Patient Appointment and Registration Management System

Domain	Healthcare Administration (Non-Clinical)
Problem Statement	Patient Appointment and Registration Management System
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1   Preface

- Traditional healthcare management systems often face challenges such as manual data handling, limited security, and inefficient workflows.
- Patient Appointment and Registration Management System enable patients to register securely, manage their personal details, and book appointments with available doctors through a simple and intuitive interface.
- This document is for developers, testers, faculty and healthcare staff. It provides guidance on system implementation, usage, and future updates.

2   Introduction

2.1 Purpose of the System

- To automate and streamline patient and appointment management.
- To reduce manual errors and paperwork in healthcare administration.

2.2 Need for the System

- To offer convenience through 24/7 appointment booking.
- Patient records are often misplaced or inconsistently maintained.

2.3 Overview of System Functions

- To provide patients with a convenient way to register and book appointments.
- To help doctors manage schedules efficiently and provide digital prescriptions after consultations.
- To reduce front-desk workload by automating registration, appointment management, and record handling.

2.4 Interaction With Other Systems

- The system interacts with a database to store patient details, appointments, and prescriptions.
- It integrates with front desk operations, allowing receptionists to update or review patient records.

2.5 Objectives of the System

- To develop an efficient appointment scheduling and management mechanism.
- To allow doctors to manage schedules and issue digital prescriptions after consultations.
- To maintain a digital record of appointments and prescriptions for easy access.

3   Glossary

Term	Meaning
Registration	The process of collecting and recording patient information during their first visit.
Appointment	A planned visit scheduled for a patient to consult a doctor at a specific time.
Consultation	The interaction between a doctor and a patient for medical examination, diagnosis, or advice.

4   User requirements

- The system allows patients to view available doctors and book appointments online.
- The system displays the daily/weekly schedule of appointments to doctors and enables them to create and upload prescriptions and mark appointments as completed.
- The system enables staff to quickly register walk-in patients and manage all appointments, including scheduling conflicts.

5   System requirements

5.1 Functional Requirements

- Support dynamic appointment management with real-time slot validation, cancellation/rescheduling capabilities, and secure access to digital prescriptions and patient visit records.
- Facilitate real-time appointment dashboard management, status updates, and secure creation, storage, and retrieval of digital prescriptions linked to patient records.
- Facilitate walk-in patient registration, centralized appointment scheduling, and updating of patient and appointment records with secure, role-based access control.

5.2 Non - Functional Requirements

5.2.1   Ethical Requirements

- Medical data of users should not be kept publicly accessible.
- User data should not be sold or shared with third parties.

5.2.2   Performance Requirements

- Basic patient data should be automatically filled during appointment booking to reduce user effort.
- Appointment booking confirmation shall be displayed immediately after submission.

5.2.3 Security Requirements

- Ensure that only authorized users can access the portal based on their assigned roles.
- Sensitive patient information shall be accessible only to users with appropriate permissions.
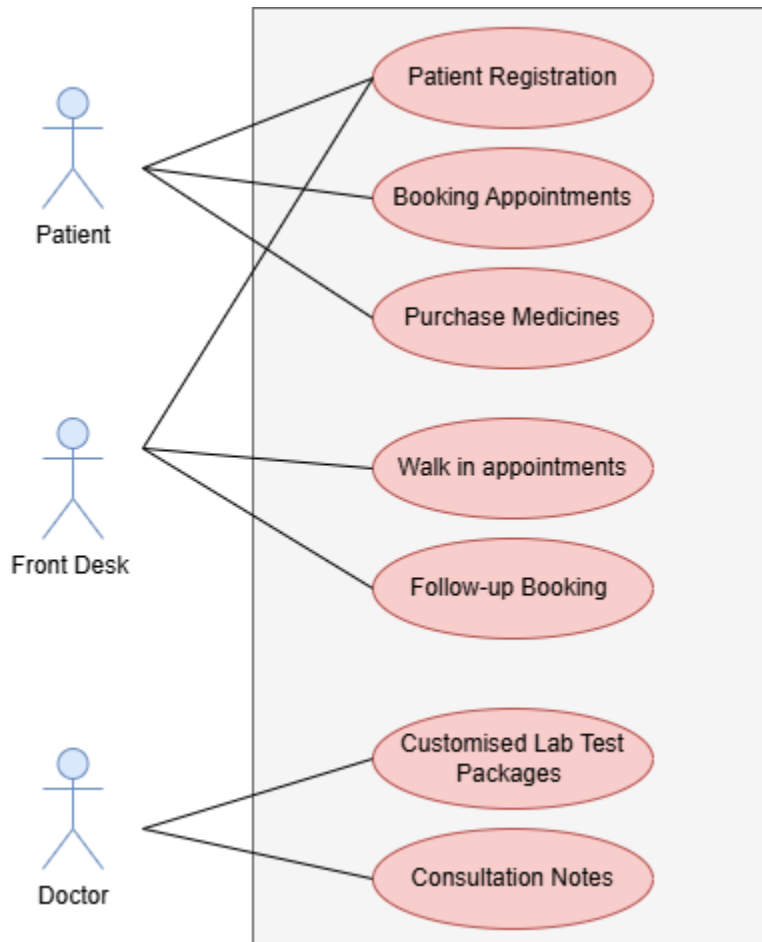
5.2.4 Usability Requirements

- Ensure major features are easily accessible from the opening page using a simple user interface.
- Avoid displaying complex or unnecessary. information that may confuse patients.

