FIT2001 A2

NEW Lee Gestational Diabetes System

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SYSTEM OVERVIEW

Project Description

The Lee Gestational Diabetes Clinic System is designed to support the monitoring and management of gestational diabetes. This chronic condition requires constant oversight, and both patients and healthcare providers need to be engaged in the data collection and review process to ensure optimal health outcomes.

Client Background:

The Lee Gestational Diabetes Clinic specializes in treating pregnant patients diagnosed with gestational diabetes. This clinic provides healthcare services that are vital for monitoring blood glucose levels, administering appropriate treatments, and advising patients on maintaining their health during pregnancy. Furthermore, the clinic also serves as an educational resource for patients, offering guidelines and medical recommendations for managing gestational diabetes through a multiplicity of factors such as nutrition, physical activity, and medication when necessary.

Rationale for the Project:

The project was initiated to address several key challenges and needs within the clinic:

Data Management Issues: Patients at the clinic must regularly monitor and report blood glucose levels, weight, and other health metrics. However, current processes for tracking this data are often manual and disconnected, leading to delays in data review, potential errors, and difficulty for doctors in identifying patterns over time.

Communication Barriers: Communication between doctors and patients is critical, especially when data trends show concerning health patterns. Furthermore, the existing communication tools are not integrated with the patient data, making it hard to provide timely, data-driven feedback.

Appointment Scheduling: Coordinating appointments between patients and doctors is another challenge. Hence, patients need reminders, rescheduling options, and follow-up appointments to ensure consistent care.

Doctor Certification Tracking: Managing doctor certifications is critical to ensure compliance with healthcare standards. Therefore, A streamlined solution is needed to track and update certifications.

Information Needs and Problems Identified:

Efficient Data Collection and Review: The clinic needs an efficient way for patients to log their health data and for doctors to access, review, and analyze this information in real-time.

Improved Communication: There is a need for integrated communication tools that alert doctors when patients' data trends are concerning and that allow doctors to quickly provide feedback to patients.

Automated Scheduling and Follow-Up: The clinic requires a scheduling system that allows patients to book appointments, receive reminders, and enable doctors to plan follow-up consultations based on health data trends.

Resource Management: Educational resources for patients, such as videos, guidelines, and articles, need to be accessible and easily updated to provide the latest information for managing gestational diabetes.

Doctor Certification Management: A system to track the certification expiry dates of doctors and ensure compliance with regulatory standards is essential.

System Capabilities

Functional Requirements

The System for the Lee Gestational Diabetes Clinic will support the following capabilities:

Patient Management:

Recording patient details such as personal information (name, address, phone), Medicare and private health account numbers etc.

Maintaining an online patient diary where patients can log important health data such as blood glucose readings, weight, temperature, and insulin doses(if applicable).

Sending reminders to patients for data entry, ensuring timely updates, and reducing gaps in monitoring.

Doctor Management

Give doctors access to patient health data remotely, review readings from their patient diary, and observe trends over time to highlight urgent issues.

Provide color-coded visualizations of patient data to identify and prioritize the most vital cases.

Enable doctors to provide remote feedback via email

Record appointment details (both in-person and phone consultations), including date, time, and notes on patient discussions.

Resource Management

Manage and update online resources for patients, allowing them to access, search, share and download gestational diabetes management materials.

Let admin staff add, update and archive resources to keep the information current and relevant.

Doctor Certification Management

Record and monitor doctor registration and specialty certification details, including renewal reminders 3 months before expiry to ensure compliance.

Non-Functional Requirements

Performance

The system must provide feedback for patient data entries within 5 seconds, to ensure timely advice.

Security

Protect patient data with strong encryption such as MFA and login details, ensuring all health records and communications are secure.

Usability

The system must be intuitive and user-friendly having a responsive design for both mobile and desktop access without change in behaviour or performance.

Reliability

Ensure high availability, with a 99% active time to ensure the clinic's is able to cater for continuous patient monitoring, feedback and doctor responses.

The system should be able to handle 5000 users (admin staff, doctors, patients) without performance deterioration

Business Benefits

Improved patient experience:

Patients can now access the clinic's service online and get instant feedback reducing the need to visit the clinic frequently. Patients can upload their data online, allowing doctors to monitor their condition remotely.

