



راشیتا  
Rashita

# FINAL REPORT

**CSC343  
GROUP 2  
RASHITA  
20-4-2025**

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|--------------------|------------|
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# Tasks Distribution



RASHITA

|   | NAME                  | ID        | Contribution   |
|---|-----------------------|-----------|--|
| 1 | Albatoul<br>Alharbi   | 444200516 | <p>Participated in writing the Report, and drawing the use case diagram ,Responsible for REQ-1,2,3,4,5</p> <p>wrote the non-functional REQ-5,7,9</p> <p>design some interface</p> <p>Sequence Diagrams and system Sequence Diagrams</p> <p>State Diagram</p> <p>class diagram</p> <p>object diagram</p>  |
| 2 | Shmookh<br>Almoliafai | 444201101 | <p>Participated in writing the Report, and drawing the use case diagram Responsible for REQ-7,11,13,12</p> <p>wrote the non-functional REQ-8,12,13,10</p> <p>design some interface</p> <p>wrote the stakeholders and actors</p> <p>Sequence Diagrams and system Sequence Diagrams</p> <p>Design of test</p> <p>class diagram</p> <p>object diagram</p>   |
| 3 | Hatoon<br>Almobadel   | 444200928 | <p>Participated in writing the Report, and drawing the use case diagram ,Responsible for REQ-6,9,13,12</p> <p>wrote the non-functional REQ-1,6,11</p> <p>Wrote the customer statement of requirement</p> <p>designed some interfaces</p> <p>wrote the stakeholders and actors</p> <p>Sequence Diagrams and system Sequence Diagrams</p> <p>Architectural diagram</p> <p>glossary of terms</p> <p>class diagram</p> <p>object diagram</p> |
| 4 | Gheed<br>Alhoseneine  | 444201000 | <p>Participated in writing the Report, and drawing the use case diagram ,Responsible for REQ-8,12,10,13</p> <p>wrote the non-functional REQ-2,3,4</p> <p>designed some interfaces</p> <p>Sequence Diagrams and system Sequence Diagrams</p> <p>Collaboration Diagram</p> <p>class diagram</p> <p>object diagram</p>  |



# CUSTOMER STATEMENT OF REQUIREMENTS

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## Problem Statement

Managing medications effectively is a significant challenge for many individuals. Forgetfulness often leads to missed doses, which can reduce the effectiveness of treatments and negatively impact health. Additionally, individuals may lack the necessary knowledge about potential side effects or harmful drug interactions, posing serious health risks. Finding a nearby pharmacy to purchase medications can also be a time-consuming and inconvenient process, particularly for elderly individuals, busy professionals, or those with mobility issues.

For many, the process of keeping track of medication schedules, understanding drug interactions, and locating pharmacies is overwhelming. Traditional methods such as written reminders or alarms may not be sufficient, especially for individuals with complex medication regimens. Furthermore, without easy access to professional guidance, patients may unknowingly take medications that interact negatively, leading to adverse health effects.

To address these challenges, a mobile application is needed to assist individuals in organizing and managing their medications effectively. This application would serve as a comprehensive healthcare support tool, ensuring that users take their medications on time, receive alerts about potential drug interactions, and locate pharmacies effortlessly. By providing timely reminders, medication information, and pharmacy accessibility, the application will help users maintain their health with confidence and convenience.

Through this solution, individuals can enjoy greater peace of mind, knowing that their medication needs are efficiently managed. The app will significantly improve adherence to prescribed treatments, enhance awareness of medication-related risks, and streamline the process of obtaining necessary medicines. Ultimately, this technology-driven approach will empower users to take control of their healthcare and enhance their overall well-being.

## WHO ARE OUR STAKEHOLDERS ?

- Patients.
- Doctors.
- Pharmacists.
- Medicine Companies.

## WHO ARE OUR ACTORS AND WHAT ARE THEIR GOALS ?

### 1) Patient

His goals :

- to receive medication Reminders.
- to find the nearest pharmacies to his location .
- To Order medicine.
- To find the chemical interactions that happen between medicines.

### 2) Database

Its purpose:

- Store and retrieve patient medication data.
- Save and manage medication reminders.
- Store prescription details and pharmacist notes.



