



1. User Management (Only Customers & Vendors)

The Users table is used only for Customers and Vendors.

Why this design:

- Customers need login, profile, address, orders
- Vendors need login, store details, and product access
- Admin and Delivery Partners are internal system roles, so they are not treated as regular users

This keeps the system secure and clean.

2. Admin Module (System-Level Role)

The Admin table represents internal administrators of the platform.

Key points:

- Admin accounts are created internally, not through user registration
- Admin can view all customer and vendor details
- Admin is responsible for:

Approving vendors

Approving delivery partners

Monitoring orders, payments, and deliveries

Admin acts as the central controlling authority of the system.

3. Vendor Module

The Vendors table is linked to the Users table using `user_id`.

Purpose:

- Vendor identity and login details come from Users
- Admin verifies and approves vendors
- Once approved, vendors can:

Add and manage products

View customer order details related to their products.

This ensures only verified vendors operate on the platform.

4. Delivery Partner Module (Internal Accounts)

Delivery partners are managed using the Delivery Agents table.

Design logic:

- Delivery agents are approved by admin
- Admin approval is tracked using `approved_by`

This ensures:

Admin has full control over delivery operations

5. Product Management

The Products table is linked to Vendors using `vendor_id`.

This ensures:

- Each product belongs to a verified vendor
- Admin can track product ownership
- Vendors can manage only their own product listings

6. Cart System

The Cart table links:

`user_id → customer`
`product_id → selected product`

This allows:

- Customers to add products to cart
- System to know which customer selected which product
- Smooth conversion of cart items into orders

7. Orders Management

The Orders table is linked to the Users table using user_id.

Why this matters:

- Every order belongs to a customer
- Order lifecycle is tracked clearly
- Admin and vendors can monitor order progress

8. Payments Processing

The Payments table connects:

- order_id → order reference
- user_id → customer making payment

This ensures:

- Secure and traceable transactions
- Clear mapping between customer, order, and payment
- Easy handling of failures and refunds

9. Delivery Tracking

The Deliveries table connects:

- agent_id → delivery partner
- order_id → order

This allows:

- Assignment of delivery partners to orders
- Tracking delivery status
- Accurate delivery timestamps

10. Reviews & Ratings

The Reviews table links:

- product_id → reviewed product
- user_id → customer

This ensures:

- Only genuine customers can give reviews
- Reviews are tied to actual purchases
- Better trust and product transparency

11. Address Management

The Addresses table is linked to the Users table.

This allows:

- Multiple addresses per customer
- Accurate delivery locations
- Better customer experience