Software Requirements Specification (SRS)

Healthcare Appointment Management System with Waitlist and Disease Prediction

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1. Introduction

1.1 Purpose

To design a system that improves appointment scheduling in hospitals and clinics by reducing patient wait times and incorporating disease prediction.

1.2 Scope

The system allows patients to book, reschedule, or cancel appointments, manage waitlists based on urgency, and predict minor diseases based on symptoms.

1.3 Overview

The system includes features such as:
- Appointment booking
- Waitlist management
- Doctor availability tracking
- Disease prediction using AI
- Emergency prioritization

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2. General Description

2.1 Functions

- Book appointments
- Reschedule or cancel appointments
- Predict diseases based on symptoms
- Manage dynamic waitlists
- Prioritize emergency and urgent cases

2.2 User Community

- **Patients:** Book and manage appointments
- **Doctors:** View schedules and predicted cases
- **Administrative Staff:** Oversee system operations, assign doctors, manage schedules

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3. Functional Requirements

3.1 Possible Outcomes

- Appointment confirmed
- Patient waitlisted
- Appointment rescheduled
- Appointment canceled

3.2 Ranked Order

- Priority is given based on:
- Urgency level (based on predicted disease)
- Doctor availability

3.3 Input-Output Relationship

- **Input:** Symptom list
- **Processing:** AI-based disease prediction
- **Output:** Appointment status (Confirmed / Waitlisted / Canceled / Rescheduled)

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4. User Interface Requirements

4.1 Software Interfaces

- Patient portal
- Doctor portal
- Admin dashboard

4.2 Interface Examples

- Symptom input form
- Appointment booking calendar
- Waitlist and status display

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5. Performance Requirements

5.1 Response Time

- Appointment confirmation and disease prediction should occur within **2 seconds**

5.2 Throughput

- Support up to **1000 concurrent users**

5.3 Scalability

- Capable of scaling to accommodate growing numbers of patients and doctors

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6. Non-Functional Attributes

6.1 Usability

- Simple, intuitive UI for all user types

6.2 Reliability

- 24/7 system availability
- Minimal downtime guaranteed

6.3 Security

- Full encryption for patient data
- Role-based access control (RBAC) for secure operations

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7. Schedule and Budget

7.1 Timeline

- **Total duration:** 6 months

- **Milestones:**

- Month 2: System prototype
- Month 4: Beta release with core features
- Month 6: Final release and deployment

7.2 Cost Estimate

- Based on:
- Development and QA hours
- Tools, cloud services
- Long-term maintenance needs

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8. Appendices

8.1 Supplementary Information

- UML Use Case Diagrams
- Entity-Relationship Diagrams (ERD)
- Statecharts
- Sequence Diagrams
- Test Plans

8.2 Glossary

- **AI:** Artificial Intelligence
- **Appointment:** Scheduled time to see a healthcare provider
- **Waitlist:** Queue for patients not immediately assigned a slot
- **Disease Prediction:** Use of AI to anticipate likely conditions
- **Urgency Level:** Indicator of case severity to guide priority