# GLOSSARY OF TERMS

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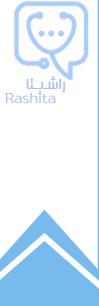
| Term                 | Definition   |
|----------------------|--|
| Architecture Style   | A structured pattern used to design software systems, defining component organization and communication.                     |
| Layered Architecture | A software design pattern that separates concerns into different layers such as UI, business logic, and data access.         |
| Client-Server        | A model where the client (e.g., mobile app) requests services and the server provides responses.                             |
| Microservices        | An architectural style that structures an application as a collection of loosely coupled, independently deployable services. |
| User Interface (UI)  | The visual part of the application through which users interact with the system.   |
| Backend              | The server-side part of an application that handles business logic, data processing, and storage.                            |
| Service              | A functional unit in the system that performs a specific task such as sending reminders or checking drug interactions.       |
| Database             | A structured collection of data that stores user profiles, medications, pharmacy information, and other essential records.   |

# GLOSSARY OF TERMS

| Term                    | Definition   |
|-------------------------|--|
| <b>Reminder System</b>  | A component that schedules and sends alerts to users to take their medications on time.              |
| <b>Drug Interaction</b> | A feature that checks for harmful interactions between different medications the user may be taking. |
| <b>Pharmacy Locator</b> | A service that uses gps to help users find nearby pharmacies.  |
| <b>Order Management</b> | The process of placing and tracking medicine orders through the app.                                 |
| <b>Scalability</b>      | The ability of the system to handle increased load or add new features with minimal changes.         |
| <b>Maintainability</b>  | How easily the system can be updated or fixed over time.   |



# SYSTEM REQUIREMENTS



- **Nearest Pharmacy Locator:**

With Rashita, users can quickly find pharmacies in their area, ensuring they have easy access to medication whenever needed. This feature helps identify the closest pharmacies that have the required medication in stock based on the user's current location, providing essential details such as contact information and opening hours. Whether users are at home, traveling, or in an unfamiliar place, this locator makes it convenient to find and access medication.

- **Medication Reminders:**

One of the problems we noticed is how people forget to take their medication on time so our app provides timely reminders for users to take their medicine, helping them stay on track with their prescriptions.

- **Drug Interaction Warnings:**

Rashita alerts users about potential chemical reactions between medicines, promoting safer medication use.

- **Medicine Ordering:**

Users can conveniently order medicine through the app, reducing the hassle of in-person visits.



# FUNCTIONAL REQUIREMENTS

# FUNCTIONAL REQUIREMENTS

| Requirements | Description  |
|--------------|--|
| REQ-1        | The system shall allow users to create an account with a valid email and a secure password.                                    |
| REQ-2        | The system must enable users to sign in using their designated username and password.  |
| REQ-3        | The system shall allow users to update their account details.  |
| REQ-4        | The system shall allow users to delete their account .   |
| REQ-5        | The system shall use GPS to find and display nearby pharmacies, sorted by proximity, with results shown on an interactive map. |
| REQ-6        | The system shall send Medication Reminders via push notifications.   |
| REQ-7        | The system shall generate Drug Interaction Warnings.   |
| REQ-8        | The system shall allow users to Order Medicine online.   |

# FUNCTIONAL REQUIREMENTS

| Requirements | Description   |
|--------------|---|
| REQ-9        | The system shall allow users to remove unwanted medicine reminders. Once removed, remainders will no longer trigger notifications             |
| REQ-10       | The system shall allow users to track their medicine order by displaying status updates such as Processing, Out for Delivery, and Delivered.  |
| REQ-11       | The system should allow users to manage their order before it is processed by the pharmacy. In which the user can cancel or modify the order. |
| REQ-12       | The system should allow users to save their preferred payment method for faster checkout.   |
| REQ - 13     | The system must enable users to log out from their account.   |

