Information Technology Institute

Sehaty – MVP

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1.Market Research

Industry Overview

The global hospital management system (HMS) market is experiencing significant growth, driven by the worldwide push for digital transformation in healthcare. According to recent reports, the global healthcare IT market is expected to surpass $600 billion by 2030. This expansion is fueled by hospitals and clinics seeking to optimize workflows, reduce paperwork, and enhance patient experience. Healthcare providers are increasingly recognizing the need for cloud-based, cost-effective, and modular solutions that can adapt to their operational scale.

In the MENA region, specifically in developing countries, hospitals face additional challenges such as limited budgets, fragmented patient records, and reliance on paper-based systems. These constraints create opportunities for affordable, lightweight, and multilingual hospital management solutions tailored to local needs.
Unlike traditional HMS vendors, who mainly target large institutions in developed markets, Sehaty addresses the unique challenges of small to medium healthcare providers in emerging economies.

Target Audience

1.Hospitals and Clinics:

- Require centralized platforms to manage patients, doctors, staff, and departments.
- Seek to improve operational efficiency and reduce dependency on manual records

2.Patients:

- Expect shorter waiting times, easy access to prescriptions, and appointment booking.
- Look for transparency in billing and healthcare services.

3.Doctors & Nurses:

- Need efficient scheduling tools and quick access to patient histories.
- Require seamless prescription management and reduced administrative workload

4.Hospital Admins:

- Demand interactive dashboards with real-time data on patients, revenue, and operations.
- Look for cost-efficient, scalable solutions to manage hospital resources.

Competitor Analysis

Existing HMS platforms (e.g., Healthray, Millensys, EHealth) dominate developed markets but are often expensive and complex. Local hospitals in developing regions rely on outdated systems or manual processes, creating a gap for lightweight, affordable, and scalable HMS MVPs.

Competitive Comparison Table:

Feature	Sehaty	Healthray	Millensys	EHealth
Target Market	Small & medium hospitals and clinics in developing regions	Private hospitals & clinics	Large hospitals, diagnostic centers	Enterprise & government healthcare projects
Cost	Affordable subscription or commission model	Moderate to high licensing	High enterprise contracts	High project-based pricing
Complexity	Simple, user-friendly interface for non-technical users	Moderate complexity, needs training	Complex setup and heavy UI	Depends on custom implementation
Payment Protection	Built-in secure payment with refund policy	No in-app payment integration	No built-in payment option	Manual or third-party payment process
Language & Localization	Multi-language support possible (Arabic, English)	Mainly English	Mainly English	Mainly English
UI / UX Design	Modern dashboards for each role (patient, doctor, admin)	Outdated interface design	Old EHR-style screens	Functional but not user-focused

2. SWOT Analysis for Your MVP

Strengths

Digitizes key hospital workflows such as appointments, patient management, and prescriptions.
Provides role-based dashboards for patients, doctors, and administrators.
Built on a cloud-based, scalable, and modular architecture for easy future expansion.
Enhances patient satisfaction through faster, transparent, and more efficient healthcare services.

Weaknesses

Some hospitals may hesitate to replace traditional paper-based systems.
Requires staff training to ensure effective system adoption.
Integration with existing legacy systems can be technically challenging.
Compliance with data protection regulations (HIPAA, GDPR) adds complexity and cost.

Opportunities

Increasing global demand for digital transformation in healthcare.
Potential to expand into billing, pharmacy, laboratory, and insurance management modules.
Strong growth opportunities in developing countries with limited HMS adoption.
Possibility to integrate with telemedicine platforms, wearable devices, and mobile health apps.

Threats

High competition from established hospital management system vendors.
Data security risks and potential cyber-attacks targeting healthcare systems.
Strict government regulations can delay deployment and implementation.
Resistance from hospital staff accustomed to manual or paper-based workflows.

3. Define the Core Problem or Need

Hospitals face significant inefficiencies due to manual processes, scattered records, and lack of centralized systems. Patients wait long hours for appointments, while doctors struggle with unorganized patient histories.

Pain Points:

For Patients:
Long wait times, difficulty accessing records, lack of transparency.

For Doctors:
Poor scheduling, no centralized patient data, inefficient workflows.

For Admins:
Lack of oversight, no real-time reports, excessive paperwork.

The HMS MVP solves this by:
providing a unified platform for managing patients, doctors, appointments, and prescriptions with real-time dashboards and role-based access.

4. Identify Your Target Audience

Patients:
(People who need to be examined)
Age: 18–80
Gender: All
Income: Middle to upper income

Why They Benefit:
Faster appointments, online records, transparent prescriptions.

