

# Day 2 Documentation;

## Planining The Technical Foundation

### Planning the Technical Foundation for an E-commerce Website

Building a successful e-commerce website requires a solid technical foundation. Here's a step-by-step plan to ensure scalability, performance, and security:

#### 1. User Interaction (Frontend)

- Users interact with the website through a **responsive and dynamic frontend** built with frameworks like React, Next.js, or Vue.js.
- Features like product listings, search, cart, and checkout are displayed here

#### 2. Data Fetching (APIs)

- The frontend communicates with the **backend** via **APIs**.
- For example:
  - Fetch product details: GET /api/products.
  - Add to cart: POST /api/cart.

#### 3. Backend Processing

- **Third-party integrations** (e.g., payment gateways, shipping APIs).

#### 4. Database Management

- A database stores:
  - **Product data:** Name, price, description, inventory.
  - **User data:** Profiles, orders, preferences.
  - **Order data:** Payment status, shipping details.

#### 5. Third-Party Integrations

- **Payment Gateways:** Stripe or PayPal for secure transactions.
- **Shipping APIs:** Calculate shipping costs and generate labels.

Example Workflow:

1. **User** searches for a product → Frontend sends a request to the backend.
2. **Backend** queries the database → Returns product details.
3. **User** adds the product to cart → Backend updates the cart in the database.
4. **User** checks out → Backend processes payment via Stripe and confirms the order.
5. **Order** is saved in the database → User receives a confirmation email.

