High Level Design Document

Introduction

This High Level Design (HLD) document outlines the architecture and core components for **Mediform - Healthcare Appointment Booking UI**. The project delivers a responsive frontend application for booking, managing, and viewing healthcare appointments, emphasizing modern UI/UX, robust form handling, and dynamic data display using React and related technologies.

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1. System Architecture Overview

Architecture Description:
Mediform is a single-page application (SPA) built with React. It consists of modular UI components for appointment management, user authentication, and media integration. The frontend communicates with backend APIs (not in scope) for data persistence and retrieval.

Module/Component	Role/Responsibility
App Shell/Layout	Provides global layout, navigation, and theming
Authentication Module	Handles user login, registration, and session state
Appointment Module	Booking, viewing, editing, and canceling appointments
Form Components	Input forms with validation for user and appointment data
Media Integration	Upload/display of relevant media (e.g., documents)
Data Display Components	Dynamic lists, tables, and detail views
API Service Layer	Handles HTTP requests to backend APIs
State Management	Manages UI and application state (React Context/State)

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2. Component Interactions

Source Component	Target Component	Interaction Description
User	Authentication Module	User logs in/registers; session state updated
App Shell	All Modules	Provides navigation and context
Appointment Module	API Service Layer	Fetches/sends appointment data
Form Components	Appointment Module	Validates and submits user input
Media Integration	API Service Layer	Uploads/downloads media files
Data Display Components	API Service Layer	Retrieves and displays dynamic data

Flow Summary:
User navigates via App Shell, authenticates, and interacts with appointment and media modules. All data operations are routed through the API Service Layer.

3. Data Flow Overview

Data Source	Data Destination	Data Type/Flow
User Input (Forms)	Appointment Module	Appointment details, user info
Appointment Module	API Service Layer	CRUD operations for appointments
API Service Layer	Data Display Components	Appointment lists, details
Media Integration	API Service Layer	Media file uploads/downloads
Authentication Module	API Service Layer	Auth credentials, session tokens

4. Technology Stack

Layer/Area	Technology/Frameworks
UI Framework	React
Styling	Tailwind CSS, custom CSS
Scripting	JavaScript (ES6+)
Markup	HTML5
State Management	React Context, useState/useReducer
Form Handling	React Hook Form / Custom Validation
Media Handling	HTML5 APIs, React components
API Communication	Fetch API / Axios
Testing (optional)	Jest, React Testing Library

5. Scalability & Reliability

- **Scalability:**
  Modular React components and stateless UI enable easy extension and maintenance. API interactions are abstracted for backend flexibility.
- **Reliability:**
  Form validation, error handling, and optimistic UI updates ensure robust user experience. Responsive design supports multiple devices.
- **Security:**
  Authentication flows and secure API communication (HTTPS) are enforced. Sensitive data is not stored client-side.

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