Online resource management:

Doctors can now access or share resources online allowing doctors and patients to access information efficiently. Admins can also track resources much more accurately, this allows doctors to be able to trust the available resources.

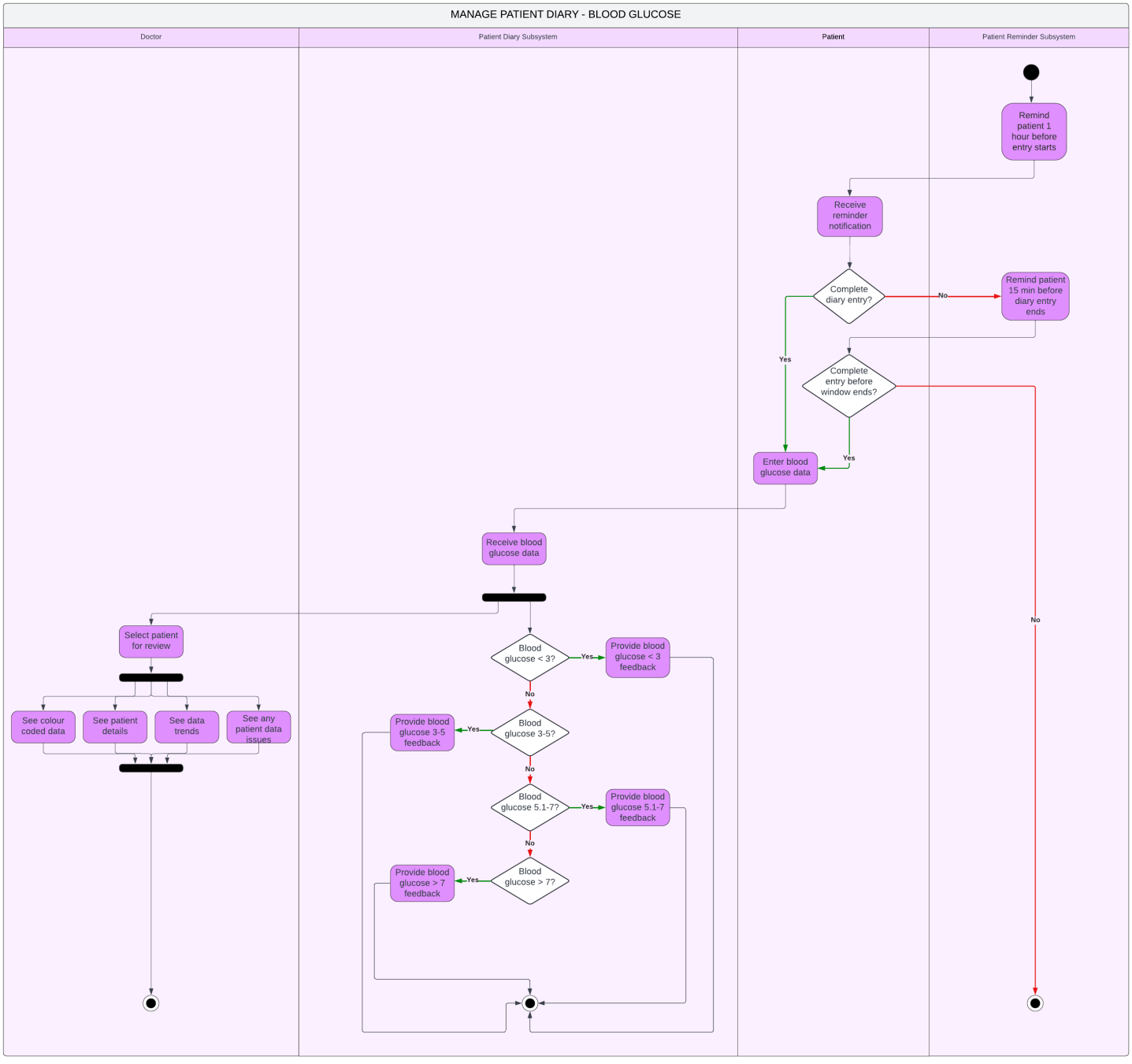
Reducing administration work:

The information system allows for many administrative tasks such as notifying patients of clinic visits and reminding doctors of license renewals to be automated, reducing administrative work.

