

# USE CASES

## 1 Patient Management System

Login	
<b>Actors</b>	Nurse, Nurse Supervisor, Administrator
<b>Preconditions</b>	<ul style="list-style-type: none"><li>• The user has a registered account in the system.</li><li>• The system is online and accessible.</li></ul>
<b>Normal Flow</b>	<ol style="list-style-type: none"><li>1. The user navigates to the login page.</li><li>2. The user enters their username and password.</li><li>3. The system verifies the credentials.</li><li>4. If authentication is successful, the system grants access to the user.</li><li>5. The system redirects the user to the dashboard based on their role.</li></ol>
<b>Postconditions</b>	<ul style="list-style-type: none"><li>• The user is authenticated and granted access.</li><li>• The system logs the login event.</li></ul>
<b>Alternate Flows and Exceptions</b>	<b>Incorrect Credentials:</b> <ol style="list-style-type: none"><li>1. If the entered credentials are incorrect, the system displays an error message: "Invalid username or password."</li><li>2. The user is prompted to try again.</li></ol>
<b>Non-functional Requirements</b>	<ul style="list-style-type: none"><li>• Password hashing.</li></ul>

<b>Find Existing Patient</b>	
<b>Actors</b>	Nurse
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• The nurse is authenticated.</li> <li>• Patient(s) exist in the system.</li> </ul>
<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. The nurse selects "Find Patient."</li> <li>2. The system displays the patient search interface.</li> <li>3. The nurse enters at least one search term (e.g., name, ID, age, village).</li> <li>4. The system processes the search and returns results: <ul style="list-style-type: none"> <li>• If there is an exact match, the system auto-selects the patient.</li> <li>• If multiple matches exist, the system ranks results by relevance.</li> </ul> </li> <li>5. The nurse selects the correct patient from the list.</li> <li>6. The system displays the full patient record.</li> </ol>
<b>Postconditions</b>	<ul style="list-style-type: none"> <li>• The patient's record is successfully displayed.</li> </ul>
<b>Alternate Flows and Exceptions</b>	<p><b>A1: No Results Found:</b></p> <ol style="list-style-type: none"> <li>1. The system displays a message: "No matching patient found."</li> <li>2. The system suggests: "Register new patient?"</li> </ol> <p><b>Invalid Search Input:</b></p> <ol style="list-style-type: none"> <li>1. If the nurse enters invalid characters or an incomplete search term, the system highlights the error.</li> <li>2. The system prompts the nurse to enter a valid search term.</li> </ol>

<b>Non-functional Requirements</b>	<ul style="list-style-type: none"> <li>• The user interface should be intuitive and easy to navigate.</li> </ul>
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<b>Add New Patient</b>	
<b>Actors</b>	Nurse
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• Nurse is authenticated (completed Login).</li> <li>• No duplicate patient exists.</li> </ul>
<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. Nurse selects "Register New Patient."</li> <li>2. The system displays a form with required fields.</li> <li>3. Nurse enters data.</li> <li>4. System validates: <ul style="list-style-type: none"> <li>• <math>\text{Age} \geq 15 \text{ and } \leq 50</math></li> <li>• <math>\text{Parity} \leq \text{Age} - 12</math></li> </ul> </li> <li>5. Generates patient ID.</li> <li>6. Saves record.</li> <li>7. Displays confirmation: "Patient [Name] registered. ID: [ID]."</li> </ol>
<b>Postconditions</b>	<ul style="list-style-type: none"> <li>• Patient record is searchable.</li> <li>• Initial visit log entry created.</li> </ul>

<b>Alternate Flows and Exceptions</b>	<p><b>A1: Duplicate Detected</b></p> <ol style="list-style-type: none"> <li>1. System flags potential matches.</li> <li>2. Nurse chooses: <ul style="list-style-type: none"> <li>• "Find existing Patient."</li> <li>• "Register as new" (overrides warning).</li> </ul> </li> </ol> <p><b>A2: High-Risk Patient (Age &lt; 20 or Parity &gt; 4)</b></p> <ol style="list-style-type: none"> <li>1. System alerts: "High-risk profile - consult physician."</li> <li>2. Requires checkbox confirmation: "Counseling advised."</li> </ol> <p><b>Exceptions</b></p> <ol style="list-style-type: none"> <li>1. System highlights invalid fields.</li> <li>2. Blocks submission until corrected.</li> </ol>
<b>Non-functional Requirements</b>	

<b>Edit Patient Info</b>	
<b>Actors</b>	Nurse
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• Nurse is authenticated.</li> <li>• Patient record exists.</li> </ul>