Doctors & Nurses:
(Licensed healthcare professionals)
Age: 20–40

Gender: All

Why They Benefit:
Organized schedules, patient history access, reduced paperwork.

Marketing Plan

Channel	Target Audience	Goals	Content Type	Frequency	Notes
Facebook	Hospital admins, patients (30–60), local clinics	Build awareness, showcase benefits	Case studies, testimonials, explainer posts	3–4 posts/week	Boost posts to healthcare professionals & hospital management groups
LinkedIn	Hospital decision-makers, doctors, IT managers	Establish credibility, B2B lead generation	Whitepapers, industry insights, product demos	2–3 posts/week	Run targeted ads for hospital directors & investors
Instagram	Younger patients, medical students, nurses	Increase awareness, humanize brand	Stories, reels, infographics, behind-the-scenes	Daily stories + 3 posts/week	Use healthcare hashtags; partner with med influencers
YouTube	Doctors, hospital staff, patients	Educate, demonstrate product use	Tutorials, product demos, webinars	2 videos/month	Record real demo scenarios with mock hospital workflows
Affiliate Marketing	Healthcare bloggers, tech reviewers	Increase platform adoption	Referral links, commission-based partnerships	Ongoing	Commission per lead; track with UTM links
Twitter (X)	Tech-savvy doctors, digital health advocates	Announce updates, join healthcare debates	Threads, news updates, event live-tweets	3–5 tweets/week	Engage in trending healthcare IT hashtags
Medical Conferences	Hospital admins, healthcare investors	Networking, partnerships	Booth presence, flyers, live demos	Quarterly events	Partner with local & international medical expos

5. List the Essential Features

1. User Authentication & Verification & Role Management

Sign up / login (email, phone, or social).
ID or passport verification for travelers.

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2. Patient Management (profiles, medical history)

Patient Registration & Profile
Name, Gender, Age, Date of Birth, Address, Phone, Email, Emergency contact information.

Upload ID proof / insurance card / Assign unique Patient ID / MRN (Medical Record Number.

Medical History
Past medical conditions / Surgeries, allergies, chronic diseases / Ongoing medications.

Appointments
Book appointments with doctors / View upcoming & past appointments / Cancel or reschedule appointments / Notifications/ reminders (email/SMS).

Doctor Consultation Records
Diagnosis notes / Prescriptions / Recommended tests/scans.).

Lab & Diagnostic Reports
Upload & view lab test results / Radiology/Imaging reports (X-ray, MRI, CT scans).

Billing & Payments
Hospital bills: (consultation, lab, pharmacy, room charges) Online payment option (credit/debit, mobile wallets) / View payment history.

Prescription & Pharmacy
Doctor-prescribed medicines / Option to purchase from hospital pharmacy / Medication history).

3. Doctor & Staff Management (department assignments, schedules)

Doctor Registration & Profile
Unique Doctor ID || Personal details (name, gender, contact, photo) || Specialty & department || Qualifications, certifications, experience || Availability schedule)

Doctor Dashboard
View & manage daily appointments || Access to patient medical history before consultations || Write & update diagnosis notes || Issue prescriptions || Request lab tests & view results)

Scheduling
Manage availability (time slots, days off) || Approve/ reject appointment requests**.**

Performance & Monitoring
Number of patients seen || Patient feedback/ratings

Doctor–Patient Communication
Secure messaging with patients || Telemedicine option (video consultation)

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4. Appointment Scheduling (request, approval, doctor assignment)

Appointment Request (Patient Side)
Self-booking by patients || Emergency request option || Option to reschedule or cancel

Appointment Timing Policy
Patients can book appointments up to 7 days in advance and no later than 30 minutes before the scheduled time.
This ensures that doctors and staff have enough time to prepare for upcoming consultations.
Patients cannot cancel appointments less than 24 hours before the scheduled time to maintain schedule stability and avoid last-minute disruptions.
Emergency appointments can still be requested at any time through the Emergency Request option, depending on doctor availability.

Appointment Approval (Admin/Doctor Side)
Requests go to doctor or receptionist dashboard || Doctor/ staff can Approve or Reject (with a reason) || Auto-reminders for pending approvals || Notifications sent back to patient after approval || rejection.

Scheduling & Calendar Integration
Doctors can view their daily/weekly calendar || Staff can see all scheduled appointments per department || Patients can see their upcoming appointments in their portal

Doctor Availability Visibility
When booking, patients will only see doctors who are available during their selected date and time.
The system automatically filters out doctors who are on leave, fully booked, or outside their working hours.
This feature improves the booking experience and minimizes scheduling conflicts between doctors and patients.