5.2.5 Dependability Requirements

- Prevent double-booking of the same doctor for the same time slot.
- Ensure the hospital contact number is accessible to patients if the portal is unavailable.
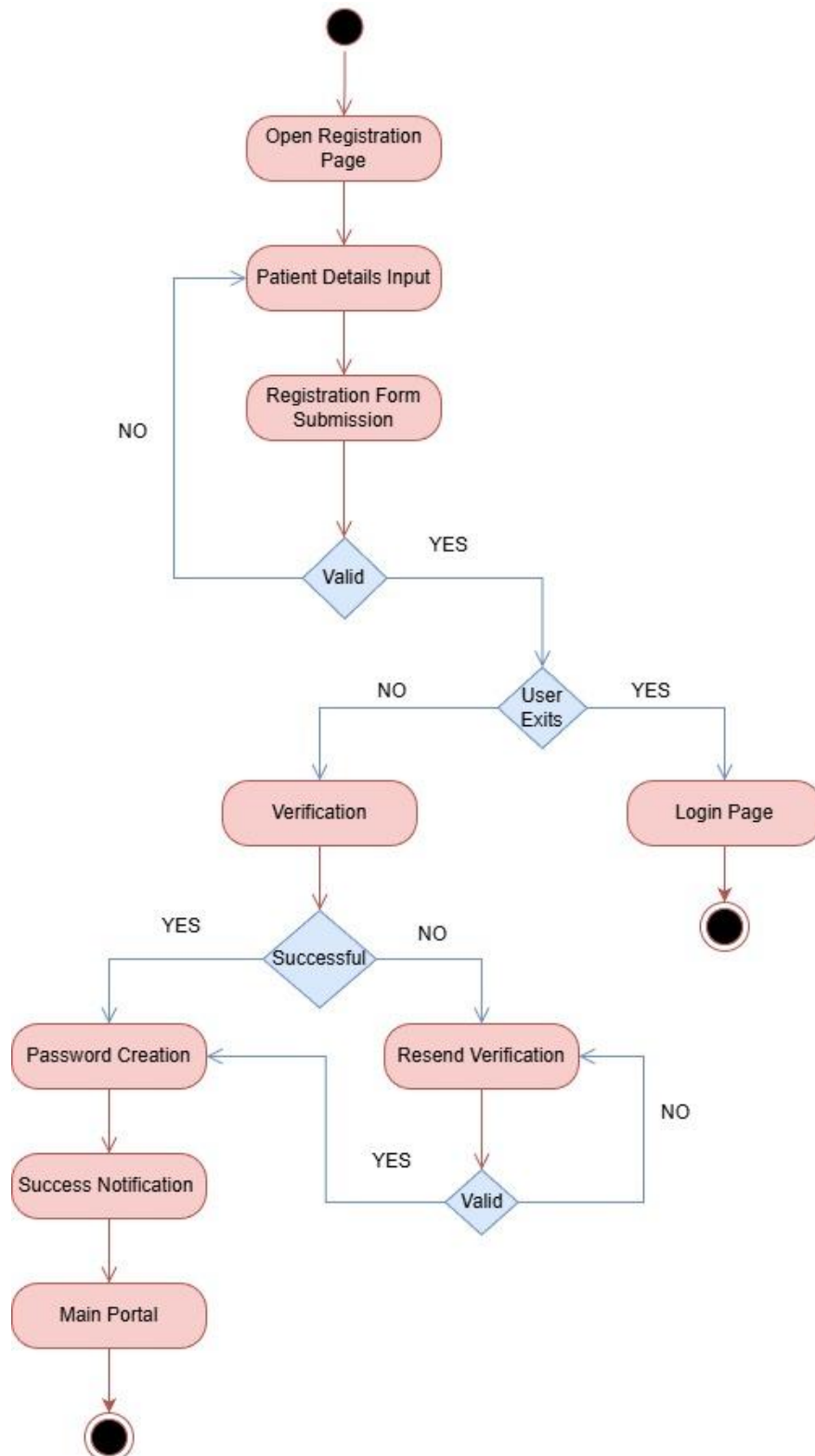
6 System Models

