Marketplace Technical Foundation Documentation

1. Introduction

This document provides the technical foundation for the E-Commerce Marketplace. It aligns technical planning with business goals, ensuring that the system architecture, API requirements, and workflows support seamless operations.

2. Technical Requirements

- **Frontend Requirements**:
  - User-friendly interface with responsive design for mobile and desktop.
  - Essential pages: Home, Product Listing, Product Details, Cart, Checkout, Order Confirmation.
- **Sanity CMS**:
  - Acts as the backend for managing products, customers, and orders.
  - Ensures scalability and flexibility with schema customization.
- **Third-Party APIs**:
  - Payment Gateway (e.g., PayPal, Stripe) for secure transactions.
  - Shipment Tracking API for real-time logistics updates.

3. System Architecture

- **Frontend**:

  Built with Next.js to ensure responsiveness and fast server-side rendering.

- **Backend**:

  Sanity CMS for managing product, order, and customer data.

- **API Gateway**:

  Acts as a bridge between frontend and backend services, managing interactions with the CMS and third-party APIs.

- **Payment Gateway**:

  Ensures secure payment transactions.

- **Shipment Tracking API**:

  Provides real-time updates on order delivery status.

4. Data Flow

1. **Browsing Products**: Users browse products -> Frontend fetches data from `/products`.

2. **Product Details**: Users view details of a selected product -> Frontend queries `/products/:id`.

3. **Cart & Checkout**: Users add items to the cart and proceed to checkout -> Order data is sent to `/orders`.

   Payment is processed by the payment gateway.

4. **Shipment Tracking**: Users track their order -> Frontend fetches status from `/shipment/:id`.

5. API Endpoints

```
{
  "endpoints": [
    {
      "endpoint": "/products",
      "method": "GET",
      "description": "Fetch all products",
      "requestPayload": null,
      "responseExample": {
        "id": 1,
        "name": "Kurta",
        "price": 2500
      }
    },
    {
      "endpoint": "/products/:id",
      "method": "GET",
      "description": "Fetch product details",
      "requestPayload": null,
      "responseExample": {
        "id": 1,
        "name": "Kurta",
        "price": 2500,
        "stock": 10
      }
    },
    {
      "endpoint": "/orders",
      "method": "POST",
      "description": "Submit a new order",
      "requestPayload": {
        "customer": "Ali",
        "items": [
          {
            "id": 1,
            "name": "Kurta",
            "quantity": 2
          }
        ],
        "total": 5000
      },
      "responseExample": {
        "status": "success",
        "orderId": 123
      }
    }
  ]
}
```

6. Conclusion

This technical foundation document ensures a clear roadmap for implementing the E-Commerce Marketplace. By integrating a responsive frontend, scalable backend (Sanity CMS), and secure third-party services, the platform is designed to deliver a seamless user experience.