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5. Prescription Management (doctor notes, patient view access)

Doctor Side (Prescription Creation & Notes)
Create new prescriptions during or after a consultation || Add diagnosis notes and next steps || Digital signature/stamp of doctor for authenticity.

Patient Side
Patients can log into their portal and view their active & past prescription || Download or print prescriptions as PDF || See doctor's notes & instructions.

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6. Dashboards (customized per role)

Admin Dashboard
Hospital overview (total patients, doctors, staff, rooms, revenue) || Appointment statistics (booked, canceled, no-shows) || Financial reports (billing, payments, insurance claims) || Staff management (doctor schedules, staff attendance).

Doctor Dashboard

Today's Appointments (with patient details) || Patient medical history access (diagnosis, lab reports, past visits) || Prescription creation & management.

Nurse / Staff Dashboard

Shift schedule || Assigned patients list (bed/ward/room info) || Vitals tracking & updates || Doctor instructions (medication administration, care tasks)

Patient Dashboard

Upcoming appointments || Prescription list with reminders || Lab reports (downloadable) || Billing & payment history || Medical history summary.

Hospital Experience Survey

After completing a consultation or medical service, patients can provide feedback through a short Hospital Experience Survey.
The survey measures satisfaction across key areas such as**:**

- Appointment booking and waiting time
- Doctor professionalism and communication
- Staff behavior and service quality
- Cleanliness and facility conditions

7. Admin Control Panel (manage users, departments, reports)

User Management

Add/Edit/Delete users (doctors, nurses, staff, patients, pharmacists, lab technicians) || Assign roles & permissions (e.g., doctor can see patient history, but not billing) || Reset passwords Activate-Deactivate accounts || View login history & activity tracking.

