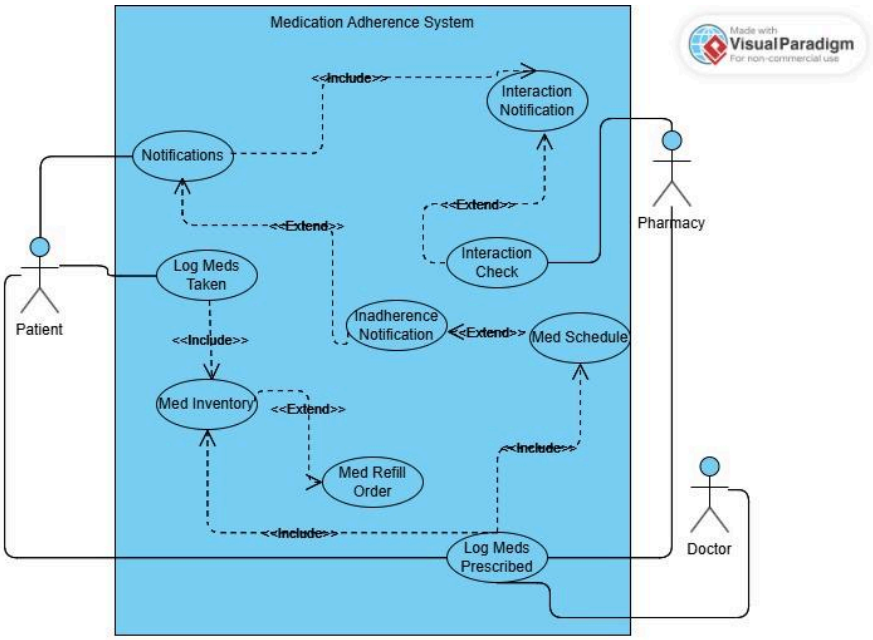
| | |
|---|---|
| **Group members** | Quinn Rentz |
| | Savannah Gray |
| | William Balderson |
| | Amra Ibrahim |
| | Abel Samson |
| | Michelle Boateng |




REQ 1: Allow Patient/Pharmacy/Doctor to Log Prescriptions
REQ 2: Allow Patient to Log Medication Taken
REQ 3: Allow Patient to Manage Notifications From System
REQ 4: Allow Pharmacy to submit Dangerous Medication Interactions Report
REQ 5: Allow System to notify Doctor/Pharmacy when Patient fails to adhere to medication schedule
REQ 6: Allow System to send Prescription Refill Order to Pharmacy

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|---|---|
| **Name:** | REQ 1: Log Medications Prescribed |
| **Description:** | The software allows the Patient, Doctor, or Pharmacy to add Prescriptions to the Patient's Prescription Log. |
| **Actor:** | Patient, Doctor, Pharmacy |
| **Entry condition:** | The actor selects Add Prescription |
| **Basic path:** | 1. The system presents the Add Prescription screen containing the options:<br>--- New<br>--- Cancel **[A01]**<br>2. The actor selects the option New<br>3. The system presents a screen for entering the Prescription Details containing:<br>- MedName (editable) |

<table>
<tr><td></td><td>- Dose (editable)<br>- Inventory (editable)<br>- Pharmacy ID (editable)<br>-Medication ID (editable)<br>- Schedule (editable)<br>- The options:<br>--- Confirm<br>--- Back [A02]<br>4. The actor selects the Confirm option<br>5. The system verifies if the information is valid [BR01] [E01]<br>6. The system includes the new Prescription<br>7. The use case is concluded<br>8. The system returns to the home screen</td></tr>
<tr><td>Alternative paths:</td><td>[A01] The actor selects the Cancel option<br>1. The use case is concluded<br>2. The system returns to the home screen<br><br>[A02] The actor selects the option Back<br>1. The use case returns to step 1 of the basic path</td></tr>
<tr><td>Exception path:</td><td>[E01] Invalid registration information<br>1. System displays message indicating the existence of invalid/incomplete information.<br>2. The use case returns to step 3 of the basic path.</td></tr>
<tr><td>Business Rules:</td><td>[BR01] All attributes are mandatory.<br>.</td></tr>
<tr><td>Data description</td><td>
<table>
<tr><th>Name</th><th>Type</th><th>Length</th><th>Mask</th></tr>
<tr><td>MedName</td><td>String</td><td>256</td><td>-</td></tr>
<tr><td>Dose</td><td>Float</td><td>256</td><td>-</td></tr>
<tr><td>Schedule</td><td>DateTime</td><td>256</td><td>-</td></tr>
<tr><td>Inventory</td><td>Int</td><td>256</td><td></td></tr>
<tr><td>Pharmacy ID</td><td>String</td><td>10</td><td></td></tr>
<tr><td>Medication ID</td><td>String</td><td>10</td><td></td></tr>
</table>
</td></tr>
<tr><td>Prototype:</td><td>[]</td></tr>
</table>

