Creating the Database Design and Schema for an Online Jewellery Store.

tasks are as follows:

1. **Identify the Database Entities for our online jewellery store**
2. **Establish Relationships between them**

Step 1: Identify the Database Entities for our online jewellery store.

<u>Create tables.</u>

```
mysql> CREATE TABLE customer (
    ->     CustomerID INT PRIMARY KEY AUTO_INCREMENT,
    ->     FirstName VARCHAR(50),
    ->     LastName VARCHAR(50),
    ->     Email VARCHAR(100) UNIQUE,
    ->     Password VARCHAR(255),
    ->     Phone VARCHAR(20),
    ->     Address TEXT
    -> );
Query OK, 0 rows affected (0.342 sec)

mysql> desc customer;
+------------+--------------+------+-----+---------+----------------+
| Field      | Type         | Null | Key | Default | Extra          |
+------------+--------------+------+-----+---------+----------------+
| CustomerID | int          | NO   | PRI | NULL    | auto_increment |
| FirstName  | varchar(50)  | YES  |     | NULL    |                |
| LastName   | varchar(50)  | YES  |     | NULL    |                |
| Email      | varchar(100) | YES  | UNI | NULL    |                |
| Password   | varchar(255) | YES  |     | NULL    |                |
| Phone      | varchar(20)  | YES  |     | NULL    |                |
| Address    | text         | YES  |     | NULL    |                |
+------------+--------------+------+-----+---------+----------------+
7 rows in set (0.276 sec)
```

```
mysql> CREATE TABLE category (
  ->   CategoryID INT PRIMARY KEY AUTO_INCREMENT,
  ->   CategoryName VARCHAR(100));
```

```
mysql> desc category;
+--------------+--------------+------+-----+---------+----------------+
| Field        | Type         | Null | Key | Default | Extra          |
+--------------+--------------+------+-----+---------+----------------+
| CategoryID   | int          | NO   | PRI | NULL    | auto_increment |
| CategoryName | varchar(100) | YES  |     | NULL    |                |
+--------------+--------------+------+-----+---------+----------------+
2 rows in set (0.030 sec)
```

```
mysql> CREATE TABLE orders (
    ->     OrderID INT PRIMARY KEY AUTO_INCREMENT,
    ->     CustomerID INT,
    ->     OrderDate DATETIME DEFAULT CURRENT_TIMESTAMP,
    ->     TotalAmount DECIMAL(10, 2),
    ->     FOREIGN KEY (CustomerID) REFERENCES Customer(CustomerID)
    -> );
Query OK, 0 rows affected (0.334 sec)

mysql> desc orders;
+-------------+---------------+------+-----+-------------------+-------------------+
| Field       | Type          | Null | Key | Default           | Extra             |
+-------------+---------------+------+-----+-------------------+-------------------+
| OrderID     | int           | NO   | PRI | NULL              | auto_increment    |
| CustomerID  | int           | YES  | MUL | NULL              |                   |
| OrderDate   | datetime      | YES  |     | CURRENT_TIMESTAMP | DEFAULT_GENERATED |
| TotalAmount | decimal(10,2) | YES  |     | NULL              |                   |
+-------------+---------------+------+-----+-------------------+-------------------+
4 rows in set (0.040 sec)
```

```
mysql> CREATE TABLE product (
    ->     ProductID INT PRIMARY KEY AUTO_INCREMENT,
    ->     Name VARCHAR(100),
    ->     Description TEXT,
    ->     Price DECIMAL(10, 2),
    ->     StockQuantity INT,
    ->     Weight DECIMAL(5, 2),
    ->     CategoryID INT,
    ->     FOREIGN KEY (CategoryID) REFERENCES Category(CategoryID)
    -> );
Query OK, 0 rows affected (0.235 sec)

mysql> desc product;
+---------------+---------------+------+-----+---------+----------------+
| Field         | Type          | Null | Key | Default | Extra          |
+---------------+---------------+------+-----+---------+----------------+
| ProductID     | int           | NO   | PRI | NULL    | auto_increment |
| Name          | varchar(100)  | YES  |     | NULL    |                |