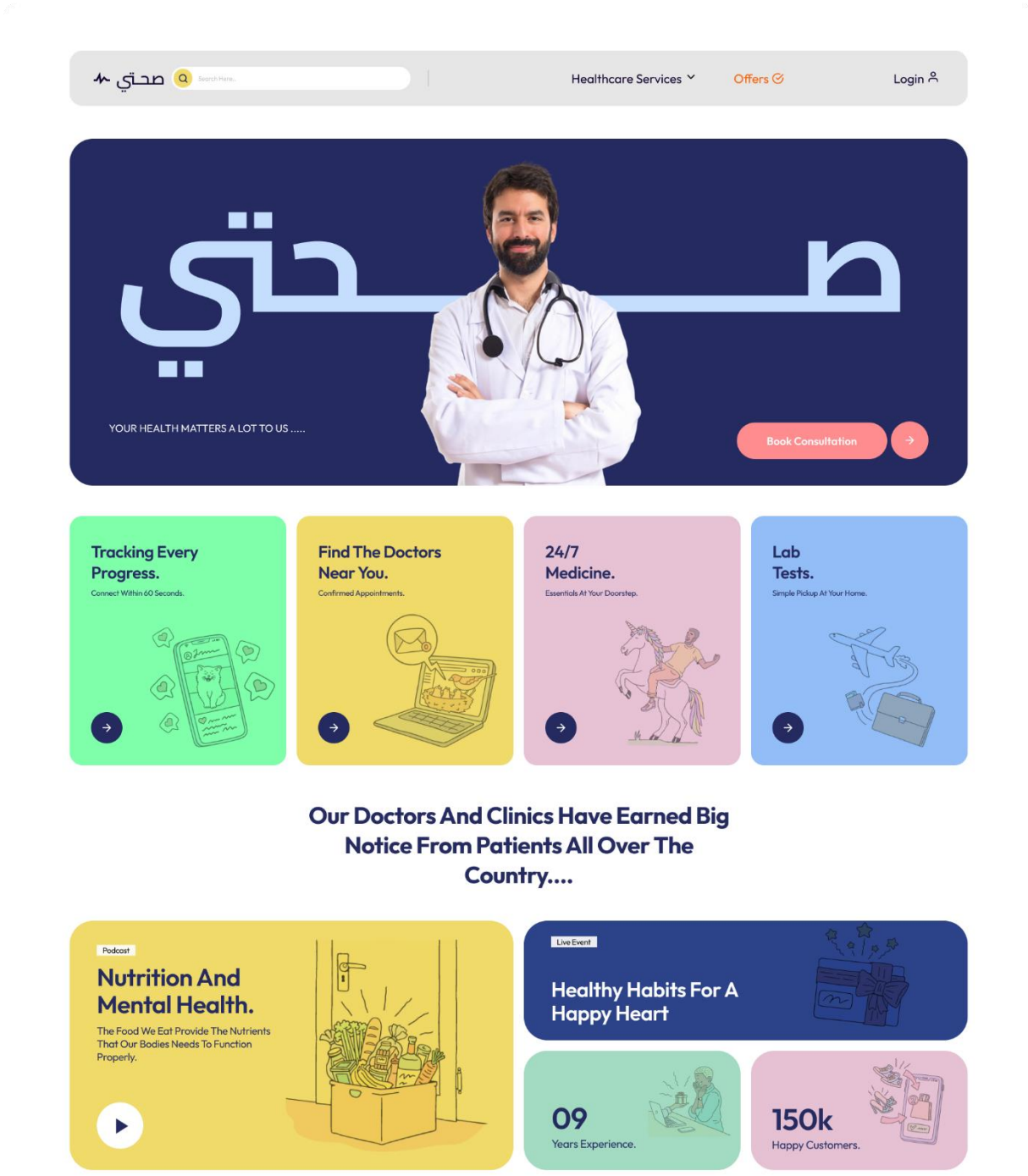
Department Management

Create, update, or remove hospital departments || Assign doctors & staff to departments || Manage
department schedules.