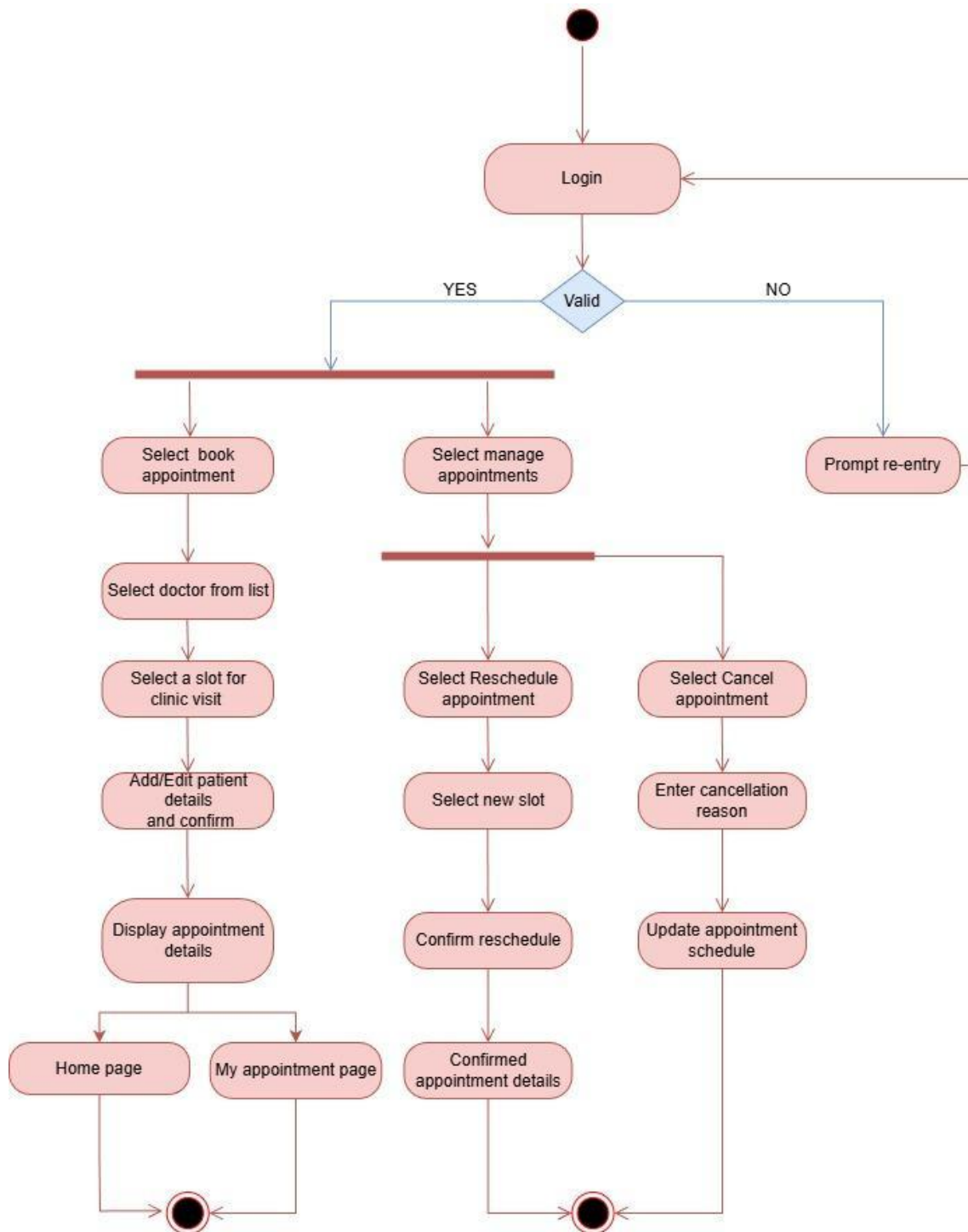## 6.1 Use Case Diagram

6.2 Activity Diagrams

