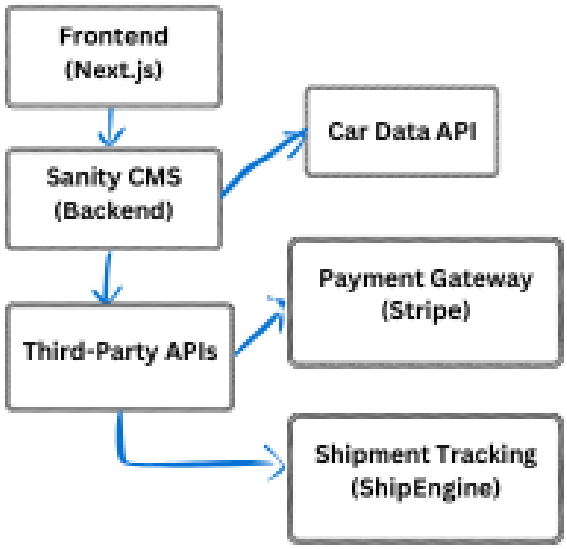
Name: M.Abdullah **Roll no:** 00433137 **Slot:** 7 to 10 Friday

Technical Documentation for Car Rental Website

---

1. System Architecture Overview



Description of Components

- **Frontend (Next.js):**
  - The user interface where customers browse cars, book rentals, and make payments.
  - Built with Next.js for fast, responsive, and dynamic performance.
- **Sanity CMS:**

    - The backend system that stores all car details, customer information, and booking records.
    - Acts as the central database for the website.
- **Third-Party APIs:**
    - **Payment Gateway:** Handles secure payment processing.
    - **Shipment Tracking API:** Provides real-time updates on car deliveries.
    - **Location API:** Fetches pickup and drop-off points.

2. Key Workflows

1. User Sign-Up

- **Steps:**
    1. User fills out the registration form.
    2. Data is sent to Sanity CMS and stored securely.
    3. User receives a confirmation email.

2. Car Browsing

- **Steps:**
    1. User visits the website and searches for cars.
    2. Frontend fetches car data from Sanity CMS via the **Car Data API**.
    3. Cars are displayed with filters (e.g., price, type, availability).

3. Booking a Car

- **Steps:**
    1. User selects a car and chooses rental dates.
    2. Booking details are sent to Sanity CMS via the **Booking API**.
    3. Booking is confirmed, and details are saved in Sanity.

4. Payment Processing

- **Steps:**
    1. User enters payment details.
    2. Frontend sends data to the **Payment Gateway API**.
    3. Payment is processed, and a confirmation is sent to the user.

5. Shipment Tracking

- **Steps:**

1. If the car is being delivered, the frontend fetches tracking details from the **Shipment Tracking API**.
2. Real-time updates (e.g., status, ETA) are displayed to the user.

3. API Endpoints

API Name	Method	Purpose Example	Request/Response
/cars	GET	Fetch all available cars.	**Request:** GET /cars **Response:** [{ "id": 1, "name": "Toyota Corolla", ... }]
/bookings	POST	Create a new booking.	**Request:** POST /bookings **Response:** { "bookingId": 123, "status": "Confirmed" }
/payments	POST	Process payment for a booking.	**Request:** POST /payments **Response:** { "paymentId": 789, "status": "Paid" }
/shipment-tracking	GET	Track the status of a booking.	**Request:** GET /shipment-tracking?bookingId=123 **Response:** { "status": "In Transit", "ETA": "30 mins" }

4. Sanity Schema Examples

- **Car Schema**

```
export default {
name: 'car',
type: 'document',
fields: [
{ name: 'name', type: 'string', title: 'Car Name' },
{ name: 'type', type: 'string', title: 'Car Type' },
{ name: 'price', type: 'number', title: 'Price per Day' },
{ name: 'availability', type: 'boolean', title: 'Availability' },
{ name: 'image', type: 'image', title: 'Car Image' }
]
};
```

- **Booking Schema**

```
export default {
name: 'booking',
type: 'document',
fields: [
{ name: 'car', type: 'reference', to: [{ type: 'car' }], title: 'Car' },
{ name: 'customer', type: 'reference', to: [{ type: 'customer' }], title: 'Customer' },
{ name: 'startDate', type: 'date', title: 'Start Date' },
{ name: 'endDate', type: 'date', title: 'End Date' },
{ name: 'status', type: 'string', title: 'Booking Status' }
]
};
```

5. Technical Roadmap

Milestones

1. **Week 1-2:**
    - Set up Sanity CMS and design schemas for cars, customers, and bookings.
    - Develop the frontend using Next.js.
2. **Week 3-4:**
    - Integrate third-party APIs (payment gateway, shipment tracking).
    - Implement user registration and car browsing features.
3. **Week 5-6:**
    - Add booking and payment functionality.
    - Test the entire system and fix any issues.
4. **Week 7:**
    - Launch the website and gather user feedback.

Why This Documentation Works for My Website

- **Clear and Organized:** Every component, workflow, and API is explained in detail.
- **Scalable:** The architecture and workflows can grow with the website.
- **Professional:** Follows industry standards for technical documentation.