

Marketplace Technical Foundation - Rental E-Commerce Marketplace

1. System Architecture Overview

The system comprises the following components:

1. Frontend (Next.js): Handles user interface and interactions.
2. Sanity CMS: Manages product, customer, and order data.
3. Third-Party APIs: Handles shipment tracking and external integrations.
4. Payment Gateway: Securely processes payments.

2. Key Workflows

Key workflows include:

1. User Registration: Users register on the platform, and their data is saved in Sanity CMS.
2. Product Browsing: Users view and filter products via the frontend, which fetches data from Sanity CMS.
3. Order Placement: Users place orders, which are saved in Sanity CMS with payment processed through a gateway.
4. Rental Return: Sanity CMS updates the product's status after its return.

3. API Endpoints

Key API endpoints include:

Endpoint	Method	Purpose	Example Response
----- ----- ----- -----			
/customers	POST	Register a new customer	{ "CustomerID": 1, "Status": "Created" }
/products	GET	Fetch all available products	[{ "ProductID": 1, "Name": "Car A", "DailyRate": 50 }]
/orders	POST	Place a new order	{ "OrderID": 101, "Status": "Order Placed" }
/orders/:id	GET	Fetch details of a specific order	{ "OrderID": 101, "CustomerID": 1, "ProductID": 1 }
/delivery-zones	GET	Fetch all delivery zones	[{ "ZoneID": 1, "City": "New York", "CoverageRadius": "10km" }]

4. Sanity Schema Example

Example Product Schema:

```
export default {
  name: 'product',
  type: 'document',
  fields: [
    { name: 'name', type: 'string', title: 'Product Name' },
    { name: 'type', type: 'string', title: 'Type' },
    { name: 'brand', type: 'string', title: 'Brand' },
    { name: 'dailyRate', type: 'number', title: 'Daily Rate' },
  ]
}
```

```
{ name: 'status', type: 'string', title: 'Status' },  
  
{ name: 'rentalDuration', type: 'number', title: 'Rental Duration' },  
  
{ name: 'features', type: 'array', of: [{ type: 'string' }], title: 'Features' },  
  
],  
  
};
```

5. Technical Roadmap

Phase 1: Backend Setup

- Set up Sanity CMS with schemas for customers, products, and orders.
- Implement APIs for data management.

Phase 2: Frontend Development

- Create UI for registration, product browsing, and order placement.
- Connect APIs for dynamic data rendering.

Phase 3: Integration

- Integrate third-party APIs for shipment tracking and payments.
- Implement rental return and condition reporting workflows.

Phase 4: Testing and Optimization

- Conduct end-to-end testing for all workflows.
- Optimize performance and ensure scalability.