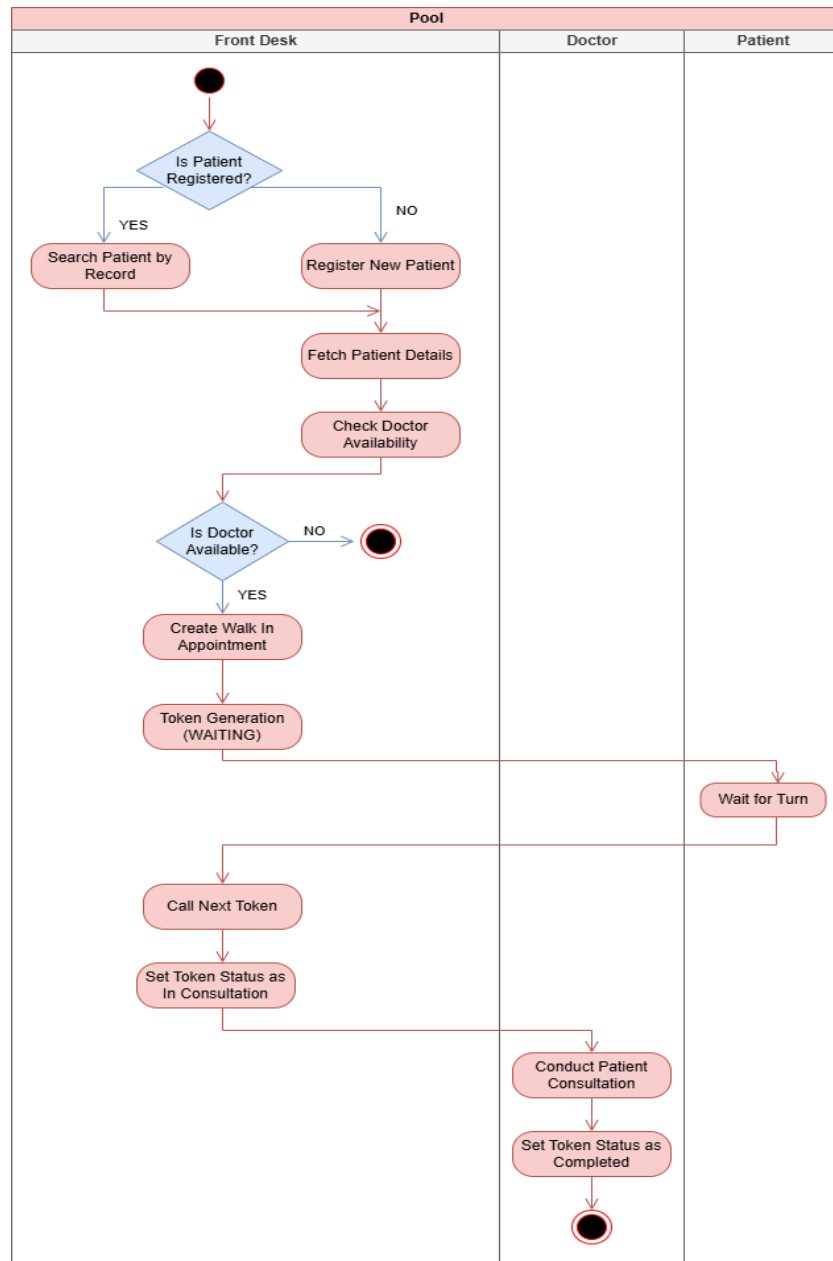### 6.2.1 Online Registration

