

Healthcare Management System

Introduction:

We developed a robust Healthcare Management System (HMS) that enhances patient care, streamlines administrative processes, and ensures compliance with healthcare standards. Our goal was to modernize healthcare operations and enhance patient care through the implementation of a comprehensive Healthcare Management System. Tailored for multi-specialty healthcare providers with multiple clinics, hospitals, and outpatient services, the system ensures streamlined management of patient information, appointments, medications, and other critical healthcare processes.

Client Details:

Name: Confidential | **Industry:** Healthcare, IoT | **Location:** USA

Technologies:

Framework: .NET Core 6.0 ,

ORM Tool: EF Core,

Database: MySQL

Dashboard: ReactJS, HTML5, SASS, JavaScript, React Query.

Mobile App: Flutter and its components.

Cloud Services: AWS EC2, S3, Nginx, AWS Authorization and Authentication

Healthcare Management System

Project Description:

Project Scope:

The project's scope encompassed the following key areas:

- **Patient Health Records**

Designing and implementing a secure and interoperable PHR system to centralize patient health information, including medical history, diagnoses, medications, and treatment plans.

- **Appointment Scheduling**

Develop a user-friendly appointment scheduling system that allows patients to book appointments online, and healthcare providers to manage their schedules efficiently.

- **Telemedicine Support**

Enabling virtual consultations and remote patient monitoring through the integration of telemedicine features working as separate AI based chat support to patients as well as reminder of the prescribed preparation medicines for the colonoscopy. Integrated a pharmacy based option to get the preparatory medications of the patient as prescribed by the doctor to be delivered at the doorsteps.

- **Notification Reminders**

Inform end users about their every step, ensuring nothing gets missed. It starts from the appointment request notification to doctor, informing patient about their successful/unsuccessful appointment approvals/denials, reminding them to fill the prerequisites, taking care of the preparations shared by a doctor, to reminding them about the prescribed medications and dietary plans.

- **Current/Important Information Loop**

There are 2 types of Information that gets shared to everyone via the app , i.e. Current information/findings and important healthcare advice by top notch doctors around the world via the feed mechanism , that is displayed over the app at the exploration page(home page) in order to share with every user of the app to ensure their wellness.

- **Compliance and Security**

Ensuring the system complies with healthcare regulations, such as HIPAA, and implement robust security measures to protect patient data by encrypting user's personal data, and adding authentication for every user and authorization on the various levels of hierarchy.

Healthcare Management System

Project Implementation:

- **Project Planning:**

We defined project goals, objectives, and deliverables. Key stakeholders were identified through interviews. The project plan, including timelines, milestones, and resource allocation was developed using JIRA.

- **System Design:**

The Healthcare Management System (HMS) was designed with scalability in mind. Wireframes and prototypes were crafted for user interfaces, ensuring an intuitive experience. Data models and relationships for the Electronic Health Record (EHR) system provided a solid data foundation.

The backend followed a layered approach, employing EF Core for data transactions, a unit of work pattern for efficiency, and a separate solution for chat services. Frontend Dashboard Architecture adopted MVVM in ReactJS, while the mobile app used Flutter, ensuring a seamless user experience. This holistic approach resulted in a versatile and efficient HMS.

- **Development:**

We implemented core HMS features as per the approved design. Regular client sprint reviews were conducted for feedback and adjustments. Our team prioritized implementing robust security measures for patient data protection through encryption and authentication.

- **Testing:**

Thorough unit, integration, and user acceptance testing were conducted, followed by the resolution of identified issues.

- **Deployment:**

We executed a phased deployment strategy to ensure minimal disruptions, offering thorough training to healthcare professionals, administrative staff, and IT personnel. System performance was monitored using Linux-based hosting across all project components. The mobile app is accessible through both Apple's App Store and Google's Play Store.

- **Post-Deployment Support:**

A robust support system was implemented for prompt resolution of post-deployment issues. Gathering user feedback, facilitating iterative improvements based on their experiences.