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|---|---|
| **Name:** | REQ 2: Allow Patient to Log Medication Taken |
| **Description:** | The software allows the Patient to log their adherence to the provided medication schedule |
| **Actor:** | Patient |
| **Entry condition:** | The patient selects Log Medication Taken |
| **Basic path:** | 1.) The system presents a list of the Patient's Logged Prescriptions and the option:<br>-Cancel **[A01]**<br>2.) The patient selects the medication/prescription taken/applied<br>3.) The system presents the options:<br>-Confirm<br>-Back **[A02]**<br>4.) The System verifies the time on the device compared to the scheduled time of the medication **[E01][E02][BR01]**<br>5.) The system adjusts the stock of the medication accordingly **[BR02]**<br>6.) The use case is concluded<br>7.) The system returns to the home screen |
| **Alternative paths:** | **[A01] The actor selects the Cancel option**<br>1.) The use case is concluded<br>2.) The system returns to the home screen<br>**[A02] The actor selects the option Back**<br>1.) The use case returns to step 1 of the basic path |
| **Exception path:** | **[E01] The medication is taken early**<br>1.) The system presents a warning that the patient is taking the medication early and presents the options:<br>- Accept<br>- Back **[A02]**<br>2.) The use case is concluded |

<table>
<tr><td></td><td>3.) The system returns to the home page<br><br>[E02] The medication is taken late<br>1.) The system presents a warning that the patient is taking the medication early and presents the options:<br>- Accept<br>- Back [A02]<br>2.) The use case is concluded<br>3.) The system returns to the home page</td></tr>
<tr><td>Business Rules:</td><td>[BR01] Off schedule doses, early or late, must be flagged (handled by REQ 5).<br>[BR02] Low inventory values, less than two weeks’ of doses, must be flagged (handled by REQ 6).</td></tr>
<tr><td>Data description</td><td>
<table>
<tr><th>Name</th><th>Type</th><th>Length</th><th>Mask</th><th></th></tr>
<tr><td>Medication Name</td><td>String</td><td>256</td><td></td><td></td></tr>
<tr><td>Medication ID</td><td>String</td><td>10</td><td>-</td><td></td></tr>
<tr><td>Inventory</td><td>Int</td><td>256</td><td>-</td><td></td></tr>
<tr><td>Schedule</td><td>DateTime</td><td>256</td><td>-</td><td></td></tr>
</table>
</td></tr>
</table>

| **Name:** | REQ 3: Allow Patient to Manage Notifications From System |
|---|---|
| **Description:** | The Patient will receive notifications regarding reminders for their scheduled prescriptions, Dangerous Interaction Warnings, and Refill Request Responses |
| **Actor:** | Patient |
| **Entry condition:** | The system has generated a notification for the patient. |
| **Basic path:** | 1. The system presents a list of notifications to the patient.<br>2. The patient selects a notification to view.<br>3. The system displays the details of the notification.<br>4. The patient selects an action:<br>- Dismiss notification<br>- Snooze reminder notification (if applicable)<br>5. The system processes the selected action. |