# NON- FUNCTIONAL REQUIREMENTS

# NON-FUNCTIONAL REQUIREMENTS

| Requirements                   | Description   |
|--------------------------------|---|
| <b>NONFUNCTIONAL<br/>REQ-1</b> | The system shall be designed so that a new user can learn how to use its functions in no more than 5 minutes .                              |
| <b>NONFUNCTIONAL<br/>REQ-2</b> | The system should support ios/android systems .   |
| <b>NONFUNCTIONAL<br/>REQ-3</b> | The system shall support dark mode to enhance readability in low-light environments, and improve accessibility for visually impaired users. |
| <b>NONFUNCTIONAL<br/>REQ-4</b> | The system should log the user out if there is more than 1 person in the same account.  |
| <b>NONFUNCTIONAL<br/>REQ-5</b> | Prescription uploads should be accepted in common formats like PDF, JPG, and PNG.   |
| <b>NONFUNCTIONAL<br/>REQ-6</b> | The system must perform daily backups of prescription data for security and continuity.   |
| <b>NONFUNCTIONAL<br/>REQ-7</b> | Prescription processing should take less than 5 seconds   |

# NON-FUNCTIONAL REQUIREMENTS

| Requirements            | Description  |
|-------------------------|--|
| NONFUNCTIONAL<br>REQ-8  | The system should support different timings based on the user's location to accurately set medication alerts.  |
| NONFUNCTIONAL<br>REQ-9  | Notifications must be delivered within 5 seconds of an update release.   |
| NONFUNCTIONAL<br>REQ-10 | The mobile app must allow users to access previously stored prescriptions without an internet connection and must load the prescriptions within 3 seconds. |
| NONFUNCTIONAL<br>REQ-11 | All user data must be encrypted using the AES-256 protocol.  |
| NONFUNCTIONAL<br>REQ-12 | The mobile app should load in less than 3 seconds on devices with at least 2GB of RAM.   |

