Assignment 1: Analyze a given business scenario and create an ER diagram that includes entities, relationships, attributes, and cardinality. Ensure that the diagram reflects proper normalization up to the third normal form.

create an ER diagram for an online shopping scenario.

**Business Scenario: Online Shopping**

Entities:

1. Customer
2. Product
3. Order
4. Payment
5. Address

Attributes:

1. Customer:
   * CustomerID (Primary Key)
   * Name
   * Email
   * Phone
   * ...
2. Product:
   * ProductID (Primary Key)
   * Name
   * Description
   * Price
   * ...
3. Order:
   * OrderID (Primary Key)
   * CustomerID (Foreign Key)
   * OrderDate
   * ...
4. Payment:
   * PaymentID (Primary Key)
   * OrderID (Foreign Key)
   * Amount
   * PaymentDate
   * ...
5. Address:
   * AddressID (Primary Key)
   * CustomerID (Foreign Key)
   * Street
   * City
   * State
   * ZipCode
   * ...

Relationships and Cardinality:

1. One customer can place many orders. (One-to-Many)
2. Each order is associated with exactly one customer. (Many-to-One)
3. Each order can have multiple products, and each product can be in multiple orders. (Many-to-Many)
4. Each order can have one payment. (One-to-One)
5. Each payment is associated with exactly one order. (One-to-One)
6. Each customer can have multiple addresses, but each address belongs to exactly one customer. (One-to-Many)

Normalization up to Third Normal Form (3NF):

1. First Normal Form (1NF): All attributes are atomic (indivisible).
2. Second Normal Form (2NF): No partial dependencies. All non-key attributes are fully dependent on the primary key.
3. Third Normal Form (3NF): No transitive dependencies. All non-key attributes are dependent only on the primary key, not on other non-key attributes.

ER Diagram:

Customer -----

