

Project Deliverable 1: Project Proposal

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1. Project Title : CareSync

2. Project Team

- Sami Hassan (NetID: sah8857)
- Hatim Rehmanjee (NetID: hqr9411)
- Irfan Karukappdath (NetID: mk8328)
- Abdullah Othman (NetID: ao2395)

3. Project Description

CareSync is a clinic appointment and patient management system designed specifically for small independent practices, such as solo doctors, dentists, and general practitioners who cannot afford expensive enterprise solutions. The system streamlines interactions between doctors and patients by providing an online platform for appointment scheduling, both in-person and virtual. It includes automated patient reminders and a prescription monitoring system editable by doctors and accessible to patients. Additionally, it will provide a decision tree for preliminary patient checkups for the benefit of both doctors and patients. By reducing administrative overhead, CareSync enables small clinics to improve efficiency, enhance patient experience, and focus more on quality care.

4. Business Goals

- **Provide an Affordable Digital Solution for Small Clinics** - Many independent doctors lack the budget for comprehensive hospital management systems. This system offers an affordable, lightweight alternative tailored to their needs.
- **Enhance Clinic Efficiency & Reduce Administrative Burden** - By automating appointment scheduling, reminders, and preliminary checkups, doctors can save time on administrative tasks and focus on patient care.
- **Improve Doctor-Patient Communication & Engagement** - Features like preliminary check-ups (via decision trees), appointment reminders, and an easy-access prescription system enhance communication and help doctors prepare for consultations more effectively.
- **Support Both In-Person and Virtual Appointments** - Enable patients to choose between traditional in-person visits or online consultations through an integrated video conferencing feature.
- **Ensure Secure and Accessible Prescription Management** - Doctors can update and store prescriptions, while patients can conveniently access them when needed, improving continuity of care.

5. Main Features/Engineering Objectives

- **Appointment Booking System**
 - Patients can book, reschedule, or cancel appointments.
 - Doctors can manage their availability.
 - Supports both in-person and virtual appointments.
- **Preliminary Checkup via AI Decision Tree**
 - A structured decision tree helps collect patient symptoms before the consultation.
 - Helps doctors prepare better, reducing consultation time and improving efficiency.
- **Automated Patient Reminders**
 - SMS/email reminders for upcoming appointments.
 - Follow-up reminders for prescription refills or check-ups.
- **Prescription Monitoring System**
 - Doctors can issue and update prescriptions through the system.
 - Patients can access their prescriptions but cannot modify them.
- **Virtual Consultation Support**
 - Integrated video call feature for online appointments.
- **User Authentication & Security**
 - Secure login for both patients and doctors.
 - Role-based access control (patients cannot edit prescriptions).
- **Admin Dashboard (for the Clinic Owner/Doctor)**
 - Manage appointments, patient records, and prescription history.
 - View statistics on appointment trends and patient visits.

6. Scope

- **In Scope**
 - Appointment booking system (web-based)
 - Preliminary checkup AI-based decision tree
 - Automated reminders (email/SMS integration)
 - Prescription monitoring system
 - Virtual consultation feature (third-party API integration like Zoom/Google Meet)
- **Out of Scope**
 - Advanced diagnostic AI or machine-learning models requiring extensive medical datasets.
 - Complex Electronic Health Record (EHR) functionality
 - Insurance processing and billing system
 - Large-scale hospital management features

7. Stakeholders

- **Patients** - Primary users who will book and manage appointments.
- **Clinicians/Doctors** - Receive and manage appointment requests, conduct consultations.
- **Receptionists** - Oversee scheduling, patient records, and handle billing.

8. Constraints

- **Time Constraint** – The project must be completed within the semester.
- **Budget Constraint** – Limited funding prevents the use of expensive third-party integrations.
- **Technical Constraint** – The system must be lightweight and optimized for small clinics.
- **Regulatory Compliance** – Basic data protection policies must be implemented to ensure patient privacy (e.g., encrypted storage for sensitive data).

9. Risks

- **Data Privacy & Security Risks**
 - **Mitigation:** Encrypt patient data, enforce strong authentication, and comply with data protection best practices.
- **AI Decision Tree Accuracy**
 - **Mitigation:** Ensure clear disclaimers stating that the preliminary checkup is not a replacement for professional medical diagnosis.
- **Integration Challenges with Video Conferencing**
 - **Mitigation:** Use established APIs (e.g., Zoom, Google Meet) instead of custom-built video solutions.
- **User Adoption Challenges**
 - **Mitigation:** Create a simple, intuitive UI and provide user tutorials/guides.

10. Appendix

- **GitHub Repository URL:** <https://github.com/irfank123/CareSync>