Healthcare Management System

Result:

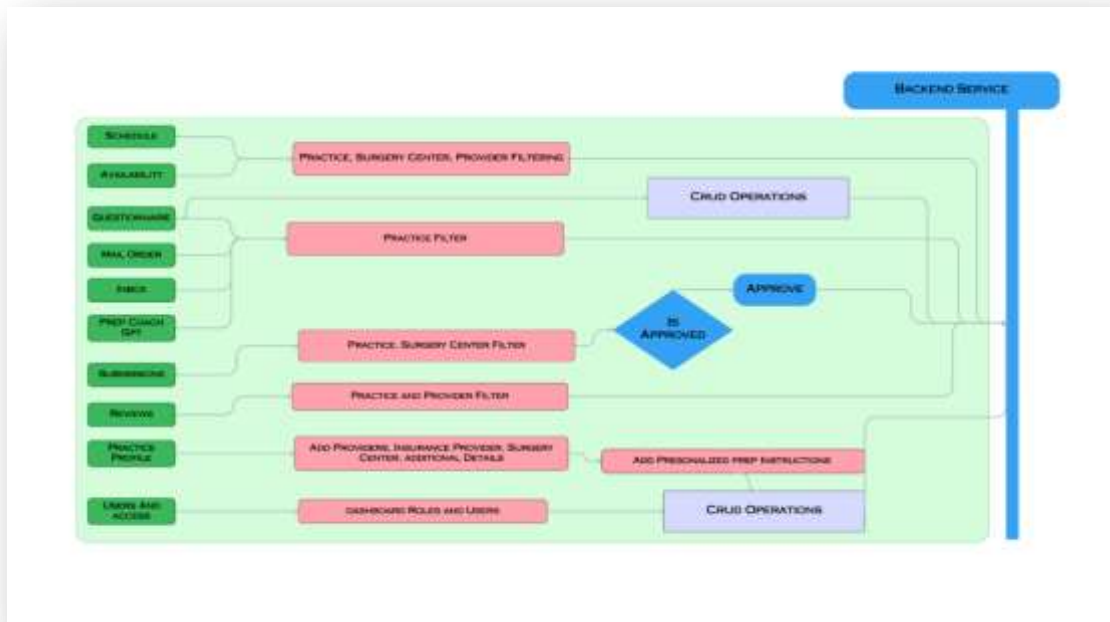
The successful implementation of the Healthcare Management System resulted in:

- Improved patient care through streamlined processes and access to comprehensive health records.
- Increased operational efficiency with automated appointment scheduling and billing processes.
- Enhanced data security and compliance with healthcare regulations.
- Positive feedback from healthcare professionals and staff on the user-friendly interface and improved workflow.

