CASE STUDY TASK

SmartClinic 2.0 – Appointment & Patient Management System

1.] System Study (Study of the current system i.e. not automated)

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1. Manual Appointment Recording

Problem: Appointments recorded on paper, therefore prone to handwriting errors, missing entries.
Impact: Incorrect bookings, double-booking, patient dissatisfaction.

2. Slow Information Retrieval

Problem: Staff must search physical registers for patient/appointment details.
Impact: Longer service times, delays during peak hours.

3. No Remote Access

Problem: Paper records exist only at the clinic location. (ex: Apollo Clinic, Military Medical Hospitals)
Impact: Staff cannot check or update schedules remotely; reduces flexibility.

4. Time-Consuming Phone-Based Rescheduling

Problem: Rescheduling requires multiple phone calls and manual checking.
Impact: Wasted staff time, miscommunication, missed updates.

5. No Automated Reminders

Problem: Reminders sent manually, often inconsistently.
Impact: High no-show rate, inefficient use of doctor time.

6. Data Loss Risk

Problem: Paper files can be lost, damaged, or misplaced.
Impact: Loss of patient history, compliance issues, service disruption.

7. Limited Reporting & Insights

Problem: No digital data means no analytics (trends, peak times, no-show rates).
Impact: Poor decision-making, inefficient resource planning.

8.] Doctor Knowing type of customers the clinic usually encounters

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2.] User Objectives (End-user expectation overview)

From Receptionist

1.] Minimize manual appointment handling
Reduce the time spent writing appointments, confirming slots, and searching through paper registers.

2.] Improve accuracy of clinic schedules
Ensure patient details and timings are correct, avoiding errors caused by handwriting or rushed entries.

3.] Eliminate scheduling conflicts
Maintain a clear, real-time view of bookings so double-booking and overlapping appointments no longer occur.

From Doctors

4.] Reduce patient waiting time
Ensure appointments run on time by improving coordination between reception, doctors, and patients.

5.] Access patient records quickly and reliably
Avoid delays caused by misplaced or incomplete paper files and enable faster decision-making.

6.] Improve follow-up tracking
Make it easier to know which patients need follow-up visits or missed their previous ones.

From Patients

7.] Receive timely and consistent communication
Get reminders and updates about appointments so they don't forget or arrive at the wrong time.

8.] Experience a smoother booking/rescheduling process
Avoid long phone calls or repeated visits by having a simple, predictable way to manage appointments.

3.] User Requirements (Detailed Statements)

1. Functional Requirements (FR)

1.] Appointment Booking:

The system must allow patients or receptionists to book new appointments.

2.] Appointment Rescheduling & Cancellation:

The system must allow users to reschedule or cancel appointments without data conflicts.

3.] Automated Reminders:

The system must send automated SMS/email reminders to patients before their appointment time.

4.] Doctor Availability Management:

The system must allow doctors to update their availability (working days, time slots, leaves).

5.]Patient Profile Management:

The system must store and update patient demographic details, contact information, and medical notes.

6.] Patient Medical History Tracking:

The system must maintain and allow secure access to patient medical history.

7.] Real-Time Appointment Calendar:

The system must display real-time booking status to avoid double-booking.

8.] Queue & Waiting Room Status:

The system must show which patients are waiting, currently being seen, or delayed.

9.] Notification System for Doctors & Staff:

The system must notify doctors about upcoming appointments, cancellations, or delays.

10.] Search & Filter Functionality:

The system must allow staff to search patient records, appointments, and history quickly.

11.] Follow-Up Appointment Scheduling:

The system must allow doctors to mark patients for follow-up visits and ensure reminders are sent.

12.] Activity Logging:

The system must log all major actions (bookings, edits, cancellations) for accountability.

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2. Non-Functional Requirements (NFR)

1.] Performance – Fast Loading:

System pages/screens should load within **2 seconds** under normal usage.

2.] Security – Data Protection:

All patient data must be securely stored with encryption and role-based access control.

3.] Availability – System Uptime:

The system should maintain **99% uptime** to ensure reliability for daily clinic operations.

4.] Usability – Easy to Use:

The system must have a simple, intuitive interface that can be used by staff with minimal training.

5.] Mobile Compatibility:

The system must be mobile-friendly and function on phones/tablets used by doctors and patients.

6.] Scalability:

The system should support growing numbers of patients, doctors, and appointments without performance degradation.

7.] Backup & Recovery:

The system must automatically back up data and allow recovery in case of system failure.