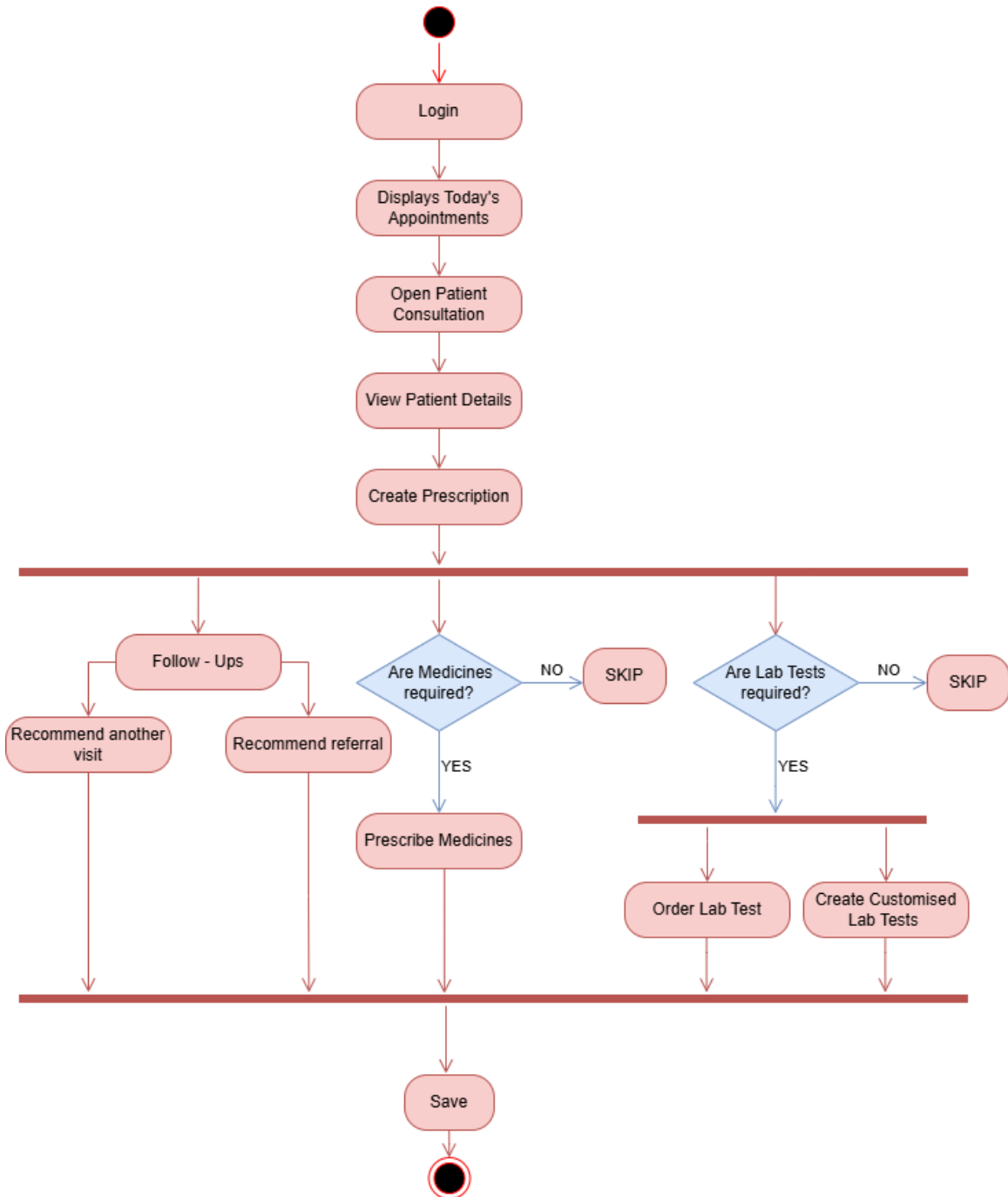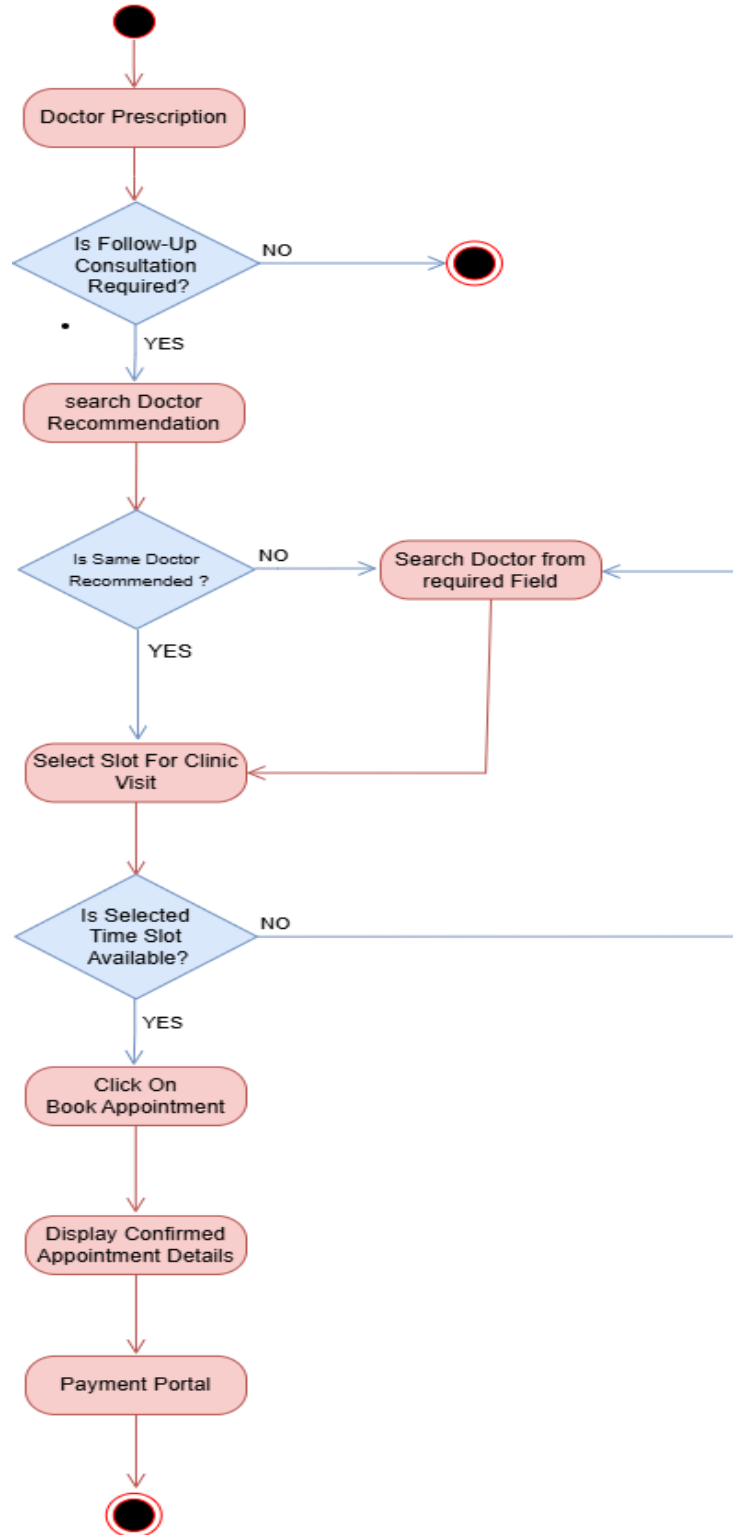