<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. Nurse finds patient.</li> <li>2. Selects "Edit Record."</li> <li>3. System displays: <ul style="list-style-type: none"> <li>• Current values (editable fields).</li> <li>• Non-editable fields (e.g., Patient ID).</li> </ul> </li> <li>4. Nurse makes changes.</li> <li>5. System validates: <ul style="list-style-type: none"> <li>• Age <math>\geq</math> 15 (if modified).</li> <li>• Parity <math>\leq</math> Age - 12.</li> </ul> </li> <li>6. Saves changes with conflict detection.</li> <li>7. Displays: "Record updated."</li> </ol>
<b>Postconditions</b>	<ul style="list-style-type: none"> <li>• Patient record updated.</li> </ul>
<b>Alternate Flows and Exceptions</b>	<p><b>Field-Level Undo</b></p> <ol style="list-style-type: none"> <li>1. Nurse clicks "Revert" next to changed field.</li> <li>2. System restores previous value without full save.</li> </ol> <p><b>Validation Failure</b></p> <ol style="list-style-type: none"> <li>1. Rejects save, highlights invalid fields.</li> </ol>
<b>Non-functional Requirements</b>	

<b>View Patient Info</b>	
<b>Actors</b>	Nurse
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• User is authenticated.</li> <li>• Patient record exists.</li> </ul>

<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. User finds patient.</li> <li>2. System displays Patient Record.</li> </ol>
<b>Postconditions</b>	<ul style="list-style-type: none"> <li>• Patient record remains unchanged.</li> </ul>
<b>Alternate Flows and Exceptions</b>	<p><b>Sensitive Data Redaction</b></p> <ol style="list-style-type: none"> <li>1. Displays "[Restricted - contact supervisor]".</li> </ol> <p><b>Exceptions</b></p> <ol style="list-style-type: none"> <li>1. Displays "Partial data available."</li> </ol>
<b>Non-functional Requirements</b>	

<b>Manage Appointments</b>	
<b>Actors</b>	Nurse
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• User is authenticated.</li> <li>• Patient exists in system.</li> <li>• Clinic calendar is configured.</li> </ul>
<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. User selects patient.</li> <li>2. Chooses "Schedule Appointment."</li> <li>3. System displays: <ul style="list-style-type: none"> <li>• Available slots.</li> <li>• Provider availability.</li> </ul> </li> <li>4. User selects date/time + service type.</li> <li>5. System: <ul style="list-style-type: none"> <li>• Blocks calendar slot.</li> <li>• Updates patient visit timeline.</li> </ul> </li> </ol>

<b>Postconditions</b>	<ul style="list-style-type: none"> <li>• Appointment reflected in clinic calendar.</li> </ul>
<b>Alternate Flows and Exceptions</b>	<p><b>A1: Walk-In Appointment</b></p> <ol style="list-style-type: none"> <li>1. Marks as "Walk-In" instead of scheduled.</li> </ol> <p><b>A2: Reschedule</b></p> <ol style="list-style-type: none"> <li>1. Detects conflict with existing method.</li> </ol> <p><b>E1: Double-Booking</b></p> <ol style="list-style-type: none"> <li>1. Flags "Slot taken by [Patient]."</li> </ol>
<b>Non-functional Requirements</b>	

<b>Generate Patient Report</b>	
<b>Actors</b>	Nurse
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• User is authenticated.</li> <li>• Patient has <math>\geq 1</math> recorded visit.</li> </ul>
<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. User selects patient.</li> <li>2. Chooses "Generate Report."</li> <li>3. Generates PDF with Patient records.</li> <li>4. Auto-saves.</li> </ol>
<b>Postconditions</b>	<ul style="list-style-type: none"> <li>• PDF stored.</li> </ul>
<b>Alternate Flows and Exceptions</b>	<p><b>Insufficient Data</b></p> <ol style="list-style-type: none"> <li>1. Shows "Minimum 1 visit required."</li> </ol>
<b>Non-functional Requirements</b>	

Manage User Roles	
<b>Actors</b>	Nurse Supervisor
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• Supervisor is authenticated.</li> <li>• Target user exists in system.</li> </ul>
<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. Supervisor selects "User Management."</li> <li>2. Searches for user.</li> <li>3. System displays: <ul style="list-style-type: none"> <li>• Current role/permissions.</li> </ul> </li> <li>4. Supervisor: <ul style="list-style-type: none"> <li>• Modifies role (Nurse → Senior Nurse).</li> </ul> </li> <li>5. System: <ul style="list-style-type: none"> <li>• Displays changes.</li> </ul> </li> </ol>
<b>Postconditions</b>	<ul style="list-style-type: none"> <li>• New permissions take immediate effect.</li> </ul>
<b>Alternate Flows and Exceptions</b>	<b>E1: Privilege Escalation</b> <ol style="list-style-type: none"> <li>1. Blocks if target role <math>\geq</math> supervisor's.</li> </ol>
<b>Non-functional Requirements</b>	

View User Info	
<b>Actors</b>	Nurse Supervisor
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• Supervisor is authenticated.</li> <li>• Target user exists in system.</li> </ul>