ACTIVITY DIAGRAM

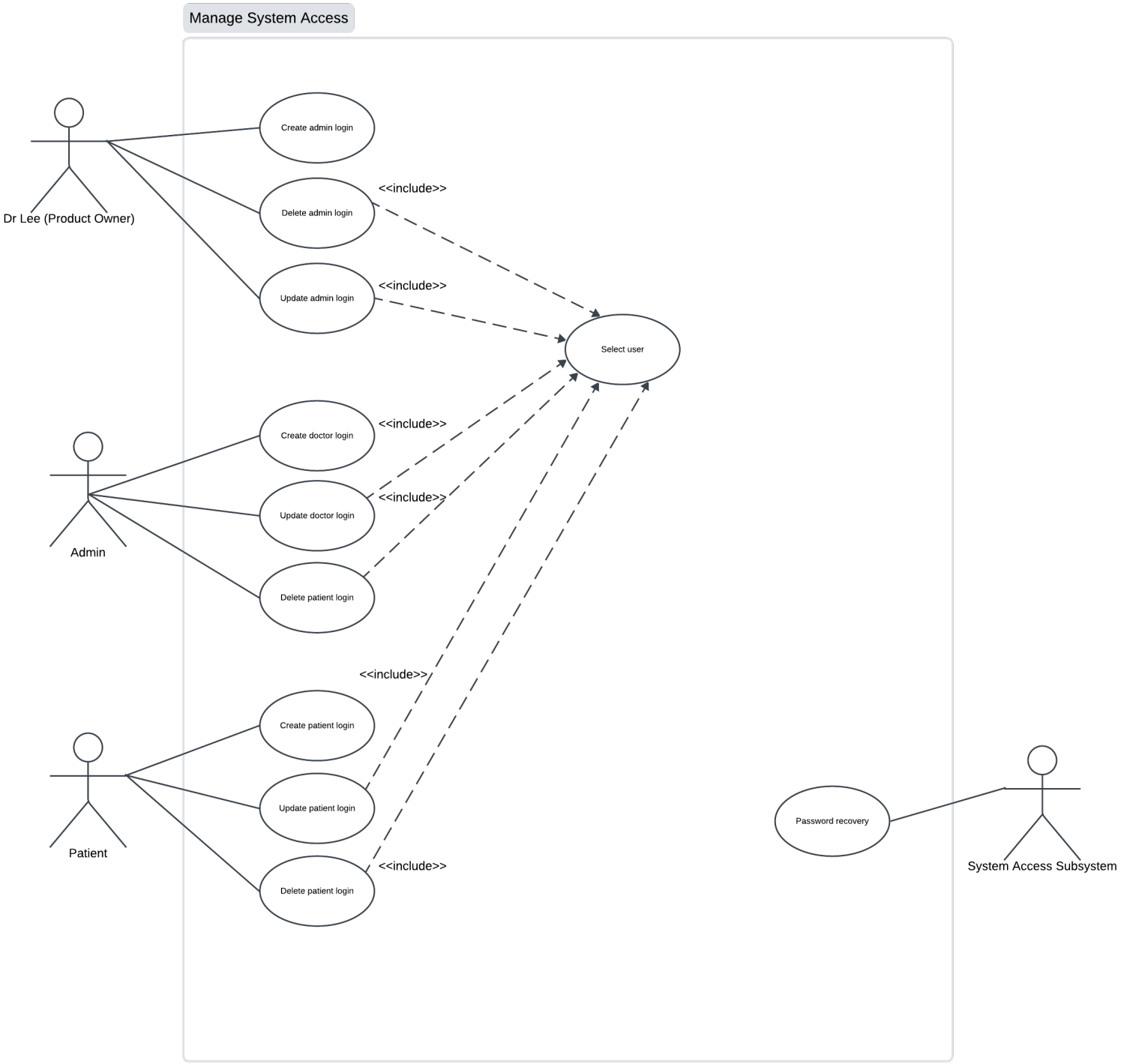
Assumptions:
- Patient is logged in prior to completing diary entry
- Patient has notifcations enabled on their device
- Doctor is logged into the system prior to selecting patient for review
- Activity diagram is representative for any of the four timeslots throughout the day