| Description   | text          | YES  |     | NULL    |                |
| Price         | decimal(10,2) | YES  |     | NULL    |                |
| StockQuantity | int           | YES  |     | NULL    |                |
| Weight        | decimal(5,2)  | YES  |     | NULL    |                |
| CategoryID    | int           | YES  | MUL | NULL    |                |
+---------------+---------------+------+-----+---------+----------------+
7 rows in set (0.034 sec)
```

```
mysql> CREATE TABLE orderdetail (
    ->     OrderDetailID INT PRIMARY KEY AUTO_INCREMENT,
    ->     OrderID INT,
    ->     ProductID INT,
    ->     Quantity INT,
    ->     Subtotal DECIMAL(10, 2),
    ->     FOREIGN KEY (OrderID) REFERENCES orders(OrderID),
    ->     FOREIGN KEY (ProductID) REFERENCES Product(ProductID)
    -> );
Query OK, 0 rows affected (0.362 sec)

mysql> desc orderdetail;
+---------------+---------------+------+-----+---------+----------------+
| Field         | Type          | Null | Key | Default | Extra          |
+---------------+---------------+------+-----+---------+----------------+
| OrderDetailID | int           | NO   | PRI | NULL    | auto_increment |
| OrderID       | int           | YES  | MUL | NULL    |                |
| ProductID     | int           | YES  | MUL | NULL    |                |
| Quantity      | int           | YES  |     | NULL    |                |
| Subtotal      | decimal(10,2) | YES  |     | NULL    |                |
+---------------+---------------+------+-----+---------+----------------+
5 rows in set (0.040 sec)
```

```
mysql> CREATE TABLE Payment (
    ->     PaymentID INT PRIMARY KEY AUTO_INCREMENT,
    ->     OrderID INT UNIQUE,
    ->     PaymentDate DATETIME DEFAULT CURRENT_TIMESTAMP,
    ->     PaymentAmount DECIMAL(10, 2),
    ->     PaymentMethod VARCHAR(50),
    ->     FOREIGN KEY (OrderID) REFERENCES orders(OrderID)
    -> );
Query OK, 0 rows affected (0.305 sec)

mysql> desc Payment;
+---------------+---------------+------+-----+-------------------+-------------------+
| Field         | Type          | Null | Key | Default           | Extra             |
+---------------+---------------+------+-----+-------------------+-------------------+
| PaymentID     | int           | NO   | PRI | NULL              | auto_increment    |
| OrderID       | int           | YES  | UNI | NULL              |                   |
| PaymentDate   | datetime      | YES  |     | CURRENT_TIMESTAMP | DEFAULT_GENERATED |
| PaymentAmount | decimal(10,2) | YES  |     | NULL              |                   |
| PaymentMethod | varchar(50)   | YES  |     | NULL              |                   |
+---------------+---------------+------+-----+-------------------+-------------------+
5 rows in set (0.051 sec)
```

```
mysql> CREATE TABLE cart (
    ->     CartID INT PRIMARY KEY AUTO_INCREMENT,  CustomerID INT UNIQUE,  CreatedDate DATETIME DEFAULT CURRENT_TIMESTAM
P, ProductID INT, Quantity INT,  FOREIGN KEY(ProductID) REFERENCES product(ProductID), FOREIGN KEY(CustomerID) REFERENCE
S customer(CustomerID));
Query OK, 0 rows affected (0.358 sec)

mysql>
mysql> desc cart;
+-------------+----------+------+-----+-------------------+-------------------+
| Field       | Type     | Null | Key | Default           | Extra             |
+-------------+----------+------+-----+-------------------+-------------------+
| CartID      | int      | NO   | PRI | NULL              | auto_increment    |
| CustomerID  | int      | YES  | UNI | NULL              |                   |
| CreatedDate | datetime | YES  |     | CURRENT_TIMESTAMP | DEFAULT_GENERATED |
| ProductID   | int      | YES  | MUL | NULL              |                   |
| Quantity    | int      | YES  |     | NULL              |                   |
+-------------+----------+------+-----+-------------------+-------------------+
5 rows in set (0.046 sec)
```