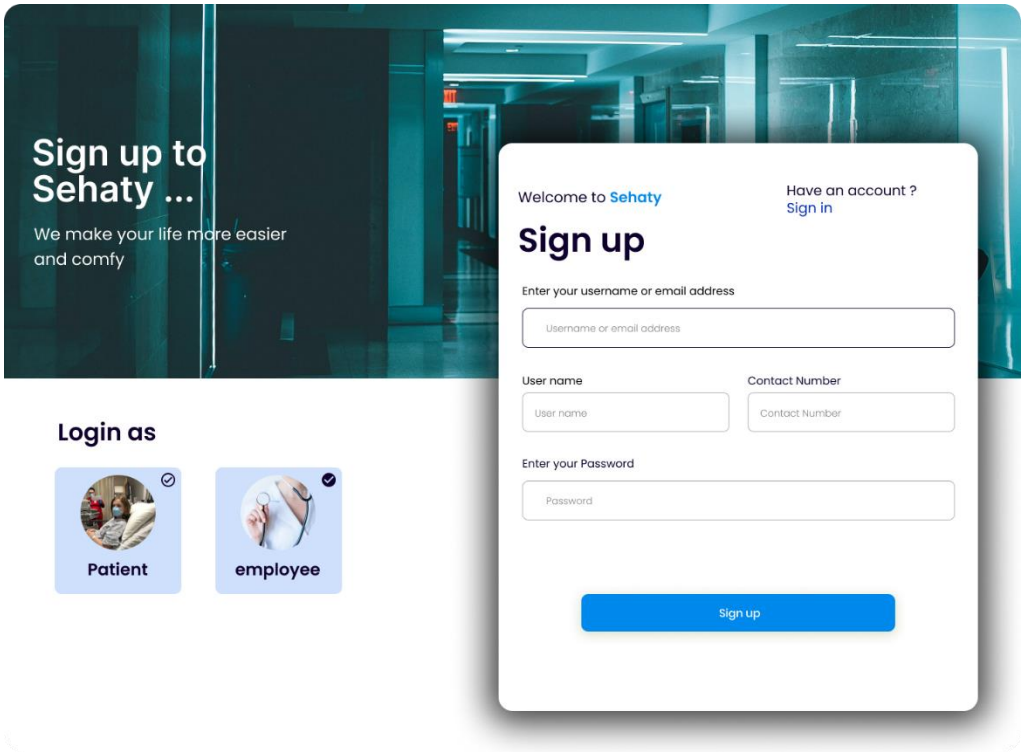
6. Design a Prototype

Prototype link: Figma

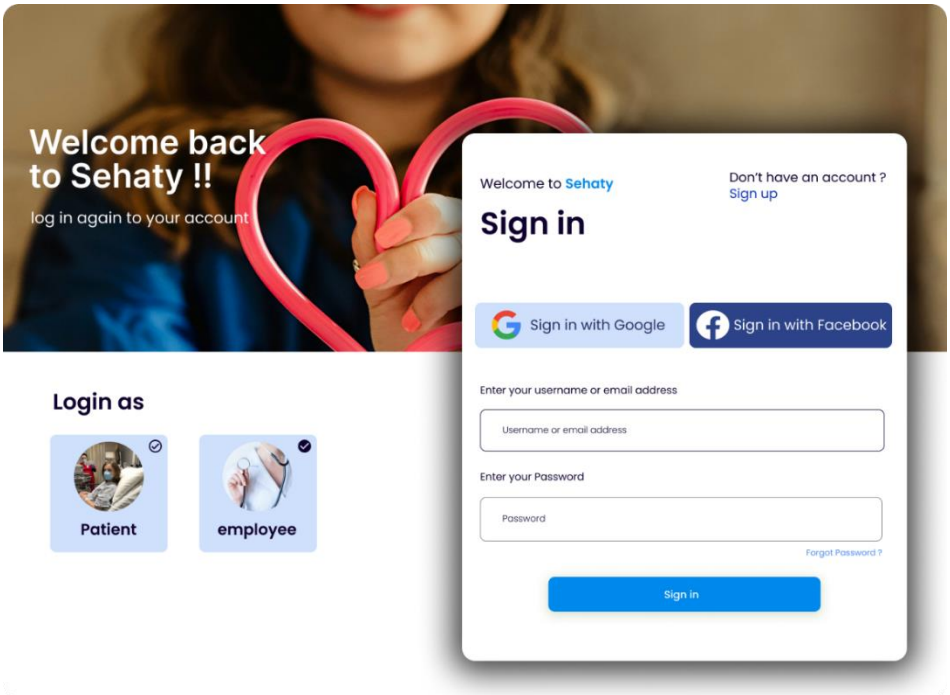
1- Landing Page



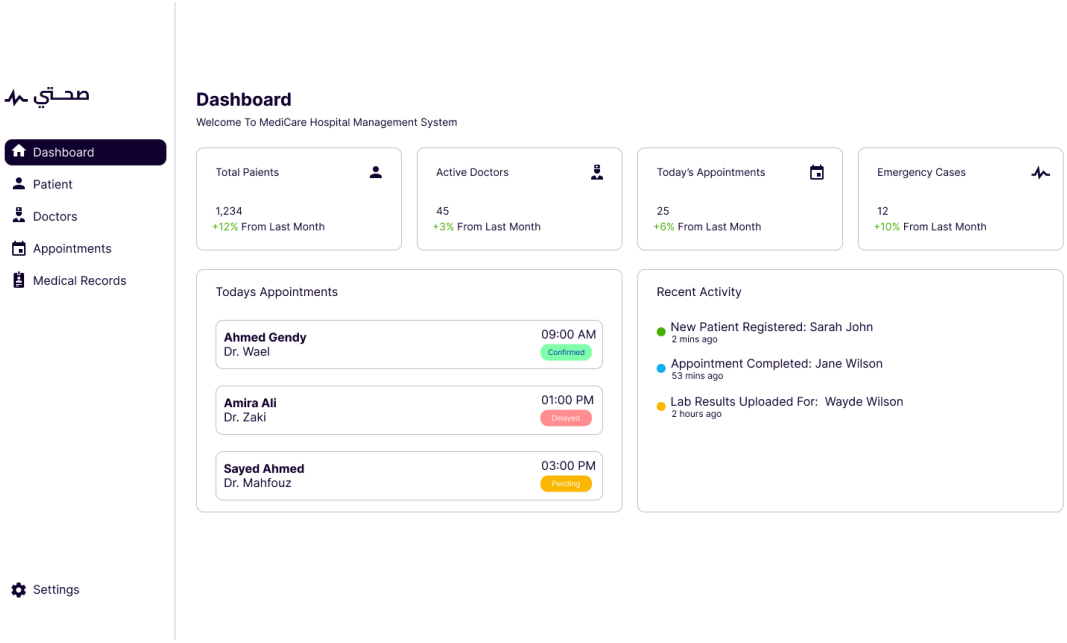
2- Sign up Page



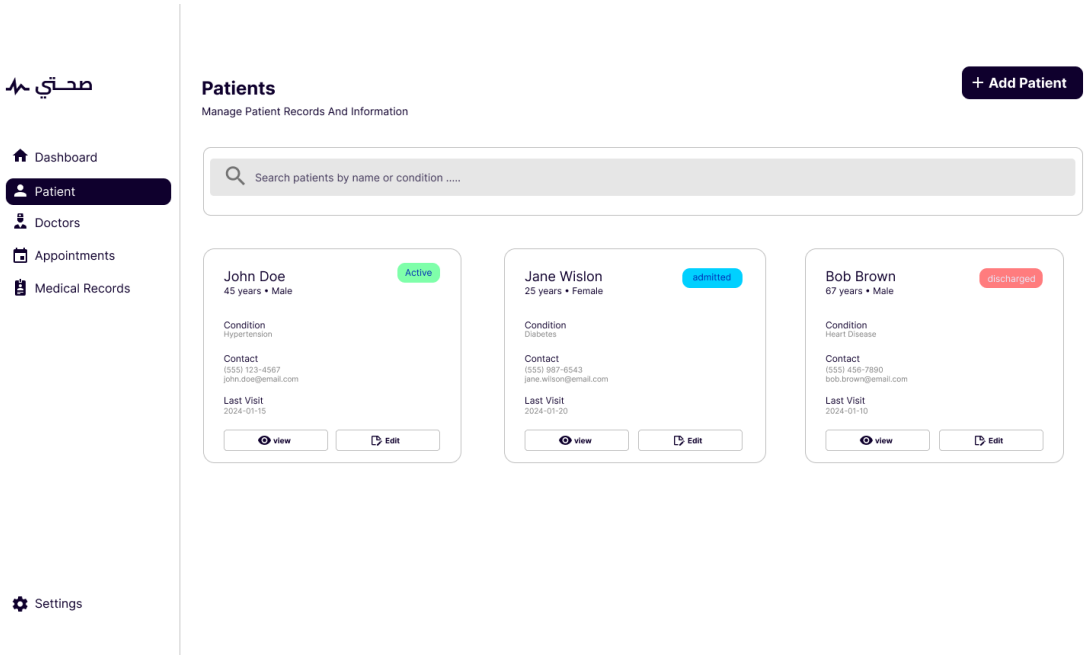
3- Sign in Page



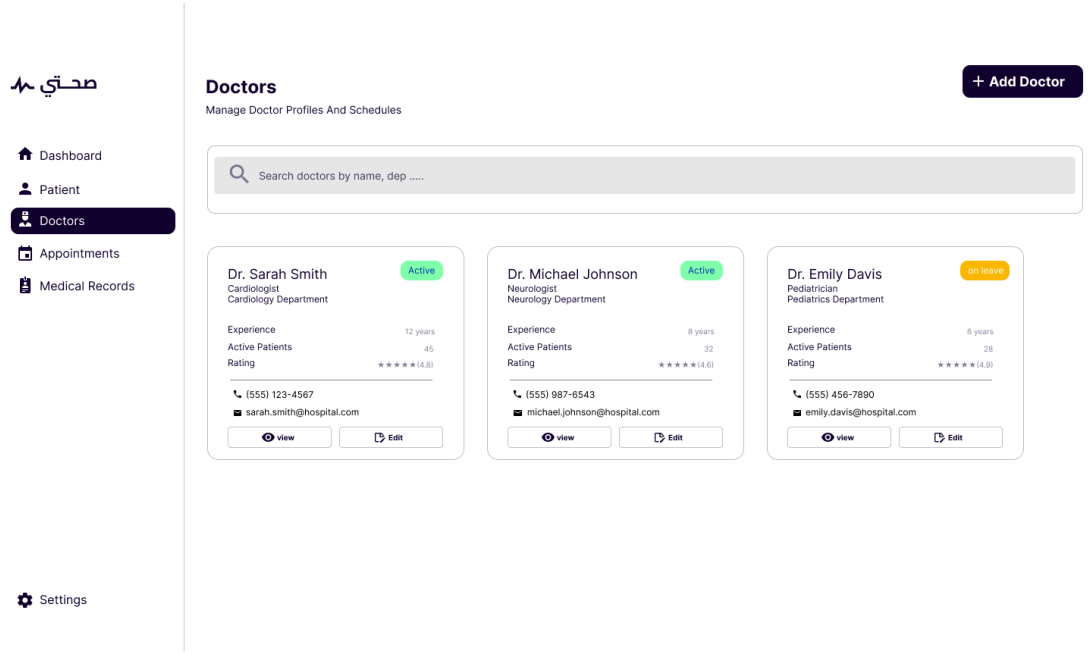
4- Admin Dashboard Page



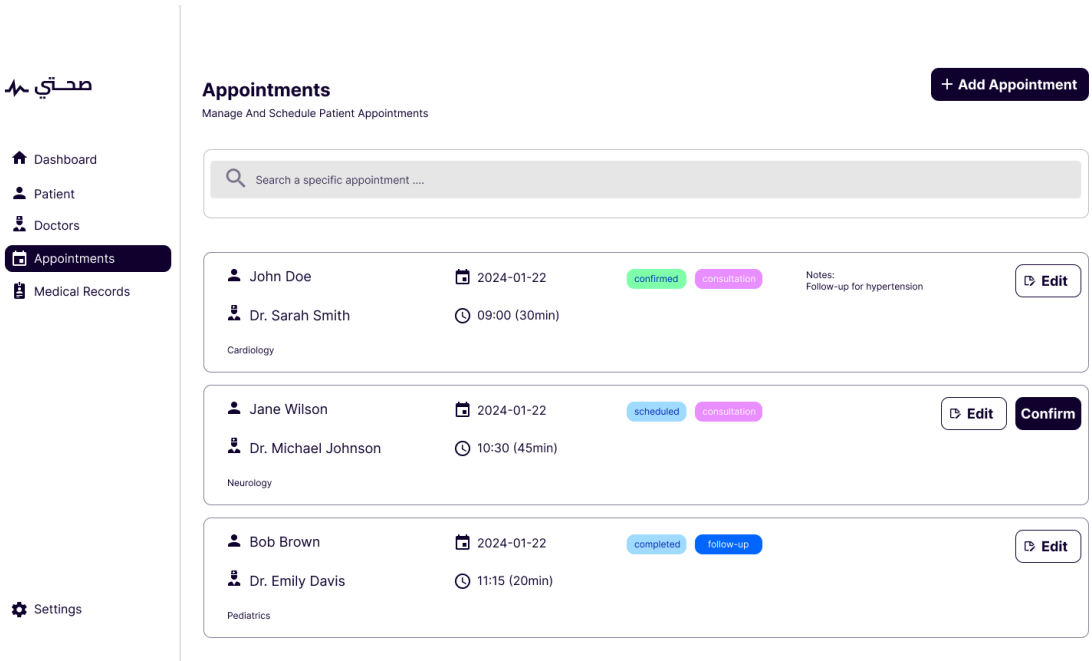
5- Patient Dashboard



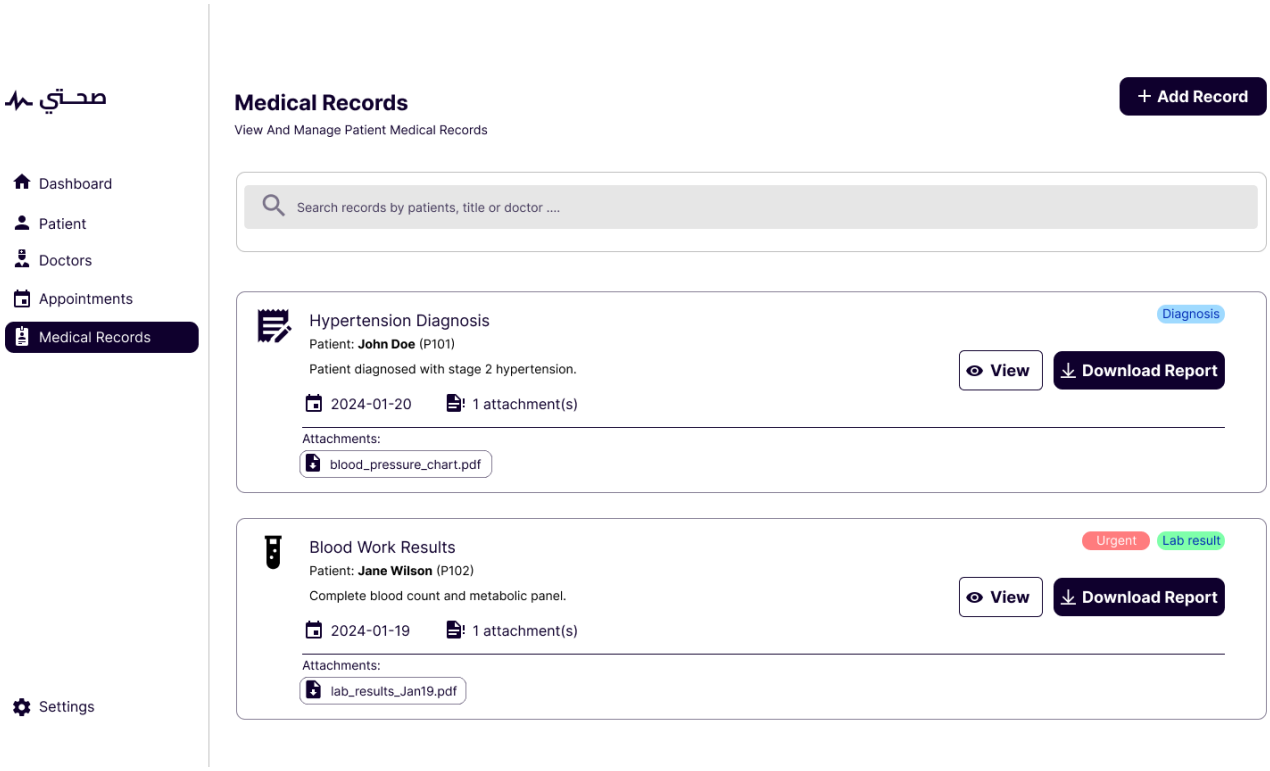
6- Doctors Dashboard Page



7- Appointments Dashboard Page



8- Medical Records Page



7. Develop the MVP

Hospital Management System Development Stack

Frontend (Web Application)
Tech: [Angular+ Tailwind CSS]
Role-based dashboards.
Appointment booking.
Patient portals**.**
Key Packages:

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2. Backend (API & Business Logic)
Tech: [ASP.NET Core Web API]
Authentication & Authorization (JWT).
CRUD for patients, doctors, appointments.
Data validation & logging**.**
Modules:

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3. Database
Tech: [SQL Server]
Entities:
Users, Patients, Doctors, Departments, Appointments, Prescriptions.

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4. Authentication & Security
JWT-based authentication