Activity diagram shape key
- Start
- Action
- Horizontal fork/Join
- Branch/Merge
- End
- Team/department name
- Team/department name

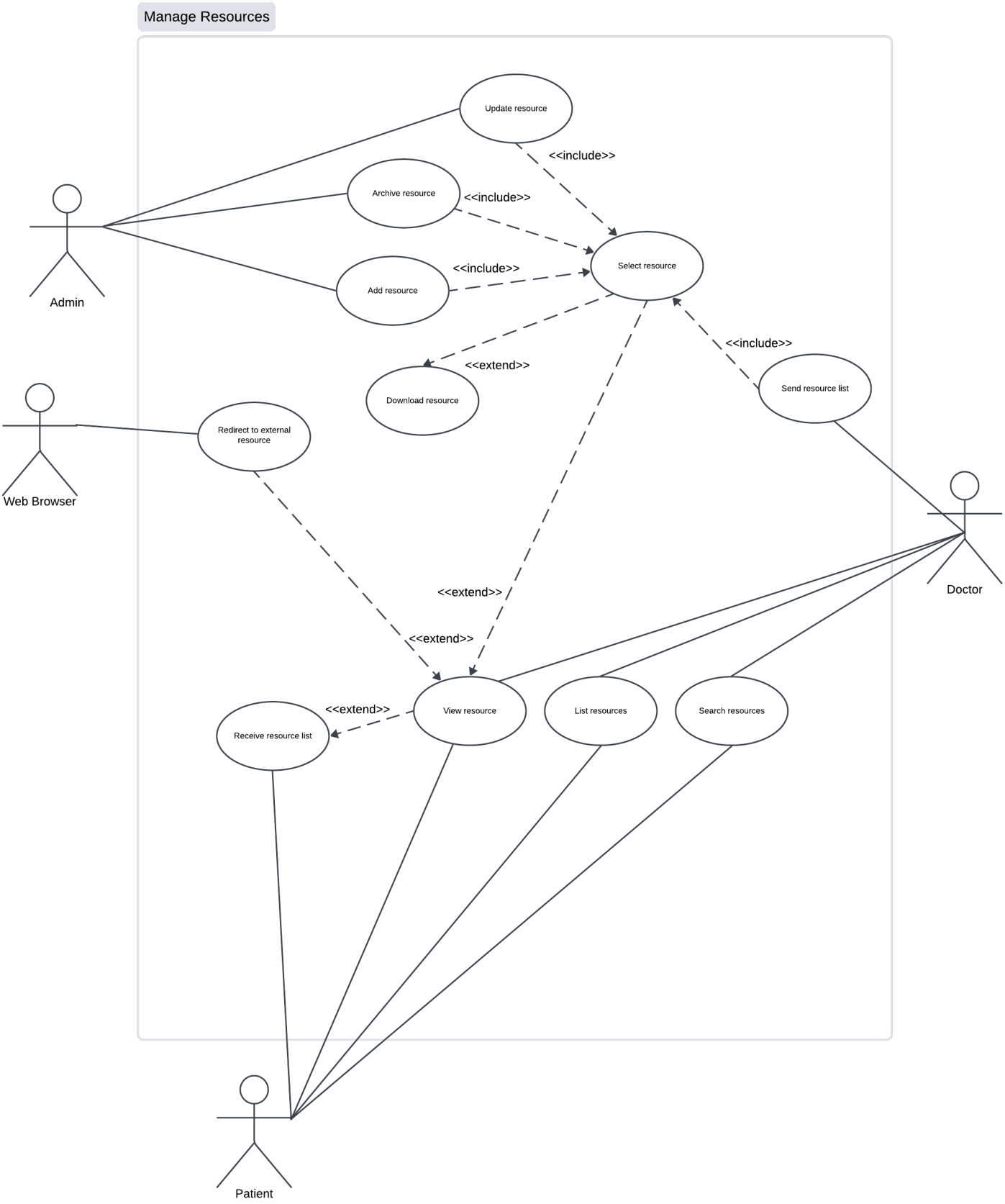


USE CASE DIAGRAMS

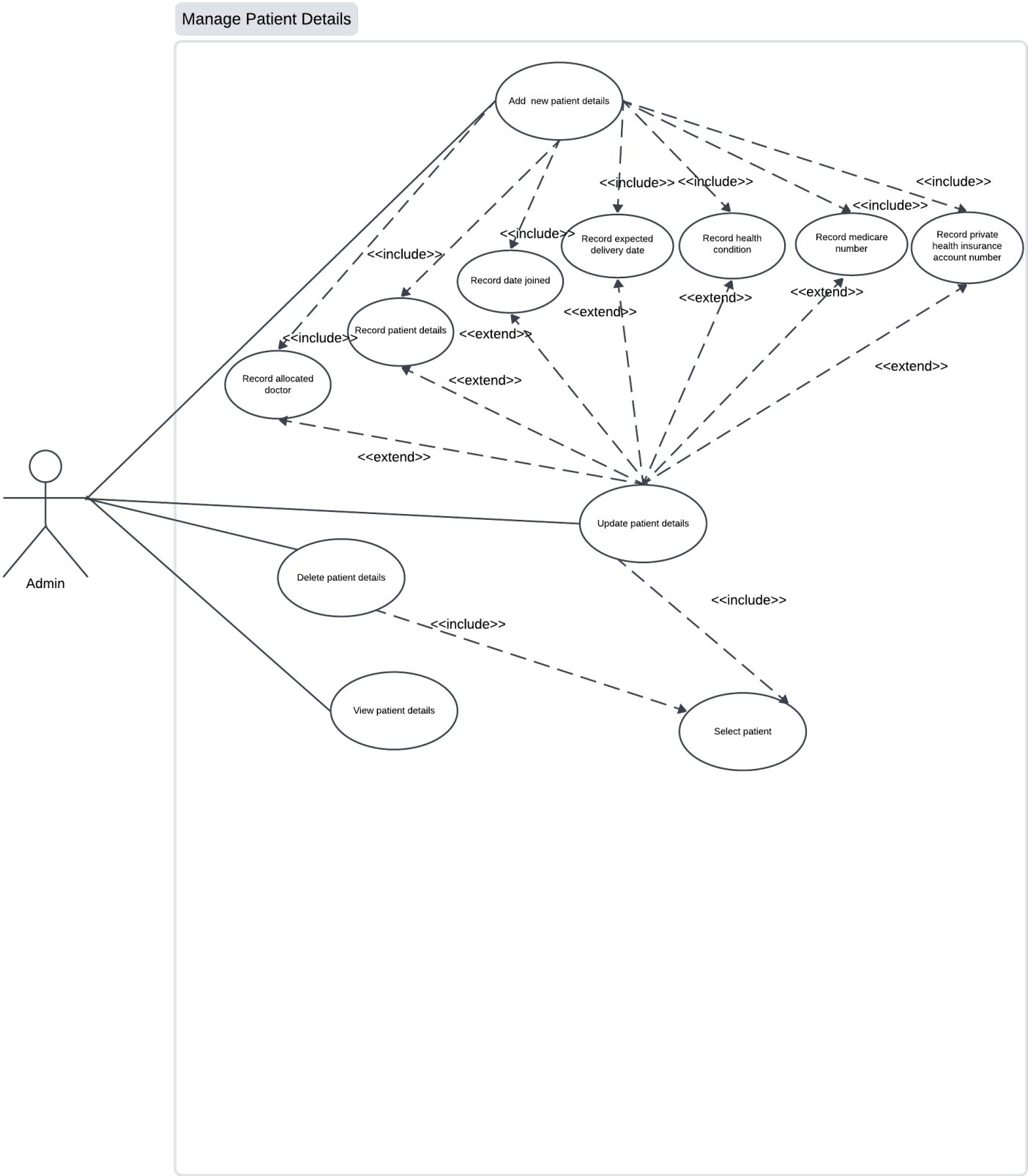
Manage System Access



Manage Resources