<table>
<tr><td></td><td>6. The use case is concluded.<br>7. The system returns to the home screen.</td></tr>
<tr><td>Alternative paths:</td><td>● [A01] Patient chooses to dismiss all notifications:<br>1. The system marks all notifications as read and removes them from the active list.<br>2. The use case is concluded.<br>3. The system returns to the home screen.<br>● [A02] Patient selects “Back” instead of an action:<br>1. The use case returns to step 1 of the basic path.</td></tr>
<tr><td>Exception path:</td><td>● [E01] No new notifications available:<br>1. The system informs the patient that there are no new notifications.<br>2. The use case is concluded.</td></tr>
<tr><td>Business Rules:</td><td>● The system must store notifications for a predefined period before automatic removal.<br>● Critical warnings (e.g., dangerous drug interactions) must require patient acknowledgment before dismissal.</td></tr>
<tr><td>Data description</td><td>
<table>
<tr><th>Name</th><th>Type</th><th>Length</th><th>Mask</th><th></th></tr>
<tr><td>Notification ID</td><td>String</td><td>256</td><td>-</td><td></td></tr>
<tr><td>Notification Type</td><td>String</td><td>256</td><td>-</td><td></td></tr>
<tr><td>Notification Message</td><td>String</td><td>512</td><td>-</td><td></td></tr>
<tr><td>TImestamp</td><td>DateTime</td><td>-</td><td>-</td><td></td></tr>
</table>
</td></tr>
</table>

| **Name:** | REQ 4: Allow Pharmacy to submit Dangerous Medication Interactions Report |
|---|---|
| **Description:** | The pharmacy can submit reports about potentially dangerous drug interactions. |
| **Actor:** | Pharmacy |
| **Entry condition:** | The pharmacy identifies a potential dangerous drug interaction. |

<table>
<tr><td>Basic path:</td><td>
<ol>
<li>The system presents the option to submit an interaction report.</li>
<li>The pharmacy selects “New Report.”</li>
<li>The system presents a form for entering report details:
<ul>
<li>Drug combination details</li>
<li>Description of the interaction</li>
<li>Severity level</li>
<li>Recommend action</li>
</ul></li>
<li>The pharmacy submits the report.</li>
<li>The system validates the information and stores the report.</li>
<li>The system sends alerts to relevant users (doctors, patients).</li>
<li>The use case is concluded.</li>
</ol>
</td></tr>
<tr><td>Alternative paths:</td><td>
<ul>
<li>[A01] Pharmacy selects “Cancel” before submitting:
<ol><li>The use case is concluded.</li></ol></li>
<li>[A02] Pharmacy selects “Back” instead of submitting:
<ol><li>The use case returns to step 1 of the basic path.</li></ol></li>
</ul>
</td></tr>
<tr><td>Exception path:</td><td>
<ul>
<li>[E01] Report submission fails due to incomplete data:
<ol><li>The system prompts the pharmacy to complete missing fields.</li><li>The use case returns to step 3.</li></ol></li>
</ul>
</td></tr>
<tr><td>Business Rules:</td><td>
<ul>
<li>All reports must include a severity rating.</li>
<li>The system must notify affected patients and doctors within a specified timeframe.</li>
</ul>
</td></tr>
<tr><td>Data description</td><td>
<table>
<tr><th>Name</th><th>Type</th><th>Length</th><th>Mask</th><th></th></tr>
<tr><td>Report ID</td><td>String</td><td>256</td><td>-</td><td></td></tr>
<tr><td>Drug Names</td><td>String</td><td>256</td><td>-</td><td></td></tr>
<tr><td>Interaction</td><td>String</td><td>512</td><td>-</td><td></td></tr>
<tr><td>Severity</td><td>Enum (low, mod., high)</td><td>-</td><td>-</td><td></td></tr>
</table>
</td></tr>
</table>

| **Name:** | REQ 5: Allow System to notify Doctor/Pharmacy when a Patient fails to adhere to medication schedule |
|---|---|
| **Description:** | The system monitors the patient's medication schedule. If the patient does not log their medication use during the prescribed |

