**DBMS LAB PROJECT**

**KEY MILESTONE # 02  
  
 Spring 2025**

**CSE-403L**

**Database Management System Lab**

Submitted by:

**Mujahid Zada = 22PWCSE2145**

**Hashir Islam = 22PWCSE2192**

**Muhammad Haris = 22PWCSE2216**

**Muhammad Adnan = 22PWCSE2208**

Class Section: **‘B’**   
“Honesty is the Best Policy ”

Submitted to:

**Engr. Sumayyea Salahuddin**Tuesday,27,2025

**Milestone 2: Normalized Relational Schema – E-Commerce Platform**

# 1. Relational Schema (Converted from Conceptual Schema)

Below is the initial relational schema derived from the conceptual schema:  
  
Customer(customer\_id, first\_name, last\_name, email, password, address, phone\_number)  
Product(product\_id, SKU, description, price, stock, category\_id)  
Category(category\_id, name)  
Order(order\_id, customer\_id, order\_date, total\_price, shipment\_id)  
Order\_Item(order\_item\_id, order\_id, product\_id, quantity, price)  
Cart(cart\_id, customer\_id, product\_id, quantity)  
Wishlist(wishlist\_id, customer\_id, product\_id)  
Payment(payment\_id, customer\_id, payment\_method, payment\_date, amount)  
Shipment(shipment\_id, shipment\_date, address, city, state, country, zip\_code)

# 2. Normalization Process (to 3NF)

Step 1: First Normal Form (1NF)  
All attributes are atomic and there are no repeating groups. The schema already satisfies 1NF.

Step 2: Second Normal Form (2NF)  
There are no partial dependencies since all tables with composite keys do not have non-key attributes depending only on part of the key.

Step 3: Third Normal Form (3NF)  
We remove transitive dependencies. For example, splitting address fields from Shipment into a separate Address entity if shared. However, in our design, these dependencies are either atomic or uniquely identified by the primary key.

# 3. Final Normalized Schema (in 3NF)

Customer(customer\_id, first\_name, last\_name, email, password, address, phone\_number)  
Product(product\_id, SKU, description, price, stock, category\_id)  
Category(category\_id, name)  
Order(order\_id, customer\_id, order\_date, total\_price, shipment\_id)  
Order\_Item(order\_item\_id, order\_id, product\_id, quantity, price)  
Cart(cart\_id, customer\_id, product\_id, quantity)  
Wishlist(wishlist\_id, customer\_id, product\_id)  
Payment(payment\_id, customer\_id, payment\_method, payment\_date, amount)  
Shipment(shipment\_id, shipment\_date, address, city, state, country, zip\_code)