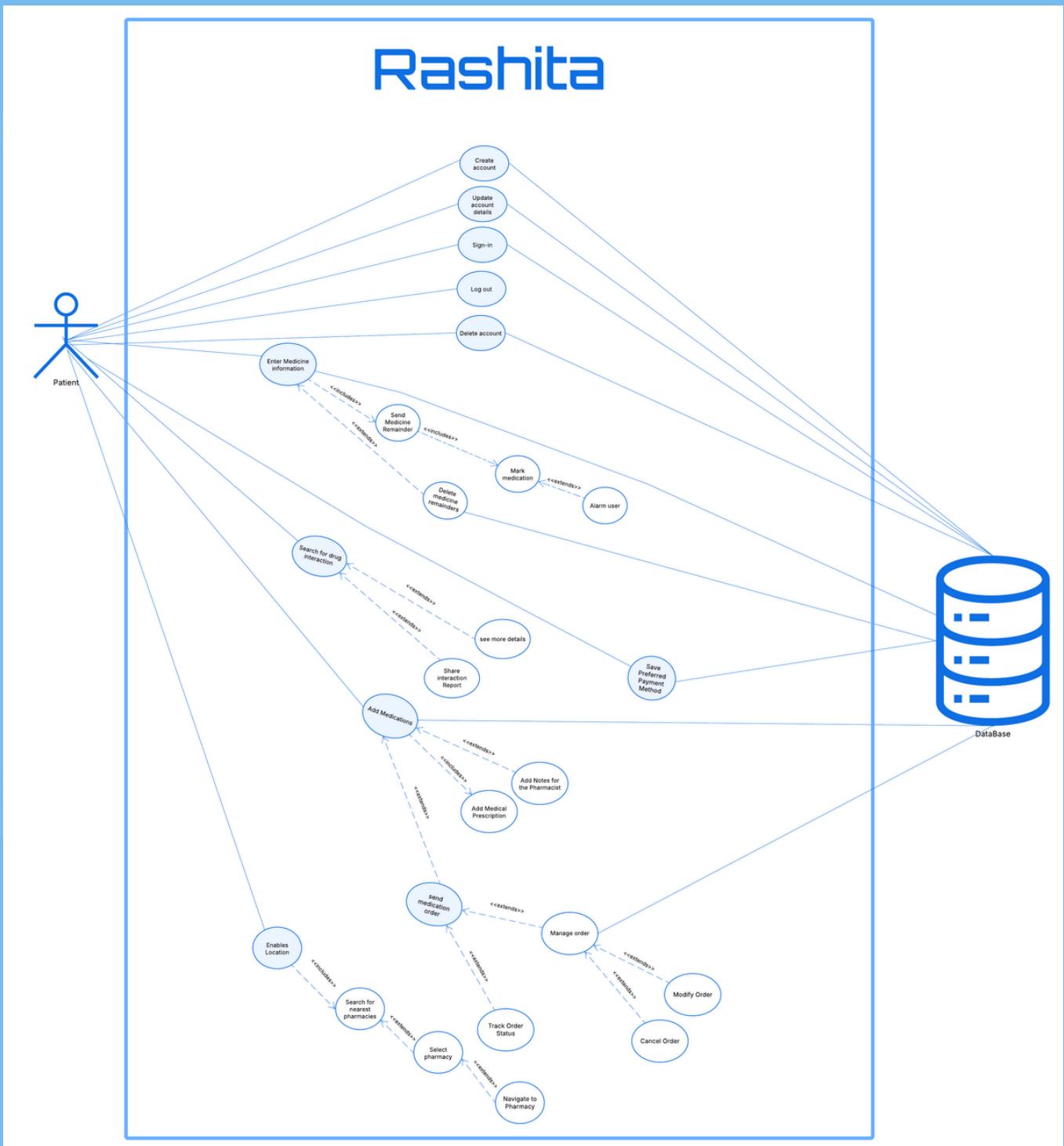


# DOMAIN ANALYSIS

## DESCRIPTION

Rashita is a medicine management app designed to help users locate nearby pharmacies, manage medicine schedules, avoid chemical interactions, and consult with doctors.

# THE USE CASE DIAGRAM



# THE USE CASES

# THE USE CASES

| Use Case ID | Name                     | Description   | Requirement |
|-------------|--------------------------|---|-------------|
| UC-001      | Create Account           | Enables a new user to register an account with a valid email and a secure password, ensuring proper validation and secure storage while checking if the email already exists in the system. | REQ-1       |
| UC-002      | User Sign-In             | The system shall allow users to sign in using their designated email and password by verifying their login details with the stored records in the database.                                 | REQ-2       |
| UC-003      | Update Account Details   | The users modify their account information, and resulting from it their information changes in the database .   | REQ-3       |
| UC-004      | Log out                  | The user clicks the logout button which results in the system terminating the current session.  | REQ-13      |
| UC-005      | Enable Location Services | The user will enable location services to find nearby pharmacies.   | REQ-5       |

# THE USE CASES

| Use Case ID | Name                          | Description   | Requirement |
|-------------|-------------------------------|---|-------------|
| UC-006      | Search for nearest pharmacies | The system shall generate a list of nearby pharmacies based on the user's location, displaying their names, addresses, contact details, operating hours, and distance.  | REQ-5       |
| UC-007      | Select a Pharmacy             | The system shall allow users to select a preferred pharmacy from the list.  | REQ-5       |
| UC-008      | Navigate to Pharmacy          | The system integrates with mapping services to provide step-by-step directions to the selected pharmacy, allowing users to navigate via their preferred navigation app. | REQ-5       |
| UC-009      | Enter medicine information    | The user enters the medication details then the system validates the entered details.   | REQ - 6     |
| UC-010      | Mark medication               | The user informs the system that they have taken the medication, confirming that the reminder has been received and acknowledged.                                       | REQ-6       |

# THE USE CASES

| Use Case ID | Name                         | Description  | Requirement |
|-------------|------------------------------|--|-------------|
| UC-011      | Send medicine remainder      | The user receives a scheduled reminder for their medication. At the designated time, the system checks the medication details, including the name, dosage, and instructions. Then sends a notification.  | REQ-6       |
| UC-012      | Alarm user                   | If the user does not mark their medication as taken within a certain time after receiving a reminder, the system will send a second notification. If the user still does not respond, the system may escalate the issue by alerting an emergency contact   | REQ-6       |
| UC-013      | Delete medicine remainder    | The user deletes the medicine remainder if no longer needed which results in it terminating from the database  | REQ-9       |
| UC-014      | Search for drug interaction  | Users must enter at least two drugs to proceed. If fewer are entered, the system prompts them to add more. Once enough drugs are provided, the system analyzes potential interactions and displays the results in a categorized drop-down menu. Each interaction is labeled by severity, and users can expand sections for more details. | REQ-7       |
| UC-015      | Share the interaction report | The system compiles a comprehensive interaction report, including risk levels and side effects, and allows users to share it via email, messages, or as a downloadable PDF.  | REQ-7       |