Enter the values.

```
mysql> INSERT INTO customer (CustomerID, FirstName, LastName, Email, Password, Phone, Address)
    -> VALUES
    -> (1, 'Anjali', 'Mehta', 'anjali.mehta@example.com', 'pass@123', '9876543210', ' MG Road'),
    -> (2,'Rahul', 'Sharma', 'rahul.sharma@example.com', 'rahul@2024', '9988776655', 'JP Nagar'),
    -> (3, 'Sneha', 'Rao', 'sneha.rao@example.com', 'sneha#pwd', '9123456789', ' Indiranagar'),
    -> (4, 'Karan', 'Patel', 'karan.patel@example.com', 'karan$login', '9345678901', ' Whitefield'),
    -> (5, 'Divya', 'Nair', 'divya.nair@example.com', 'divya%2025', '9001122334', ' Koramangala');
Query OK, 5 rows affected (0.079 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select*from customer;
+------------+-----------+----------+-------------------------+-------------+------------+--------------+
| CustomerID | FirstName | LastName | Email                   | Password    | Phone      | Address      |
+------------+-----------+----------+-------------------------+-------------+------------+--------------+
|          1 | Anjali    | Mehta    | anjali.mehta@example.com | pass@123    | 9876543210 |  MG Road     |
|          2 | Rahul     | Sharma   | rahul.sharma@example.com | rahul@2024  | 9988776655 | JP Nagar     |
|          3 | Sneha     | Rao      | sneha.rao@example.com    | sneha#pwd   | 9123456789 |  Indiranagar |
|          4 | Karan     | Patel    | karan.patel@example.com  | karan$login | 9345678901 |  Whitefield  |
|          5 | Divya     | Nair     | divya.nair@example.com   | divya%2025  | 9001122334 |  Koramangala |
+------------+-----------+----------+-------------------------+-------------+------------+--------------+
5 rows in set (0.013 sec)
```

```
mysql> INSERT INTO category (CategoryID, CategoryName) VALUES
    -> (1, 'Necklaces'),
    -> (2, 'Rings' ),
    -> (3, 'Earrings'),
    -> (4, 'Bracelets'),
    -> (5, 'Pendants');
Query OK, 5 rows affected (0.287 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select*from category;
+------------+--------------+
| CategoryID | CategoryName |
+------------+--------------+
|          1 | Necklaces    |
|          2 | Rings        |
|          3 | Earrings     |
|          4 | Bracelets    |
|          5 | Pendants     |
+------------+--------------+
5 rows in set (0.017 sec)
```

```
mysql> INSERT INTO product (ProductID, Name, Description, Price, StockQuantity, Weight, CategoryID)
    -> VALUES
    -> (1, 'Gold Necklace', 'A beautiful gold necklace with intricate designs.', 299.99, 50, 0.15, 1),
    -> (2, 'Silver Ring', 'Elegant silver ring with a diamond inlay.', 149.99, 100, 0.05, 2),
    -> (3, 'Diamond Earrings', 'Stunning diamond earrings for special occasions.', 499.99, 30, 0.02, 3),
    -> (4, 'Platinum Bracelet', 'Luxurious platinum bracelet with a smooth finish.', 799.99, 20, 0.1, 4),
    -> (5, 'Emerald Pendant', 'A unique emerald pendant set in gold.', 199.99, 40, 0.08, 5);
Query OK, 5 rows affected (0.079 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select*from product;
+-----------+------------------+-----------------------------------------------------+--------+---------------+--------+------------+
| ProductID | Name             | Description                                         | Price  | StockQuantity | Weight | CategoryID |
+-----------+------------------+-----------------------------------------------------+--------+---------------+--------+------------+
|         1 | Gold Necklace    | A beautiful gold necklace with intricate designs.   | 299.99 |            50 |   0.15 |          1 |
|         2 | Silver Ring      | Elegant silver ring with a diamond inlay.           | 149.99 |           100 |   0.05 |          2 |
|         3 | Diamond Earrings | Stunning diamond earrings for special occasions.    | 499.99 |            30 |   0.02 |          3 |
|         4 | Platinum Bracelet| Luxurious platinum bracelet with a smooth finish.   | 799.99 |            20 |   0.10 |          4 |
|         5 | Emerald Pendant  | A unique emerald pendant set in gold.               | 199.99 |            40 |   0.08 |          5 |
