

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**.
- 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.

