

Software System Proposal

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1. Executive Summary

This proposal outlines the development of a healthcare monitoring system that facilitates communication between patients and healthcare providers. The system will streamline appointment scheduling, dietary plan updates, medication prescriptions, and dialysis session management. By providing a comprehensive platform, the solution aims to enhance patient care and reduce administrative overhead. The feasibility analysis confirms the project's viability, and a detailed workplan ensures the timely completion of the project.

2. System Request

Business Problem:

Currently, patients and healthcare providers struggle with fragmented communication and inefficient management of healthcare activities. There is no centralized platform to track appointments, medication, or dialysis sessions.

Objectives:

- Centralize all patient data and healthcare activities.
- Enable secure communication between patients and healthcare providers.
- Automate appointment scheduling and notifications.
- Provide dietary and medication management features.

Stakeholders:

- Patients
- General Practitioners
- Kidney Specialists
- Nutritionists
- Pharmacists
- Dialysis Units

Timeline:

Estimated project duration: 6 months.

3. Workplan

Tasks:

10. Requirements Gathering
11. System Design
12. Development
13. Testing
14. Deployment
15. Training and Support

Milestones:

- Month 1: Requirements finalized.
- Month 2: Design phase completed.
- Month 4: Core system developed.
- Month 5: Testing completed.
- Month 6: System deployed.

Resources:

- Development Team (2 developers)
 - QA Team (1 tester)
 - Project Manager
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4. Feasibility Analysis

Technical Feasibility:

The system will leverage existing healthcare IT infrastructure and be built using

secure web and mobile technologies.

Economic Feasibility:

Development costs are within budget, and long-term benefits include reduced administrative expenses and improved patient outcomes.

Operational Feasibility:

Healthcare providers and patients will adopt the system due to its user-friendly interface and comprehensive features.

5. Requirements Definition

Functional Requirements:

- Schedule, view, and manage appointments.
- Update and track dietary plans.
- Record and view prescribed medications.
- Schedule dialysis sessions.

Nonfunctional Requirements:

- Ensure system scalability.
 - Provide high security and data privacy.
 - Ensure system availability of 99.9% uptime.
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6. Functional Model

Activity Diagram:

Describes the patient's journey from scheduling an appointment to receiving treatment.

Use Case Descriptions:

- "Schedule Appointment": Allows patients to book appointments with healthcare providers.
- "Update Dietary Plan": Enables nutritionists to update patient diets.

Use Case Diagram: Visual representation of interactions between actors (patients, doctors, nutritionists, pharmacists, dialysis units) and the system.

7. Structural Models

CRC Cards:

Summarize responsibilities of system objects (e.g., Patient, Appointment, Doctor).

Class Diagram:

Displays relationships between system classes such as Patient, Appointment, and Medication.

Object Diagram:

Details specific instances of system classes.

8. Behavioral Models

Sequence Diagrams:

Illustrate interactions for scheduling an appointment and updating dietary plans.

Communication Diagrams:

Focus on the relationship between the patient and healthcare providers during medication prescription.

Behavioral-State Machines:

Represent state transitions for appointment statuses (e.g., Scheduled, Completed, Canceled).

CRUDE Matrix:

Maps data operations for system components (e.g., Create Appointment, Update Dietary Plan).

9. Appendices

- **Survey Results:** Patient feedback on healthcare management challenges.
- **Interview Transcripts:** Insights from healthcare providers.
- **Industry Reports:** Trends in healthcare IT systems.