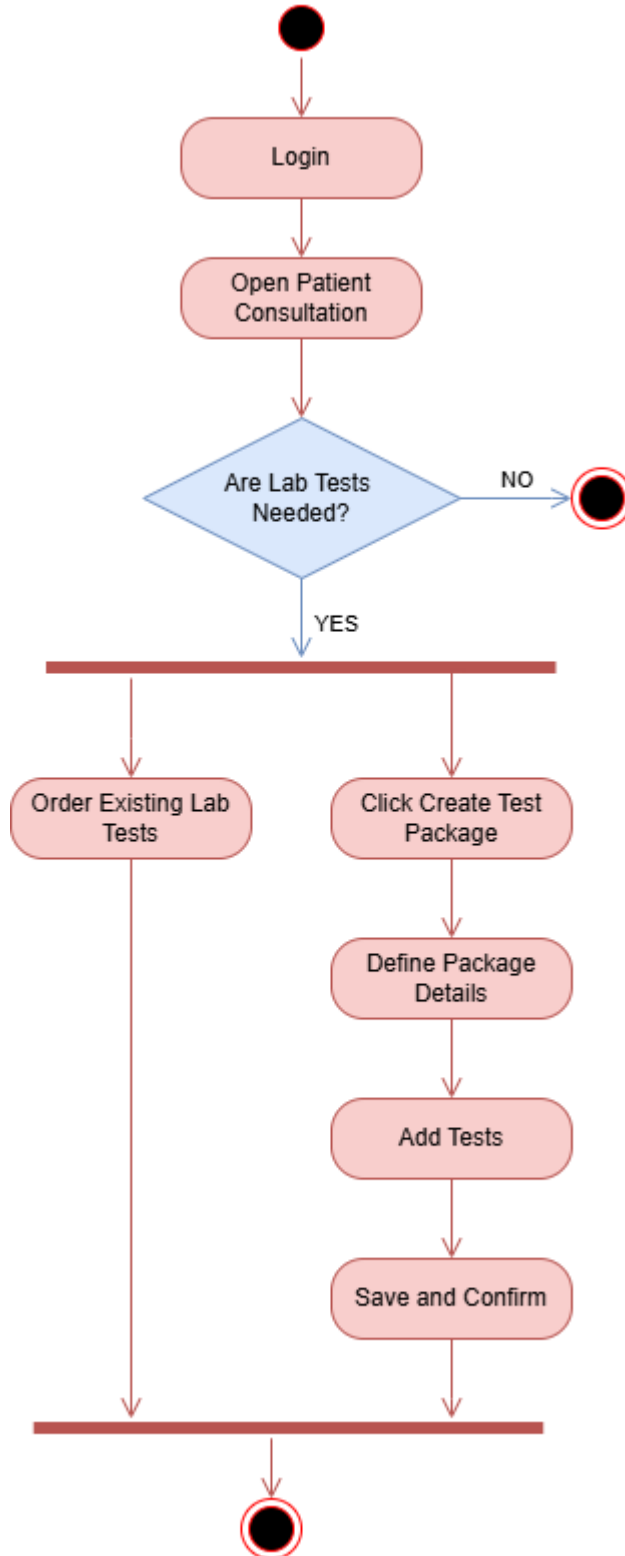## 6.2.2   Online Appointment Booking