+-----------+------------------+-----------------------------------------------------+--------+---------------+--------+------------+
5 rows in set (0.012 sec)
```

```
mysql> INSERT INTO orders (OrderID, CustomerID, OrderDate, TotalAmount)
    -> VALUES
    -> (1, 1, '2025-07-10', 749.97),   -- 2 products
    -> (2, 2, '2025-07-11', 1499.97),  -- 3 earrings
    -> (3, 3, '2025-07-12', 799.99),   -- 1 bracelet
    -> (4, 4, '2025-07-13', 399.98);   -- 2 pendants
Query OK, 4 rows affected (0.045 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> select*from orders;
+---------+------------+---------------------+-------------+
| OrderID | CustomerID | OrderDate           | TotalAmount |
+---------+------------+---------------------+-------------+
|       1 |          1 | 2025-07-10 00:00:00 |      749.97 |
|       2 |          2 | 2025-07-11 00:00:00 |     1499.97 |
|       3 |          3 | 2025-07-12 00:00:00 |      799.99 |
|       4 |          4 | 2025-07-13 00:00:00 |      399.98 |
+---------+------------+---------------------+-------------+
4 rows in set (0.011 sec)
```

```
mysql> INSERT INTO orderdetail (OrderDetailID, OrderID, ProductID, Quantity, Subtotal)
    -> VALUES
    -> (1, 1, 1, 2, 599.98),
    -> (2, 1, 2, 1, 149.99),
    -> (3, 2, 3, 3, 1499.97),
    -> (4, 3, 4, 1, 799.99),
    -> (5, 4, 5, 2, 399.98);
Query OK, 5 rows affected (0.051 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select*from orderdetail;
+---------------+---------+-----------+----------+----------+
| OrderDetailID | OrderID | ProductID | Quantity | Subtotal |
+---------------+---------+-----------+----------+----------+
|             1 |       1 |         1 |        2 |   599.98 |
|             2 |       1 |         2 |        1 |   149.99 |
|             3 |       2 |         3 |        3 |  1499.97 |
|             4 |       3 |         4 |        1 |   799.99 |
|             5 |       4 |         5 |        2 |   399.98 |
+---------------+---------+-----------+----------+----------+
5 rows in set (0.011 sec)
```

```
mysql> INSERT INTO Payment (OrderID, PaymentDate, PaymentAmount, PaymentMethod)
    -> VALUES
    -> (1, '2025-07-10', 749.97, 'Credit Card'),
    -> (2, '2025-07-11', 1499.97, 'UPI'),
    -> (3, '2025-07-12', 799.99, 'Cash'),
    -> (4, '2025-07-13', 399.98, 'Debit Card');
Query OK, 4 rows affected (0.124 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> select*from Payment;
+-----------+---------+---------------------+---------------+---------------+
| PaymentID | OrderID | PaymentDate         | PaymentAmount | PaymentMethod |
+-----------+---------+---------------------+---------------+---------------+
|         1 |       1 | 2025-07-10 00:00:00 |        749.97 | Credit Card   |
|         2 |       2 | 2025-07-11 00:00:00 |       1499.97 | UPI           |
|         3 |       3 | 2025-07-12 00:00:00 |        799.99 | Cash          |
|         4 |       4 | 2025-07-13 00:00:00 |        399.98 | Debit Card    |
+-----------+---------+---------------------+---------------+---------------+
4 rows in set (0.008 sec)
```

```
mysql> INSERT INTO Cart (CustomerID, ProductID, Quantity)
    -> VALUES
    -> (1, 1, 1),   -- Customer 1 adds 1 Gold Necklace
    -> (2, 2, 2),   -- Customer 2 adds 2 Silver Rings
    -> (3, 3, 1),   -- Customer 3 adds 1 Diamond Earrings
    -> (4, 5, 3),   -- Customer 4 adds 3 Emerald Pendants
    -> (5, 4, 1);   -- Customer 5 adds 1 Platinum Bracelet
Query OK, 5 rows affected (0.173 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select*from Cart;
+--------+------------+-----------+----------+
| CartID | CustomerID | ProductID | Quantity |
+--------+------------+-----------+----------+
|      1 |          1 |         1 |        1 |
|      2 |          2 |         2 |        2 |
|      3 |          3 |         3 |        1 |
|      4 |          4 |         5 |        3 |
|      5 |          5 |         4 |        1 |
+--------+------------+-----------+----------+
5 rows in set (0.011 sec)
```

