**DAY 2 PLANNING THE TECHNICAL FOUNDATION**

**Technical Roadmap for Furniture Marketplace**

### ****Week 1: Planning & Design****

* **Deliverables:**
  + Finalize business requirements and technical specifications.
  + Design wireframes and UI/UX for:
    - Homepage
    - Product listing and details pages
    - Cart and checkout
    - Rental management
    - Admin dashboard
  + Create a detailed **System Architecture Diagram**:
    - Frontend (Next.js)
    - Backend (Node.js with APIs)
    - Sanity CMS integration
    - ShipEngine for shipment tracking.
  + Plan database schemas for:
    - Products, rentals, orders, users, and shipment tracking.

### ****Week 2: Frontend Development - Core UI****

* **Deliverables:**
  + Build responsive UI components using **Next.js** and **Tailwind CSS**:
    - Homepage: Showcase featured furniture and categories.
    - Product Pages:
      * General product details.
      * Rental-specific information (e.g., rental duration, deposit).
    - Cart and Checkout:
      * Enable add-to-cart, rental duration selection, and checkout flows.
    - Order Tracking Page:
      * Display real-time tracking status (integrated with ShipEngine).
  + Implement **React Context API** or **Zustand** for state management.
  + Integrate **React Hook Form + Zod** for input validation in forms.

### ****Week 3: Backend Development - API & CMS****

* **Deliverables:**
  + Develop backend API:
    - /products: Fetch product and rental information.
    - /orders: Create and manage orders.
    - /rental: Handle rental-specific data like duration, deposits, and condition tracking.
    - /shipment: Integrate ShipEngine for order tracking.
  + Integrate **Sanity CMS**:
    - Set up schemas for products, orders, rentals, and tracking details.
    - Build APIs to fetch/update CMS data.
  + Implement authentication (e.g., Firebase or Clerk):
    - User login/signup for customers.
    - Admin authentication for product/order management.

### ****Week 4: Integration - Frontend with Backend****

* **Deliverables:**
  + Connect frontend UI components to backend APIs:
    - Product listing page fetches data from /products.
    - Cart and checkout send order data to /orders.
    - Order tracking page fetches data from /shipment.
  + Add error handling and loading states for APIs.
  + Test rental-specific flows:
    - Verify deposit and duration handling.

### ****Week 5: Shipment & Order Tracking****

* **Deliverables:**
  + Integrate **ShipEngine API**:
    - Configure API to create shipment labels and retrieve tracking information.
    - Add /shipment endpoint to backend for:
      * Tracking shipment status (e.g., "In Transit," "Delivered").
      * Estimating delivery time.
  + Display real-time tracking updates on the **Order Tracking Page**.
  + Implement email notifications:
    - Send order confirmation and shipment updates to users.

### ****Week 6: Admin Panel Development****

* **Deliverables:**
  + Build a responsive admin panel using Next.js:
    - Product Management: Add/edit/delete products.
    - Order Management: View and update order statuses.
    - Rental Management: Monitor rental returns and condition tracking.
  + Integrate analytics for admin dashboard:
    - View sales data, rental trends, and user activity.

### ****Week 7: Testing & Optimization****

* **Deliverables:**
  + Conduct end-to-end testing:
    - Verify UI flows for both general purchases and rentals.
    - Ensure accurate shipment tracking and order updates.
  + Optimize API performance:
    - Add caching for frequently accessed data (e.g., products).
  + Test for scalability:
    - Simulate high traffic for product and order APIs.
  + Fix UI/UX bugs identified during testing.

### ****Week 8: Deployment & Launch****

* **Deliverables:**
  + Deploy frontend and backend:
    - Use **Vercel** for Next.js frontend.
    - Use **Sanity CMS** as backend.
  + Set up CI/CD pipelines for seamless updates.?
  + Launch the platform:
    - Announce the launch and onboard initial users.

### ****Post-Launch Maintenance****

* Monitor system performance and fix bugs.
* Roll out enhancements:
  + Add advanced filters and sorting options.
  + Introduce loyalty programs or subscription models for frequent renters.