

## Online Retail Store Management System

An online retail company wants to build a database system to manage its products, customers, orders, and deliveries. The store sells thousands of products across different categories, and each product must be properly tracked from listing to delivery:

- Each **product** has a unique **product ID**, **name**, **description**, **unit price**, **stock quantity**, and **date added**. Every product belongs to a **category**, such as Electronics, Clothing, or Home Appliances.
- Each **category** has a unique **category ID**, **name**, and **description**.
- Some products may belong to **subcategories**, which are also stored in the same table, allowing a category to have multiple subcategories (e.g., "Laptops" under "Electronics").

The system records information about suppliers who provide the products:

- Each **supplier** has a **supplier ID**, **name**, **contact number**, **email**, **address**, and **country**.
- A supplier can supply multiple products, and a product may come from more than one supplier — so their relationship must support multiple associations.

Customers are the core users of the store:

- Each **customer** has a **customer ID**, **full name**, **email**, **phone number**, **shipping address**, and **registration date**.
- A customer can place multiple orders, and each order contains one or more products.
- An **order** is identified by an **order ID** and includes details such as **order date**, **total amount**, **status** (e.g., pending, shipped, delivered, canceled), and **payment method**. Composite attribute
- Each order belongs to one customer but can contain many **order items** — each representing a **product**, its **quantity**, and the **unit price** at the time of purchase.

After an order is placed, the system generates a shipment record to track delivery :

- A **shipment** has a **shipment ID**, **shipment date**, **delivery date**, **carrier name**, **tracking number**, and **current status**.
- Each order can have one or more shipments (for example, when items are sent in separate packages).

### **The store also maintains payment information. :**

- Each **payment** has a **payment ID**, **payment date**, **amount**, **method** (credit card, wallet, bank transfer), and status.
- **Payments are linked to orders, and sometimes a single payment may cover multiple orders, such as when a customer preloads store credit.**

### **To manage inventory, the system keeps stock transactions that record whenever a product's quantity changes due to new stock arrivals or customer purchases:**

- Each **transaction** includes a **transaction ID**, **product ID**, **transaction date**, **quantity change**, **type** (in or out), and **reference** (such as supplier or order ID).

### **Finally, the store offers reviews where customers can rate and comment on products they purchased.**

- Each **review** includes a **review ID**, **rating**, **comment**, **date**, and **references** both the product and the customer who wrote it.