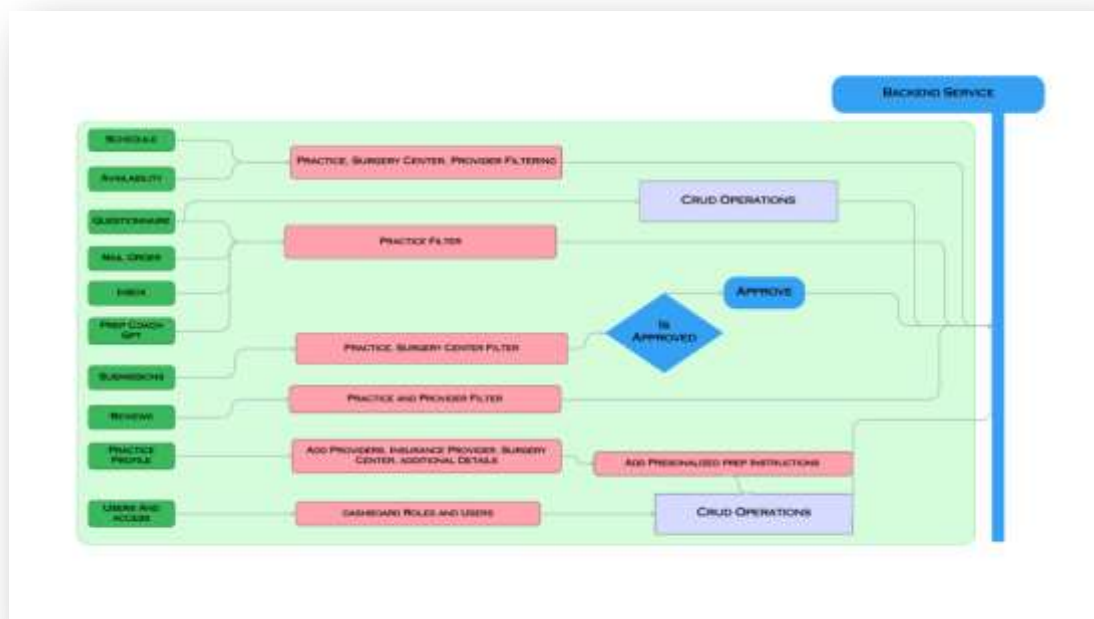
Healthcare Management System

Architecture Diagrams:

Backend Architecture:

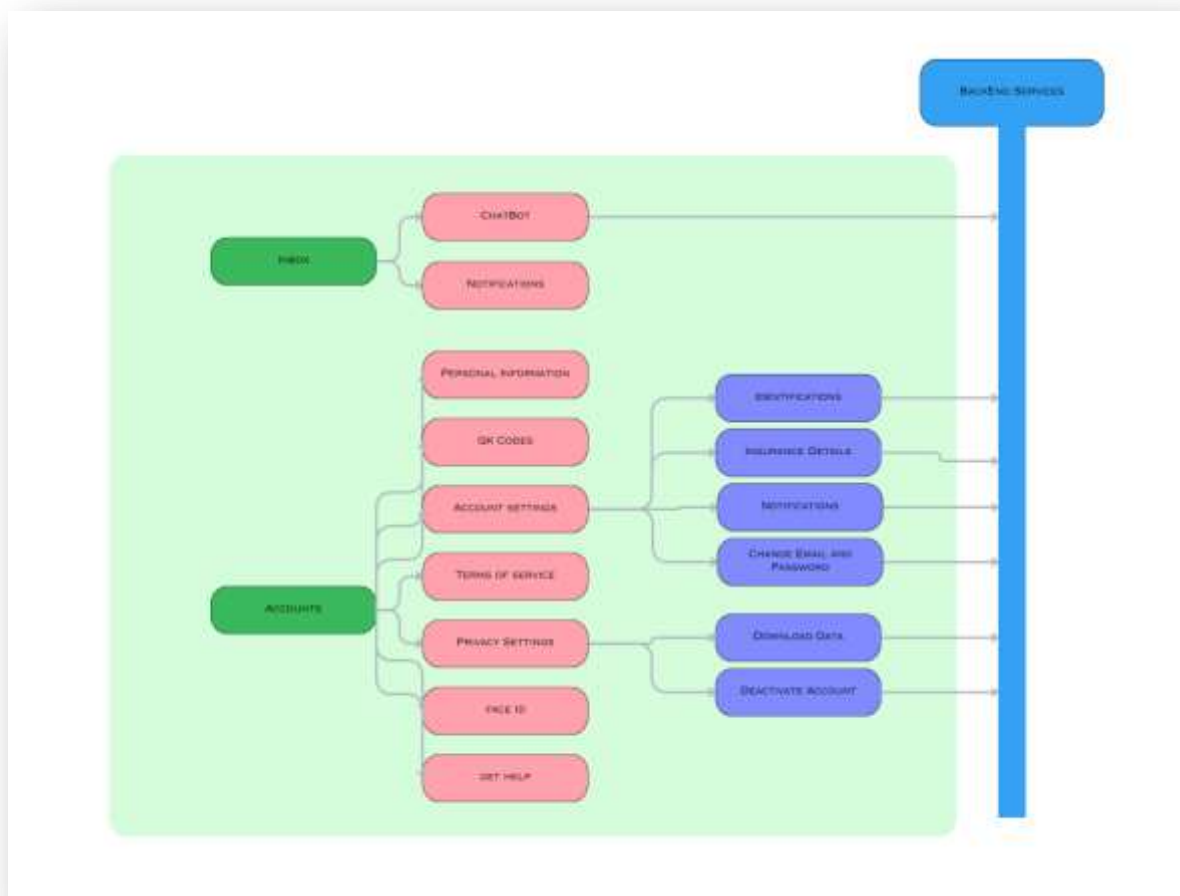


Admin Portal Sitemap:



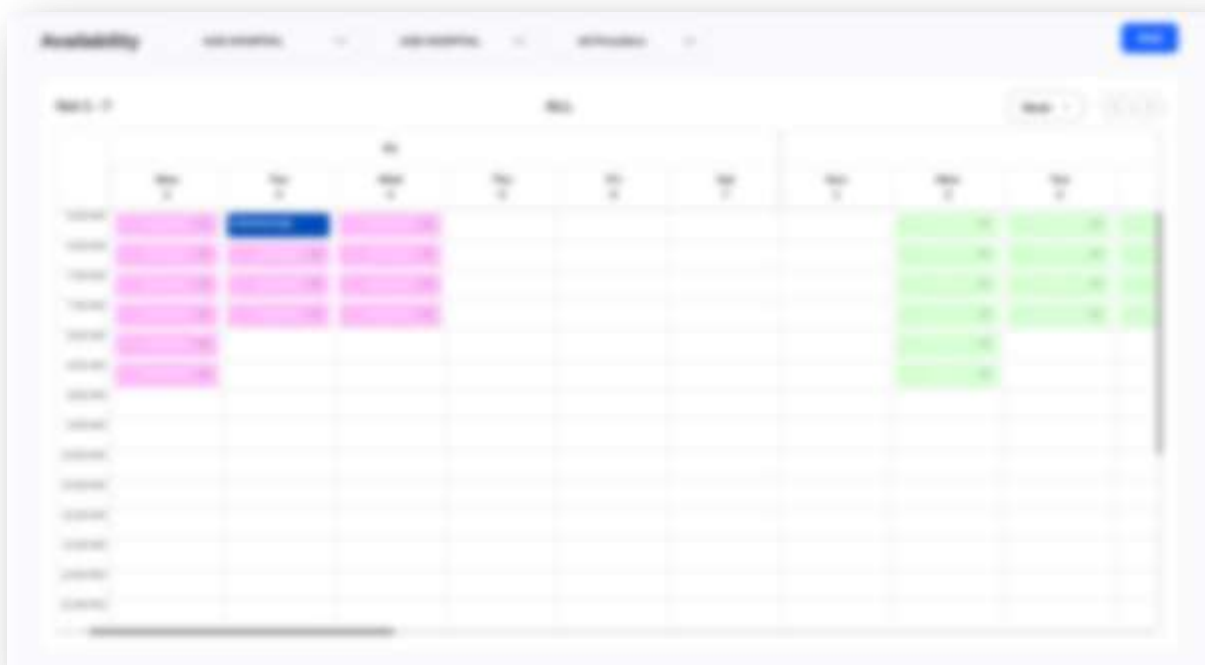
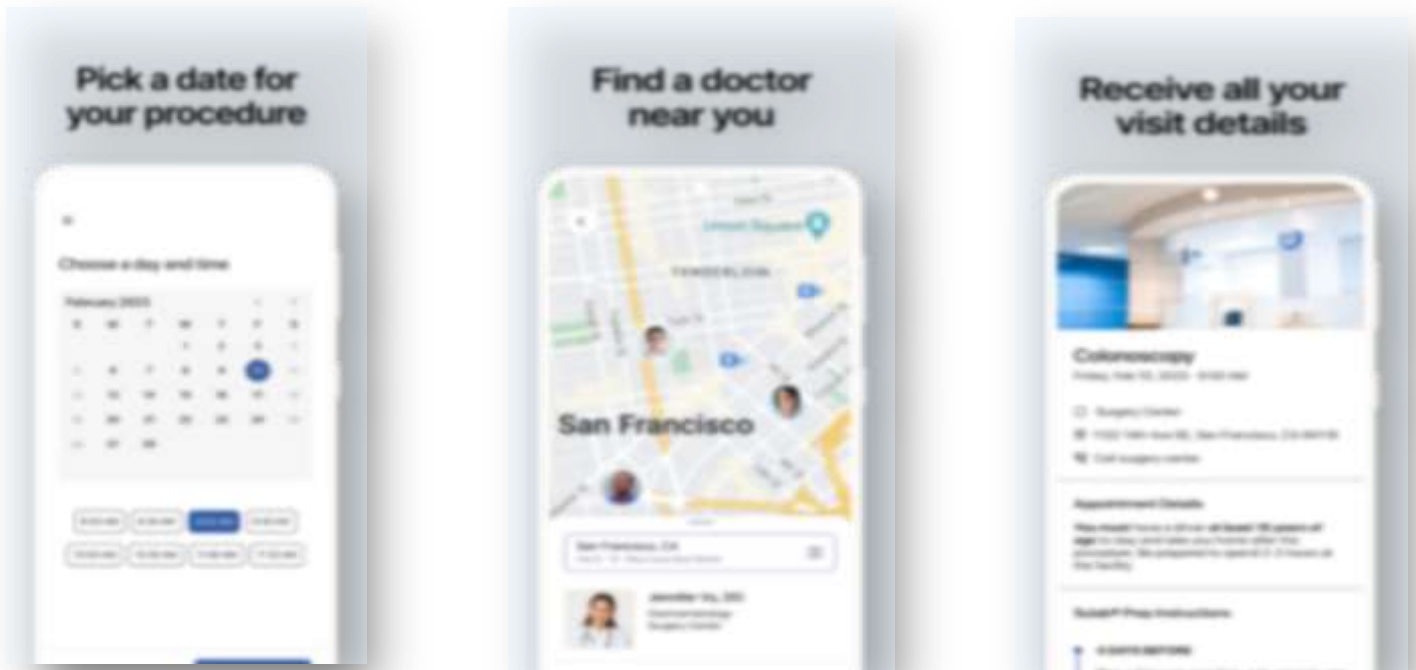
Healthcare Management System