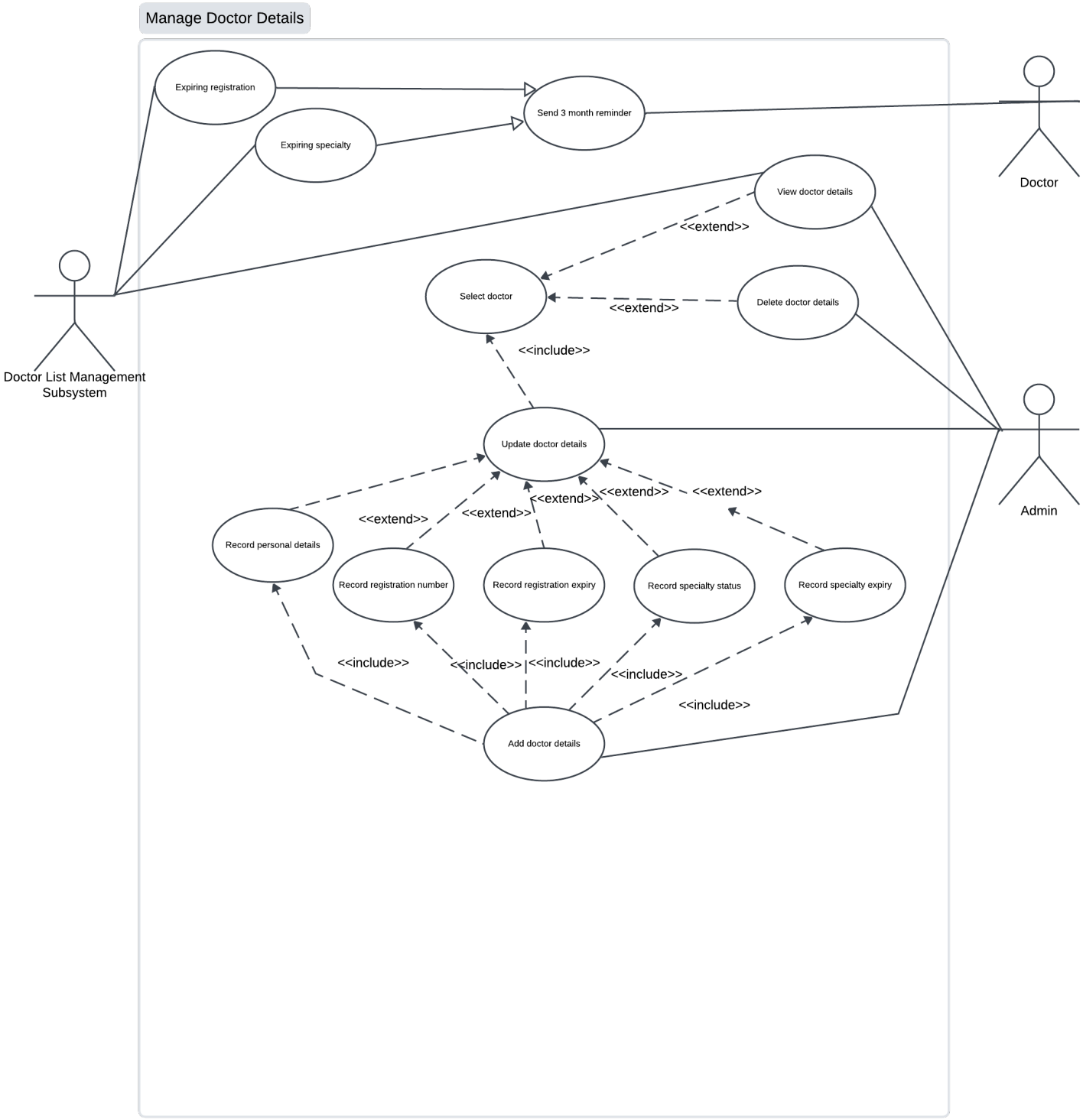


Manage Patient Details



Patient Diary Entry and Review

Manage Doctor Details



DOMAIN CLASS MODEL DIAGRAM