Exercises: Entity Framework Core

This document defines the **exercise assignments** for the entity framework core 02.

Online Store (Requriements) :

Requirements for Creating the Database using Entity Framework Code-First :

1. Product Catalog Management:

- This would store information about the products available for sale. It would include attributes such as product name, description, price, quantity in stock, images, and other relevant details.

2. Customer Information:

- This would store information about registered customers.
- It would include data such as customer name, contact details, shipping address, login credentials.

3. Order Information:

- This would store information about customer orders. It would include data such as order number, customer details, order date and time, purchased products, quantities, prices, shipping method, and order status.

-Order Status: Pending, Processing, Shipped, Delivered, Cancelled, Refunded.

4. Payment Transaction:

- This would store information about payment transactions.

- It would include data such as transaction ID, customer details, payment amount, payment method, timestamp.

5. Shipping:

- This would store information about shipping and logistics.

- It would include data such as order ID, shipping carrier details, tracking number, shipping status, Estimated delivery date, Actual Delivery Date and any related notes or updates.

-Shipping Status:

1. Processing

2. Out for Delivery

3. Delivered

4. Return to Sender

5. On Hold

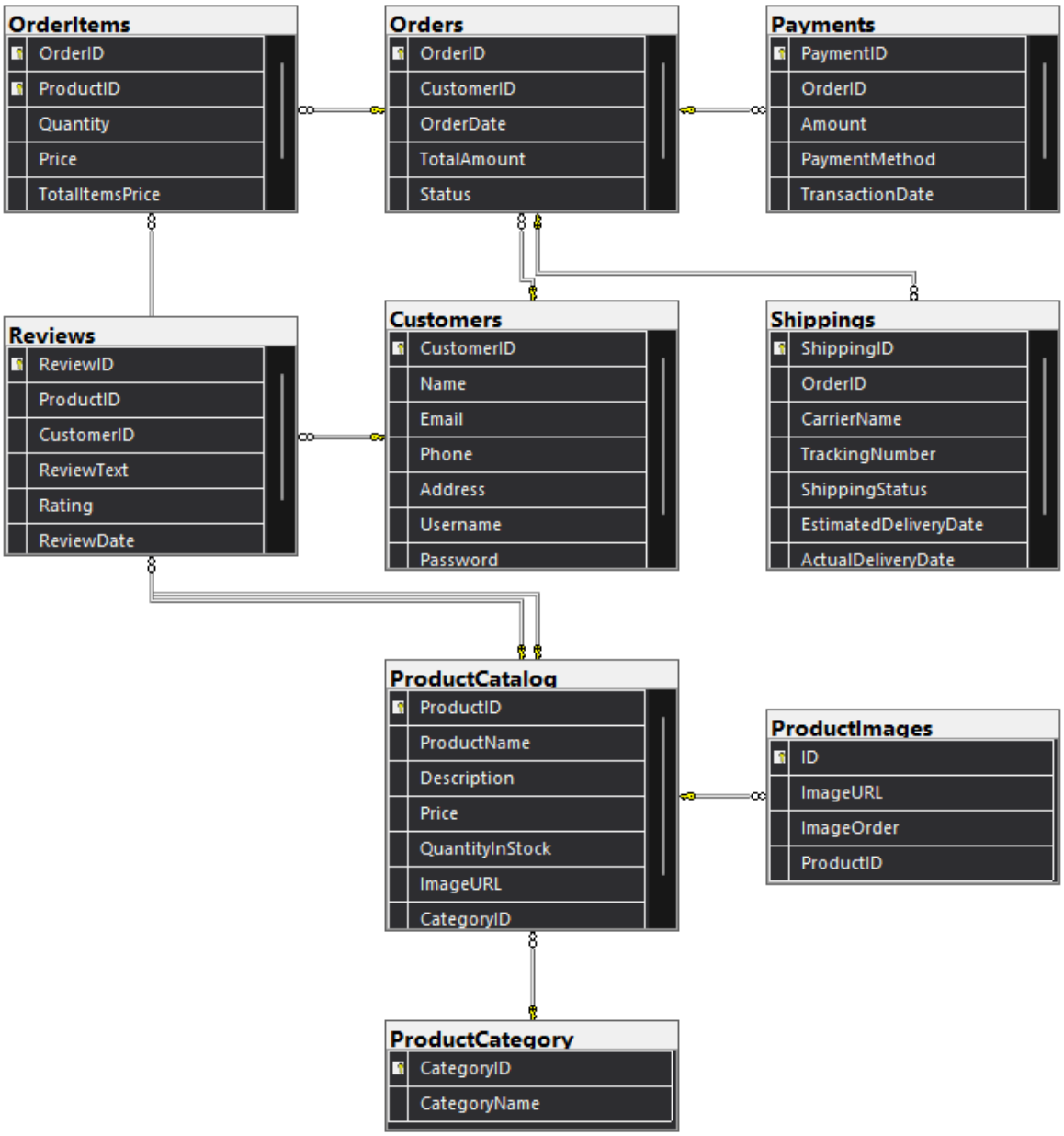
6. Delayed

7. Lost

6. Reviews and Ratings:

-This would store customer reviews and ratings for products. It would include data such as product ID, customer ID, review text, rating score (1 to 5), and timestamps.

DataBase Digrams :



From here you can follow some of these instructions :

1. **Tools & Frameworks**
   - Visual Studio (or any other IDE like Rider, VS Code).
   - .NET Core/6/7 SDK.
   - SQL Server for database.
2. **Packages to Install**
   - `Microsoft.EntityFrameworkCore`

- `Microsoft.EntityFrameworkCore.Tools`
- `Microsoft.EntityFrameworkCore.SqlServer`

3. **Code Structure**
   - **Models Folder**: Create entity classes for `Customer`, `Order`, `OrderItem`, `Payment`, `Shipping`, `Product`, `ProductImage`, `Category`, and `Review`.
   - **DbContext Class**: Define `ApplicationDbContext` to include DbSets and relationships.
4. **Database Design**
   - Relationships:
     - One-to-Many: `Customer` → `Orders`, `Order` → `OrderItems`.
     - Many-to-One: `OrderItem` → `Product`.
     - One-to-One: `Order` → `Shipping`.
   - Composite Keys: For example, in `OrderItem` (`OrderID`, `ProductID`).
5. **Configurations**
   - Define relationships explicitly in `OnModelCreating`.
   - Add default values (e.g., `ImageOrder` in `ProductImage`).
   - Ensure constraints like `Required` for mandatory fields

6. **Configurations**

- Define relationships explicitly in `OnModelCreating`.
- Add default values (e.g., `ImageOrder` in `ProductImage`).
- Ensure constraints like `Required` for mandatory fields.

7.**Setup Database Connection**

- Configure `ApplicationDbContext`.

8. **Migrations & Database Updates**

- Run `Add-Migration InitialCreate`.
- Apply migration using `Update-Database`.

9. **Validation**

- Add `[Required]`, `[StringLength]`, and `[Range]` attributes to properties as needed.

10. **Testing**

- Verify database structure in SQL Server.
- Ensure all relationships and constraints are correctly applied.
-

11. **Optional Features**

- Seeding data using `OnModelCreating`.
- Implementing Lazy or Eager Loading strategies.