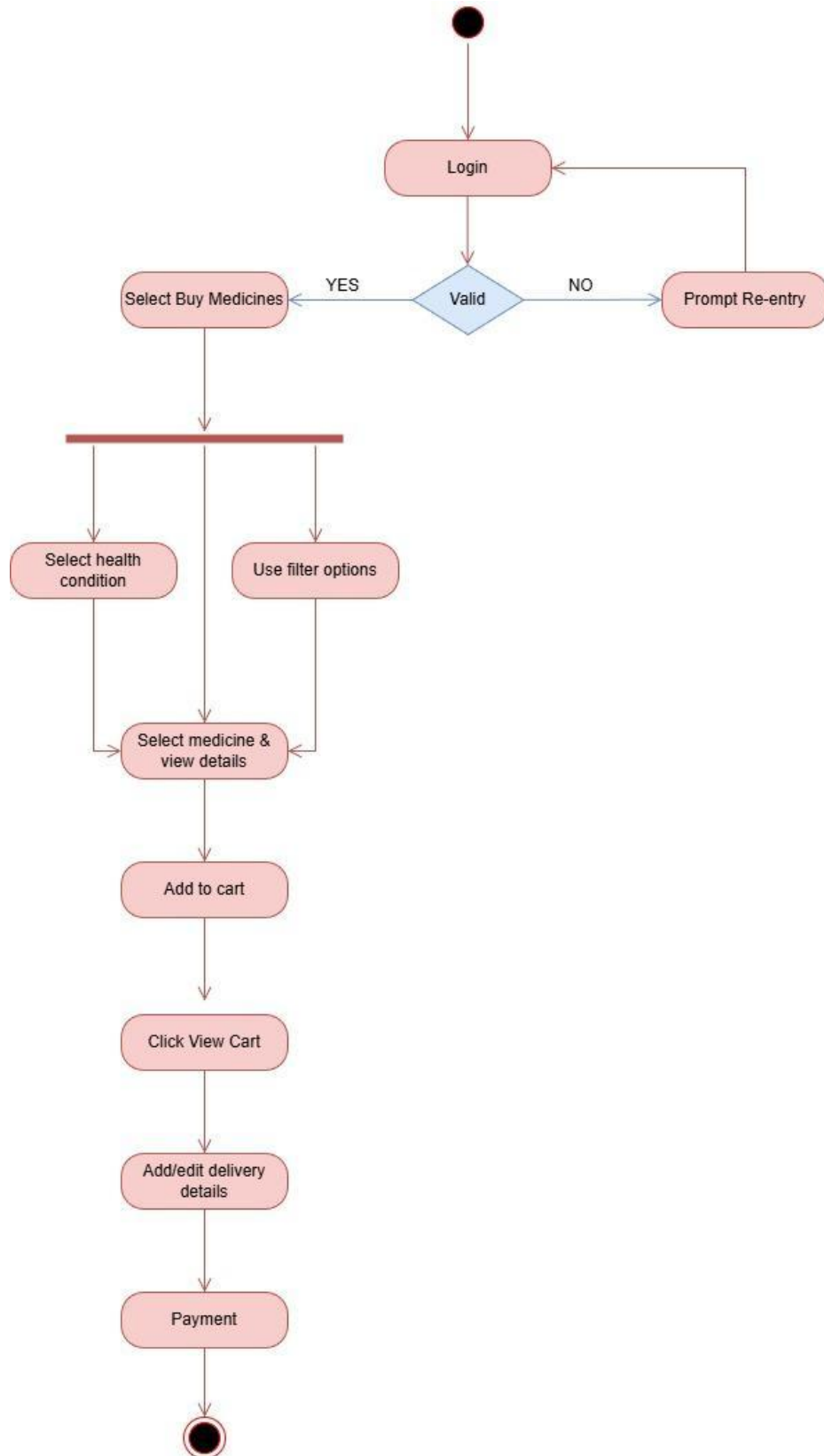## 6.2.3   Walk-In Appointment

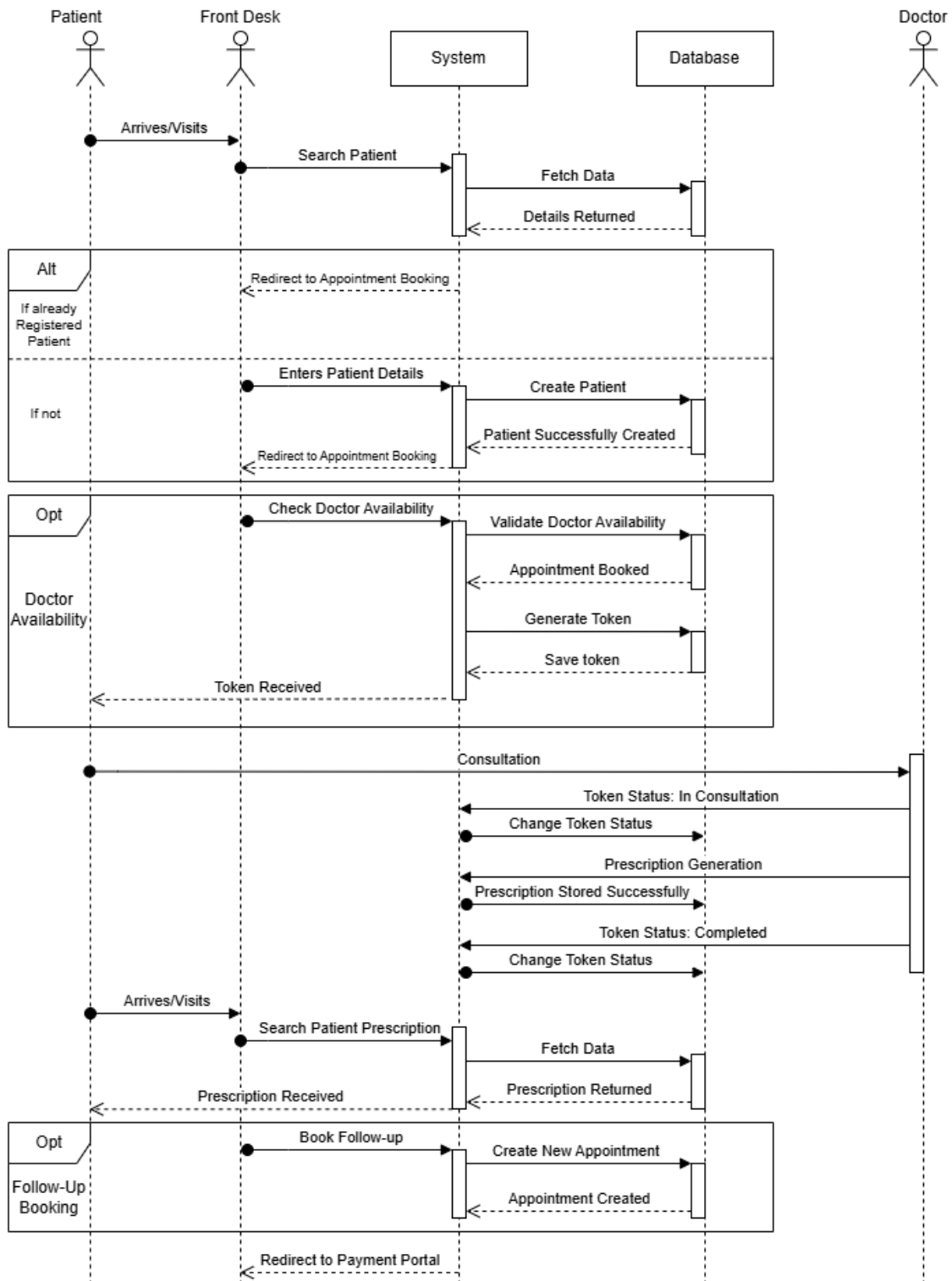## 6.2.4   Consultation Notes

6.2.5 Follow-Up Booking

6.2.6   Customized Lab Test Packages

6.2.7 Purchase Medicines

6.3 Sequence Diagrams

Patient   Front Desk   System   Database   Doctor

Online Registration and Booking

Open Registration Page
Ask to Input details
Enters Details

Alt

Data valid

Opt

User already exist

Check For User
Details Returned

Message "User Already Exists"

Data Iinvalid

Message "Re-enter Details"

Ask for OTP

Alt

Verification success

OTP
Create Password

Verification Failure

OTP
Message "Re-enter OTP"

Password

Store Patient Details

Success Notification (Home Page)
Select Book Appointments

Fetch Doctors Details
Details Returned

Show Doctors List
Select Doctor's Slot And Confirm

Add Appointment Details
Appointment Details Returned

Display Appointment Details (& Homepage)

Medicine Purchase

Search/Find Medicine

Fetch Medicine Data
Details Returned

Display Medicine Details
Add to Cart

Update Cart Record
Cart Updated Successfully

Provide Delivery Details

Save Delivery Info
Info Stored

Place Order
Redirect to Payment Portal
Completes Payment

Order Details Stored

Lab Test

Select Lab Test

Fetch Available Slots
Slots Returned

Select Slot & Confirm

Block Slot
Slot Reserved

Redirect to Payment Portal

Alt

Completes Payment