Mobile App Sitemap:



Healthcare Management System

Screenshots:



Healthcare Management System

Schedule

Health Care

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Dr. Smith						Cardiology	
Dr. Jones							Neurology
Dr. Brown						Cardiology	
Dr. White							Neurology

Schedule

Department	Specialty	Physician	Room	Time	Status	Notes	Start	End	Location	Room
Cardiology	Cardiology	Dr. Smith	101	09:00-10:00	Available		09:00	10:00	101	101
Cardiology	Cardiology	Dr. Jones	102	10:00-11:00	Available		10:00	11:00	102	102
Neurology	Neurology	Dr. Brown	201	09:00-10:00	Available		09:00	10:00	201	201
Neurology	Neurology	Dr. White	202	10:00-11:00	Available		10:00	11:00	202	202
Cardiology	Cardiology	Dr. Smith	101	11:00-12:00	Available		11:00	12:00	101	101
Cardiology	Cardiology	Dr. Jones	102	12:00-13:00	Available		12:00	13:00	102	102
Neurology	Neurology	Dr. Brown	201	11:00-12:00	Available		11:00	12:00	201	201
Neurology	Neurology	Dr. White	202	12:00-13:00	Available		12:00	13:00	202	202

Schedule

Department	Specialty	Physician	Room	Time	Status	Notes	Start	End	Location	Room
Cardiology	Cardiology	Dr. Smith	101	09:00-10:00	Available		09:00	10:00	101	101
Cardiology	Cardiology	Dr. Jones	102	10:00-11:00	Available		10:00	11:00	102	102
Neurology	Neurology	Dr. Brown	201	09:00-10:00	Available		09:00	10:00	201	201

Healthcare Management System

