DAY 2 PLANNING THE TECHNICAL FOUNDATION

Transitioning to Technical Planning

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Technical Document for Marketplace Builder Hackathon 2025

Technical Requirements

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1. Frontend Requirements

User-Friendly Interface:
- Simple and intuitive navigation for browsing products.
- Clear categorization of products for easy discovery.
- Search and filter functionality (e.g., category, price range, tags).

Responsive Design:
- Fully responsive layout optimized for both mobile and desktop users.
- Support for various screen sizes to enhance the user experience.

Essential Pages:
- **Home:** Highlight featured products, promotional banners, and quick navigation.
- **Product Listing:** Display all products with filtering and sorting options.
- **Product Details:** Show detailed product information (price, stock, description, etc.).
- **Cart:** Allow users to review selected items and update quantities.
- **Checkout:** Capture customer details and process payments.
- **Order Confirmation:** Confirm successful orders with a summary.

2. Backend Requirements

Data Management:

Use Sanity CMS to manage product data, customer details, seller records, and order transactions.
Modular schemas designed for:

- Products (ID, name, price, stock, category, tags).
- Sellers (ID, name, contact, address, products listed).
- Customers (ID, name, contact info, address, order history).
- Orders (order ID, customer info, product details, status, timestamp).
- Payments (payment ID, order ID, amount, status, method).
- Delivery Zones (zone name, coverage area, assigned drivers).

Scalability:

Flexible schema design to accommodate future expansions (e.g., new product categories).

Integration:

Link frontend and backend seamlessly to provide real-time data updates.

3. Third-Party APIs

Shipment Tracking:

- Integrate APIs to provide shipment tracking updates directly on the platform.
- Features include status updates (In Transit, Delivered) and estimated delivery time.

Payment Gateways:

- Support multiple payment methods (credit card, debit card, COD).
- Ensure secure transactions using third-party payment providers.

Other APIs:

- Use APIs for email notifications, SMS updates, and analytics tools.

Technical Plan Aligned with Business Goals

Architecture Overview

Diagram

```
[Frontend (Next.js)]
   |
   |-----> [Sanity CMS Backend]
   |
   |-----> [Third-Party APIs]
           |-----> Shipment Tracking
           |-----> Payment Gateway
```

Key Steps
1. Frontend Development:

- Use Next.js for building a performant and responsive frontend.
- Create reusable components (e.g., product cards, modals, navigation bars).

2. Sanity CMS Configuration:

- Set up schemas based on marketplace data structure.
- Leverage Sanity's GROQ queries for optimized data fetching.

3. API Integration:

- Implement REST or GraphQL endpoints for:
- Real-time shipment status updates.
- Payment processing and order confirmation.
- Use serverless functions for secure API calls.

4. Testing:

- Conduct extensive testing for:
- Frontend responsiveness and accessibility.
- Backend data accuracy and scalability.
- API reliability and error handling.

5. Deployment:

- Host the frontend on Vercel or similar platforms for continuous deployment.
- Use Sanity's cloud-hosted service for backend operations.