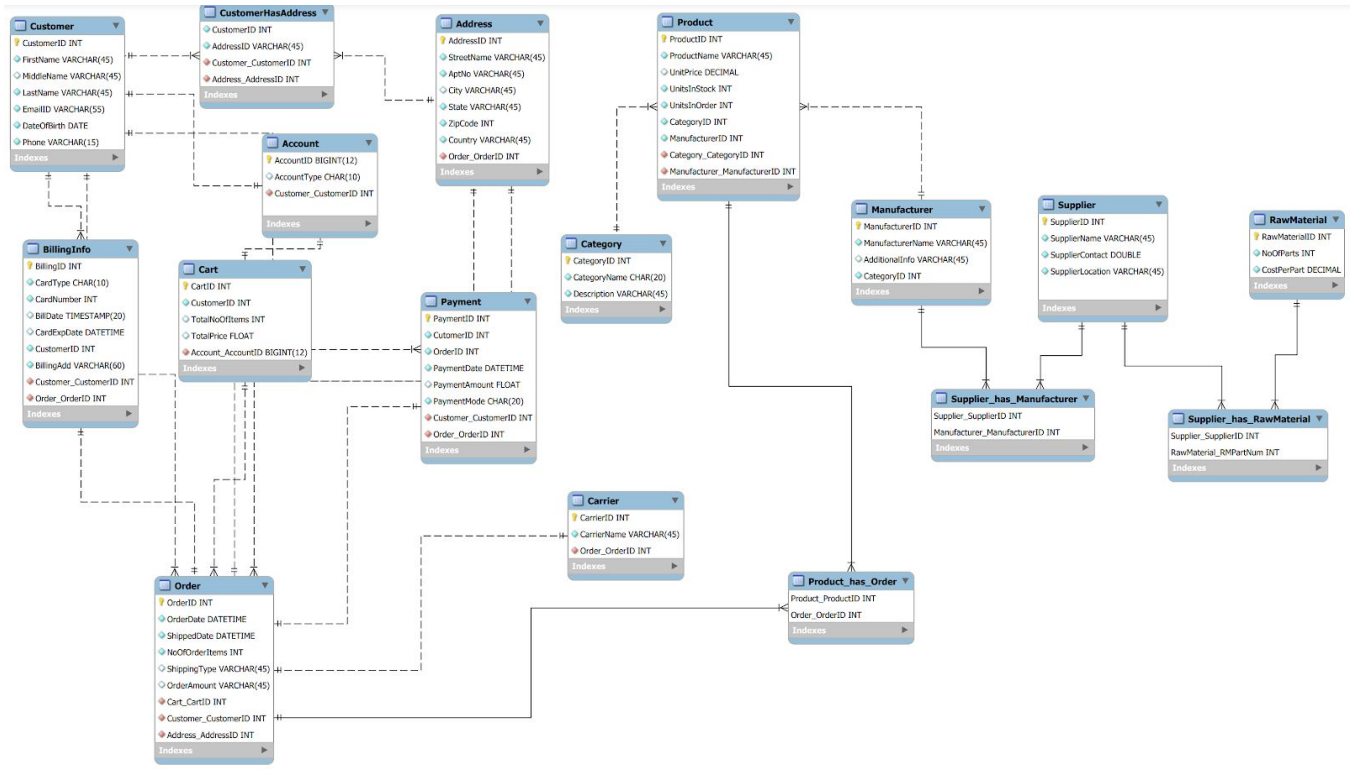
Business Problem

The purpose of our database is to deliver an E-commerce solution for electronic gadgets and perform data analysis to extract valuable insights for the benefit of an organization as well as the customers.
This database can be used by different types of users and their objectives are partitioned into different corresponding parts per user type.
Moreover, our database would serve as a recommendation-based system for the customers where they will get recommendations to purchase based on their last purchases.

To gain more insights about how we can lure more customers, we would run some analytical queries to get the highest order placed, top orders, category which has top sales, manufacturer with highest sales, top 5 most expensive products etc.

Initial ER-Diagram:

Below is the skeleton of our Database with the major entities. A few minor entities are yet to be connected. This will complete our ER diagram and make it more sophisticated to derive major business decisions.



List of Entities and Relation:

1. Customer
    - The database contains customer information such as customerID, name, phone, e-mail, DOB.
    - Preserve the gadgets customers have searched for or the orders that has been placed.
    - Each customer can have 1 or more billing information. Thus having **1:M** relationship.

2. Address
    - This entity will store detailed addresses of each customer.
    - As a customer can get their order delivered to multiple addresses like office address or home address, we have kept Address as a separate entity and have **M:M** relation with customers..

3. Customer_has_address
    - This is an **associative** entity which contains information like customerID and addressID.
    - It'll act like a bridge to connect customer and address tables.

4. Product
    - Each product will have an ID associated with it, name, unit price, units in stock, units in order, categoryID, and ManufacturerID.
    - Many Products can fall under one category.

5. Product_has_Order
    - It is an **associative** entity. It'll act like a bridge to connect Product and Order tables.

6. Category
    - Each product will belong to a certain category type. Therefore, each product will have to be associated with a categoryID.
    - Category will have CategoryID, CategoryName and CategoryDescription attributes.
    - Each Category can have many Products under it. Thus having **1:M** relationship.

7. Cart
    - Cart will have CustomerID, total number of items and total price of items.
    - Each Cart entity will be linked to one Account. Thus having **1:1** relationship.

8. Manufacturer
    - Each Manufacturer will have a unique ManufacturerID, ManufacturerName, AdditionalInfo and CategoryID of the category of gadget they will be manufacturing.

- Each Manufacturer can manufacture many Products. Thus having **1:M** relationship.

9. RawMaterial
   - RawMaterial will have RawMaterialID, number of parts and cost of each material.

10. Carrier
    - Carrier will have CarrierID and CarrierCompanyName.

11. Supplier
    - Supplier table will have SupplierID, SupplierName, SupplierContact, SupplierLocation.

12. Supplier_has_RawMaterial
    - It is an **associative** entity to connect Supplier and RawMaterial tables.

13. Supplier_has_Manufacturer
    - It is an **associative** entity to connect Supplier and Manufacturers tables.

14. Order
    - It'll hold information like order date, orderID, shipped date, no of order items, shipping type, order amount and customer_ID.

15. Billing info
    - The database will have a separate entity for billing information.
    - It will have billingID, card type, card number, billing date and card expiry date with customerID and billing addressID and orderID as the attributes.

16. Payment
    - A payment is made when a purchase is done.
    - It'll have information related to paymentID, customerID, orderID, amount of the payment and payment mode.

17. Account
    - This entity will hold information like customerID and accountType of the customer.

Analytical Queries that will give the valuable insights (to be added...) :

1. Highest order placed by a customer.
2. Top orders by OrderAmount.
3. Top sales by category.
4. Top product by the amount of times it's ordered.