Role-based access
Encrypted patient data (GDPR/HIPAA compliance basics)

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5. Deployment & DevOps
Hosting: Azure/AWS
CI/CD: GitHub Actions
Docker for backend containerization

Hospital Payment and Billing Protection Process

In the Hospital Management System (HMS), one of the most important features is having a **secure and transparent payment flow** that protects both patients and hospitals. Below is a detailed explanation of how the payment process works:

Patient Pays in Advance

The patient pays for the medical service (consultation, lab test, imaging, admission, etc.) upfront through the platform using multiple payment options:

1. Credit/Debit cards
2. Mobile wallets
3. Direct bank transfers

Payment is Held Until Delivery Confirmation

Although the payment is completed, the amount remains in a **pending state** within the system until the hospital confirms the service booking.

PIN Code Verification Upon Delivery

Once the patient receives the consultation or medical service (in-person or via telemedicine), the service is **confirmed** either by a verification code or direct confirmation from the hospital staff/doctor in the system.

Releasing the Funds

After confirmation, the funds are securely transferred to the hospital's account through the integrated payment gateway, and the billing records are automatically updated in the admin dashboard.

In Case of Cancellation or Service Failure

If the service is canceled or not delivered to the patient, the funds remain on hold.

The pending payment is then released and refunded to the patient within a short processing period.

Why This Matters

Security: Patients never lose money if the service is not delivered.

Trust: Hospitals are guaranteed to receive their payments once the service is confirmed.

Transparency: Both patients and hospitals receive in-app notifications and clear billing records at every step of the process.

Transaction Fee Model:

The system operates on a transaction-based revenue model, where a small commission (typically 2–6%) is charged on every successful booking or payment made through the platform.

In addition, hospitals and clinics can choose between rental (subscription-based) or one-time purchase (license-based) models, allowing flexibility based on their budget and long-term digital strategy.

This ensures sustainable growth for the platform while keeping the service affordable and adaptable for different healthcare providers.

8. Test the Product with Real Users

Pilot testing with a small hospital or clinic. Gather feedback from patients, doctors, and staff. Iterate based on usability, speed, and accuracy of features.

9. Analyze Feedback and Iterate

Collect real-world feedback to refine the MVP. Add priority features (e.g., billing, pharmacy, lab modules) in later phases based on hospital requirements.

10-AI Integration (Intelligent Health Assistant)

Feature :AI Health Risk Prediction for Doctors

- Reads each patient's medical reports and history (e.g., lab results, chronic conditions).

- Provides early warnings of potential health risks, e.g.:
  Patient with diabetes may be at increased risk of heart disease in the coming months.

Benefits:

- Rule-based and fast: easy to implement and reliable.
- Helps doctors make proactive decisions based on patient data.
- Compliant with privacy standards (GDPR/HIPAA).
- Expandable for predictive analytics and advanced risk assessment.

Future Enhancements:

- Notify patients with reminders for upcoming checkups or tests.
- Extend predictive analytics to suggest preventive actions.

Note: AI provides insights only, supporting doctors without delivering direct diagnoses to patients.