<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. Supervisor navigates to User Management.</li> <li>2. System displays user info.</li> </ol>
<b>Postconditions</b>	<ul style="list-style-type: none"> <li>• No data modified.</li> </ul>
<b>Alternate Flows</b>	<b>A1: Self-View</b> <ol style="list-style-type: none"> <li>1. User views own profile.</li> </ol>
<b>Exceptions</b>	
<b>Non-functional Requirements</b>	

## 2 Monthly Report Use Cases

<b>Create Monthly Report</b>	
<b>Actors</b>	Nurse, Nurse Supervisor
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• The nurse is logged into the system.</li> <li>• The nurse has the necessary permissions to generate the monthly report.</li> </ul>
<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. The nurse logs into the system.</li> <li>2. The nurse generates the monthly report.</li> <li>3. The nurse modifies and completes the report.</li> <li>4. The nurse submits the report.</li> <li>5. The system notifies the nurse supervisor that the report is ready for review.</li> <li>6. The nurse supervisor reviews the report.</li> <li>7. The nurse supervisor approves the report.</li> </ol>

<b>Postconditions</b>	<ul style="list-style-type: none"> <li>• The report is successfully submitted and approved.</li> <li>• The report is stored in the system for future reference.</li> </ul>
<b>Alternate Flows and Exceptions</b>	<b>Missing Required Data:</b> If the nurse attempts to create the report without entering all required data, the system displays an error message “Please fill out the required fields before submitting.”
<b>Non-functional Requirements</b>	The interface should be user-friendly.

<b>Modifying Monthly Report</b>	
<b>Actors</b>	Nurse
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• The nurse is logged into the system.</li> <li>• A draft report exists for the current month.</li> </ul>
<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. The nurse selects an existing monthly report.</li> <li>2. The nurse makes modifications to the report content.</li> <li>3. The nurse saves the changes.</li> <li>4. The nurse submits the modified report.</li> </ol>
<b>Postconditions</b>	The updated report is saved and ready for review by the nurse supervisor.
<b>Alternate Flows and Exceptions</b>	<ul style="list-style-type: none"> <li>• <b>Report Already Submitted:</b> If the report is already submitted, the system prevents modifications and displays message “Form has already been submitted for this month.”</li> <li>• <b>Unauthorized Access:</b> If the nurse attempts to access the report creation feature without the proper role or permissions, the system displays an error: “You do not have permission to access this report.”</li> </ul>
<b>Non-functional Requirements</b>	The interface should clearly tell the user when a new monthly report is ready and if completed.

<b>Approve or Return Report</b>	
<b>Actors</b>	Nurse Supervisor
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• The nurse supervisor is logged into the system.</li> <li>• A monthly report has been submitted by the nurse.</li> </ul>
<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. The nurse supervisor reviews the submitted monthly report.</li> <li>2. The nurse supervisor checks the report for completeness and accuracy.</li> <li>3. If satisfactory, the nurse supervisor approves the report.</li> <li>4. If unsatisfactory, the nurse supervisor returns it with comments for revision.</li> </ol>
<b>Postconditions</b>	<ul style="list-style-type: none"> <li>• If approved, the report is marked as finalized in the system.</li> <li>• If returned, the report is sent back to the nurse for modification.</li> </ul>
<b>Alternate Flows and Exceptions</b>	<ul style="list-style-type: none"> <li>• <b>Report Invalid:</b> If the report does not meet the minimum required criteria, the nurse supervisor sends it back for revision.</li> <li>• <b>Report Already Approved:</b> If the nurse supervisor attempts to return a report that has already been approved, the system shows an error.</li> <li>• <b>Unauthorized Access:</b> If the nurse supervisor attempts to access the report without the proper role or permissions, the system displays an error.</li> </ul>
<b>Non-functional Requirements</b>	The system must store versions of the report for history tracking.

<b>Use Case Name</b>	Automated Report Processing
<b>Actors</b>	System (Automated Processes)
<b>Preconditions</b>	The system is running and has access to relevant data sources.

<b>Normal Flow</b>	<ol style="list-style-type: none"> <li>1. The system collects contraceptive data from inventory records.</li> <li>2. The system calculates current inventory levels based on stock updates.</li> <li>3. The system generates a financial summary report, including revenue and expenses.</li> <li>4. The system identifies restocking needs by comparing inventory levels with predefined thresholds.</li> <li>5. The system compiles the processed data into a structured report.</li> <li>6. The system sends notifications to relevant stakeholders if restocking is required.</li> </ol>
<b>Postconditions</b>	The report is successfully generated and relevant stakeholders are informed about inventory and financial summaries.
<b>Alternate Flows and Exceptions</b>	<ul style="list-style-type: none"> <li>• <b>Data Unavailable:</b> If inventory or financial data is missing, the system logs an error and alerts administrators.</li> <li>• <b>Low Inventory:</b> If inventory levels fall below the threshold, the system triggers an urgent restocking request.</li> </ul>
<b>Non-functional Requirements</b>	<ul style="list-style-type: none"> <li>• The system should log all automated actions for auditing purposes.</li> </ul>