

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.