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| | time, the system will create a notification that is then sent to the doctor and the Pharmacy. |
| **Actor:** | Patient, Doctor, Pharmacy |
| **Entry condition:** | The patient has a medication schedule. The system is tracking the medication adherence |
| **Basic path:** | 1. The system monitors the patient's medication schedule.<br>2. If the patient fails to log medication intake within the prescribed time frame, the system triggers an adherence notification.<br>3. The system sends an adherence notification to the doctor and pharmacy. |
| **Alternative paths:** | **[A01] Patient logs medication intake late but within an acceptable grace period:**<br>The system generates a warning instead of a full adherence notification and does not notify the doctor or pharmacy.<br><br>**[A02] Patient manually updates the log after missing a dose:**<br>The system records the late entry and does not send an adherence notification if it is within an allowed timeframe.<br><br>**[A03] Doctor/Pharmacy disables adherence notifications for a specific patient:**<br>The system does not send notifications to the opted-out recipient but continues to track adherence. |
| **Exception path:** | **[E01] System fails to retrieve adherence data:**<br>The system retries fetching the data after a predefined interval.<br>The use case returns to step 1.<br><br>**[E02] Notification delivery to doctor/pharmacy fails due to communication error:**<br>The system logs the failed attempt and retries after a set period.<br>The use case returns to step 3.<br><br>**[E03] Patient reports an error in the medication log after a notification is sent:**<br>The system allows the patient to correct the log and updates the adherence record**.** |
| **Business Rules:** | - Notifications should only be sent when the missed medication exceeds a defined threshold |

<table>
<tr><td></td><td>

- Patients should have a grace period before being marked as non-adherent.
- Doctors and pharmacies should be notified based on their subscription preferences.

</td></tr>
<tr><td>Data description</td><td>

<table>
<tr><th>Name</th><th>Type</th><th>Length</th><th>Mask</th><th></th></tr>
<tr><td>Patient ID</td><td>String</td><td>10</td><td>-</td><td></td></tr>
<tr><td>MedicatioN ID</td><td>String</td><td>10</td><td>-</td><td></td></tr>
<tr><td>Doctor ID</td><td>String</td><td>10</td><td>-</td><td></td></tr>
<tr><td>Pharmacy ID</td><td>String</td><td>10</td><td>-</td><td></td></tr>
<tr><td>Notification</td><td>String</td><td>10</td><td>-</td><td></td></tr>
<tr><td>Timestamp</td><td>String</td><td>-</td><td>-</td><td></td></tr>
</table>

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</table>

| **Name:** | REQ 6: Allow System to send Prescription Refill Order to Pharmacy |
|---|---|
| **Description:** | The system should automatically generate and send a prescription refill order to the pharmacy when a patient's medication inventory reaches a predefined threshold. |
| **Actor:** | Patient, Pharmacy, System |
| **Entry condition:** | Patient's medication inventory is low, requiring a refill.<br><br>A valid prescription exists in the system. |
| **Basic path:** | 1. The system continuously monitors the patient's medication inventory.<br>2. When the inventory reaches the predefined threshold, the system generates a refill request.<br>3. The system sends the refill order to the pharmacy.<br>4. The pharmacy receives the order and processes it accordingly.<br>5. The system notifies the patient about the refill order status. |
| **Alternative paths:** | Patient manually requests a refill instead of relying on the automatic trigger.<br>Pharmacy rejects the refill request due to prescription expiration or regulatory issues. |

<table>
<tr><td></td><td></td></tr>
<tr><td>Exception path:</td><td>The system fails to send the refill order due to technical issues.<br><br>The pharmacy does not have the medication in stock and notifies the system.</td></tr>
<tr><td>Business Rules:</td><td>Prescription validity must be verified before processing a refill request.<br>A refill can only be issued if the patient's insurance coverage (if applicable) allows it.<br>Notifications must be sent to both the patient and pharmacy upon refill request processing.</td></tr>
<tr><td>Data description</td><td>
<table>
<tr><th>Name</th><th>Type</th><th>Length</th><th>Mask</th><th></th></tr>
<tr><td>patient ID</td><td>String</td><td>10</td><td>-</td><td></td></tr>
<tr><td>Prescription ID</td><td>String</td><td>15</td><td>-</td><td></td></tr>
<tr><td>Medication Name</td><td>String</td><td>50</td><td>-</td><td></td></tr>
<tr><td>Refill Quantity</td><td>Integer</td><td>-</td><td>-</td><td></td></tr>
<tr><td>Pharmacy ID</td><td>String</td><td>10</td><td>-</td><td></td></tr>
<tr><td>Refill Status</td><td>String</td><td>20</td><td>-</td><td></td></tr>
</table>
</td></tr>
</table>