Update Booking Status (Paid)
Status Updated

Return Success Message/Receipt

Paymet Failed

Unblock Slot

7 Appendices

7.1 Appendix A

Hardware Requirements

- **Processor:** Dual-core processor or higher
- **RAM:** 4 GB minimum
- **Storage:** 10 GB free disk space
- **Display:** Standard monitor
- **Network:** Internet connectivity
- **Input Devices:** Keyboard and Mouse

7.2 Appendix B

Database Requirements

The database stores information related to patients, doctors, appointments, consultations, and follow-ups.

Key Data Entities

- Patient
- Doctor
- Appointment
- Consultation
- Prescription
- LabTest
- FollowUp
- Token

Data Relationships

- A patient can have multiple appointments.
- A doctor can handle multiple appointments.
- Each appointment is linked to one patient and one doctor.
- A consultation is associated with an appointment.
- Prescriptions and lab tests are generated during consultation.

8 Future Scope

- Add automated notifications for appointments, follow-ups, and test results.
- Support multi-specialty and multi-hospital networks.
- Incorporate secure online payments.

9   Conclusion

This system streamlines patient registration, appointment scheduling, and consultation workflows, improving efficiency, reducing errors, and enhancing the patient experience. By providing role-based access for doctors and front desk staff, it ensures accurate record-keeping and smooth hospital operations.