Day 2 - Planning the Technical Foundation

1. _Project Overview_

The Furniro Marketplace is an e-commerce platform designed to provide a seamless shopping experience for customers. The platform supports product browsing, order placement, and shipment tracking, along with an admin panel for managing products and users.

2. _Technology Stack_

- **Frontend: React.js with Tailwind CSS for a modern and responsive UI.**
- **Backend: Node.js with Express.js for handling API requests.**
- **Database: MongoDB with Mongoose ORM for data management.**
- **Authentication: JWT (JSON Web Tokens) for secure login and session management.**
- **Payment Integration: Stripe API for processing transactions.**
- **Shipping Integration: ShipEngine API for order tracking.**

3. _System Architecture_

The system follows a microservices architecture, where the frontend communicates with the backend via REST APIs. Key components include:

- **Client Side (Frontend):**
  - **UI for product listing and order processing**
  - **Authentication and user session management**
- **Server Side (Backend):**
  - **Handles API requests and business logic**
  - **Manages user authentication and authorization**
  - **Processes payments and shipments**
- **Database Layer:**
  - **Stores product, user, and order data**
  - **Ensures data consistency with schema validation**

4. Database Schema

The main entities in the database are:

- **Users: (Customer, Admin)**
  - `id`, `name`, `email`, `password`, `role`
- **Products:**
  - `id`, `name`, `description`, `price`, `category`, `image`, `stock`
- **Orders:**
  - `id`, `userId`, `productId`, `quantity`, `totalPrice`, `status`

5. API Endpoints

Method	Endpoint	Description
POST	`/api/auth/register`	Register a new user
POST	`/api/auth/login`	Authenticate user
GET	`/api/products`	Retrieve all products
POST	`/api/orders`	Place an order
GET	`/api/orders/:id`	Retrieve order details

6. User Workflows

Customer Journey:

1. User registers and logs in.
2. Browses products and adds items to the cart.

3. Proceeds to checkout and makes a payment.
4. <u>Receives order confirmation and tracks the shipment.</u>

Admin Workflow:

1. Admin logs in to the dashboard.
2. Adds, updates, or removes products.
3. Manages user orders and shipment status.
4. Reviews system analytics and reports.

7. Security Measures

- **Authentication & Authorization:** JWT-based authentication ensures secure access control.
- **Data Validation:** Input validation to prevent SQL injection and XSS attacks.
- **Secure Payments:** Stripe API ensures encrypted transactions.
- **Rate Limiting:** To prevent API abuse and DDoS attacks.

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