Step 2: Establish Relationships between them

1. **Customer to Order:**
   - Each customer can place multiple orders (one-to-many relationship between Customer and Order).

```
mysql> SELECT * from orders where CustomerID=2;
+---------+------------+---------------------+-------------+
| OrderID | CustomerID | OrderDate           | TotalAmount |
+---------+------------+---------------------+-------------+
|       2 |          2 | 2025-07-11 00:00:00 |     1499.97 |
+---------+------------+---------------------+-------------+
1 row in set (0.054 sec)
```

2. **Order to OrderDetail:**
   - Each order can have multiple order details, each associated with a product (one-to-many relationship between Order and OrderDetail).

```
mysql> select*from orderdetail where OrderID=2;
+---------------+---------+-----------+----------+----------+
| OrderDetailID | OrderID | ProductID | Quantity | Subtotal |
+---------------+---------+-----------+----------+----------+
|             3 |       2 |         3 |        3 |  1499.97 |
+---------------+---------+-----------+----------+----------+
1 row in set (0.019 sec)
```

3. **Product to Category:**
   - Each product belongs to a specific category (many-to-one relationship between Product and Category).

```
mysql> select *from product where CategoryID=2;
+-----------+-------------+-----------------------------------------+--------+---------------+--------+------------+
| ProductID | Name        | Description                             | Price  | StockQuantity | Weight | CategoryID |
+-----------+-------------+-----------------------------------------+--------+---------------+--------+------------+
|         2 | Silver Ring | Elegant silver ring with a diamond inlay. | 149.99 |           100 |   0.05 |          2 |
+-----------+-------------+-----------------------------------------+--------+---------------+--------+------------+
1 row in set (0.013 sec)
```

4. **Order to Payment:**
   - Each order can have a payment (one-to-one relationship between Order and Payment).

```
mysql> select*from
    -> payment
    -> where OrderID=2;
+-----------+---------+---------------------+---------------+---------------+
| PaymentID | OrderID | PaymentDate         | PaymentAmount | PaymentMethod |
+-----------+---------+---------------------+---------------+---------------+
|         2 |       2 | 2025-07-11 00:00:00 |       1499.97 | UPI           |
+-----------+---------+---------------------+---------------+---------------+
1 row in set (0.016 sec)
```

5. **Customer to Cart:**

- Each customer can have multiple items in their shopping cart (one-to-many relationship between Customer and Cart).

```
mysql> SELECT *
    -> FROM Cart
    -> WHERE CustomerID = 3;
+--------+------------+-----------+----------+
| CartID | CustomerID | ProductID | Quantity |
+--------+------------+-----------+----------+
|      3 |          3 |         3 |        1 |
+--------+------------+-----------+----------+
1 row in set (0.012 sec)
```

6. **Cart to Product:**

- Each item in the cart is associated with a specific product (many-to-one relationship between Cart and Product).

```
mysql> SELECT p.*
    -> FROM Cart c
    -> JOIN Product p ON c.ProductID = p.ProductID
    -> WHERE c.CartID = 4;
+-----------+-----------------+---------------------------------------+--------+---------------+--------+------------+
| ProductID | Name            | Description                           | Price  | StockQuantity | Weight | CategoryID |
+-----------+-----------------+---------------------------------------+--------+---------------+--------+------------+
|         5 | Emerald Pendant | A unique emerald pendant set in gold. | 199.99 |            40 |   0.08 |          5 |
+-----------+-----------------+---------------------------------------+--------+---------------+--------+------------+
1 row in set (0.015 sec)
```

7. Each item in the cart is associated with a specific product

```
mysql> SELECT
    ->     c.CartID,
    ->     c.Quantity,
    ->     p.ProductID,
    ->     p.Name AS ProductName,
    ->     p.Price,
    ->     p.Description
    -> FROM
    ->     Cart c
    -> JOIN
    ->     Product p ON c.ProductID = p.ProductID
    -> WHERE
    ->     c.CustomerID = 4;
+--------+----------+-----------+-----------------+--------+---------------------------------------+
| CartID | Quantity | ProductID | ProductName     | Price  | Description                           |
+--------+----------+-----------+-----------------+--------+---------------------------------------+
|      4 |        3 |         5 | Emerald Pendant | 199.99 | A unique emerald pendant set in gold. |
+--------+----------+-----------+-----------------+--------+---------------------------------------+
1 row in set (0.026 sec)
```