# E-commerce Platform's Database

## **Entities:**

* Customer: Stores information about the customers who visit the platform.
* Product: Represents the various items available for purchase on the platform.
* Order: Captures details about the orders placed by customers.
* Transaction: Records the financial transactions related to purchases.
* Category: Represents the different categories in which products are organized.

## **Functionalities and Attributes:**

* Customer:  
   Functionalities: Manage customer profiles, order history, and preferences.  
   Attributes: CustomerID, Name, Email, Address, Phone, etc.
* Product:  
   Functionalities: Store detailed product information, manage inventory, and track sales.  
   Attributes: ProductID, Name, Description, Price, Quantity, CategoryID, SupplierID, etc.
* Order:  
   Functionalities: Track orders, manage order details, and status updates.  
   Attributes: OrderID, CustomerID, ProductID, Quantity, TotalPrice, OrderDate, Status, etc.
* Transaction:  
   Functionalities: Record financial transactions and payment details.  
   Attributes: TransactionID, OrderID, Amount, PaymentMethod, Timestamp, Status, etc.
* Category:  
   Functionalities: Organize products into different categories for easy browsing.  
   Attributes: CategoryID, Name, Description, etc.

## **Relations:**

* Customer-Order: One-to-Many (One customer can have multiple orders, but each order belongs to only one customer).
* Product-Order: Many-to-Many (Each order can consist of multiple products, and a product can be a part of multiple orders).
* Order-Transaction: One-to-One (Each order has one corresponding transaction; a transaction is related to one order).
* Product-Category: One-to-Many (Each category can have multiple products, but each product belongs to only one category).

## **Cardinality:**

* Customer-Order: One-to-Many (1:M)
* Product-Order: Many-to-Many (M:N)
* Order-Transaction: One-to-One (1:1)
* Product-Category: One-to-Many (1:M)

## **Business Rules:**

* Customers must be able to place orders for products, and each order should have a unique ID and be associated with a specific customer.
* Products should be organized into various categories, with each product having a unique ID and belonging to a specific category.
* Each order should have a transaction associated with it to record the financial details.
* Every transaction should be linked to a specific order and contain information such as payment method and status.