# THE USE CASES

| Use Case ID | Name                     | Description  | Requirement |
|-------------|--------------------------|--|-------------|
| UC-016      | Add medicine             | The user write the medicine names and enter just the one that need . then the system stores the medication details for the order.  | REQ-8       |
| UC-017      | Add medical prescription | The user uploads a prescription by clicking the upload button and selecting a file . then the system confirms that the prescription is correct and matches the medicine entered.   | REQ-8       |
| UC-018      | Add notes                | The user may add additional notes to the pharmacist .  | REQ-8       |
| UC-019      | Track Order Status       | The user can track their order status through the "My Orders" section, where the system displays different order stages, such as "Processing," "Out for Delivery," or "Delivered." | REQ - 10    |

# THE USE CASES

| Use Case ID | Name                          | Description   | Requirement |
|-------------|-------------------------------|---|-------------|
| UC-020      | Manage order                  | The system allows the user to review their current orders and take the appropriate action.  | REQ-11      |
| UC-021      | Save Preferred Payment Method | The patient selects a preferred payment method by entering the required payment details.  | REQ-12      |
| UC-022      | Delete account                | The user presses the button that is associated with deleting their account then a notification asking   | REQ-4       |
| UC-023      | send medication order         | The user enters the medication name and uploads a prescription. If a prescription is required, the system verifies it. The user can add notes for the pharmacist if needed. Once confirmed, the system processes the order and displays a confirmation message with the order details | REQ-8       |

# THE USE CASES

| Use Case ID | Name               | Description   | Requirement             |
|-------------|--------------------|---|-------------------------|
| UC-024      | Modify order       | The user selects an existing order and chooses to modify it. The system checks if changes are allowed. The user updates items, quantities, or delivery details. If modifications affect the total cost, the system recalculates it. Once confirmed, the system updates the order and displays a confirmation message. | REQ-8, REQ-10<br>REQ-11 |
| UC-025      | Cancel order       | The user decides to cancel an order, they initiate the cancellation request through the system. The system verifies the order status to determine if cancellation is possible. If the order has not been processed or shipped, the system successfully cancels it and displays a confirmation message.                | REQ-11                  |
| UC-026      | Track order status | The user can see all the new updates concerning his package.  | REQ-10,REQ-8            |



# THE DETAILED USE CASES

|                  |  |
|------------------|--|
| Use case Id      | UC-006   |
| Use Case Name    | Search for nearest pharmacies  |
| Actors           | Primary actor : patient  |
| Description      | The system provides a Nearest Pharmacy Locator that helps patient find pharmacies near their current location. It displays pharmacy details, including contact information, address, operating hours, and distance from the user.  |
| Trigger          | The patient enables his location a search for nearby pharmacies.   |
| Pre conditions   | The patient has granted location access to the system.<br>The system has access to an updated database of pharmacies.  |
| Post conditions  | The user receives a list of nearby pharmacies with relevant details.<br>The system ensures that the user receives up-to-date information on the closest pharmacies.  |
| Normal Flow      | <ul style="list-style-type: none"> <li>• The patient requests to find nearby pharmacies.</li> <li>• The system retrieves the patient's current location.</li> <li>• The system searches its database for pharmacies near the patient's location.</li> <li>• The system displays a list of nearby pharmacies, including name, address, contact details, operating hours, and distance.</li> <li>• The patient can choose a pharmacy to view its details or get directions.</li> </ul> |
| Alternative Flow | <b>Location access denied:</b><br>If the patient has not granted location access, the system prompts the user to enter a location manually.  |
| Priority         | High – Essential feature for enabling users to locate nearby pharmacies efficiently.   |

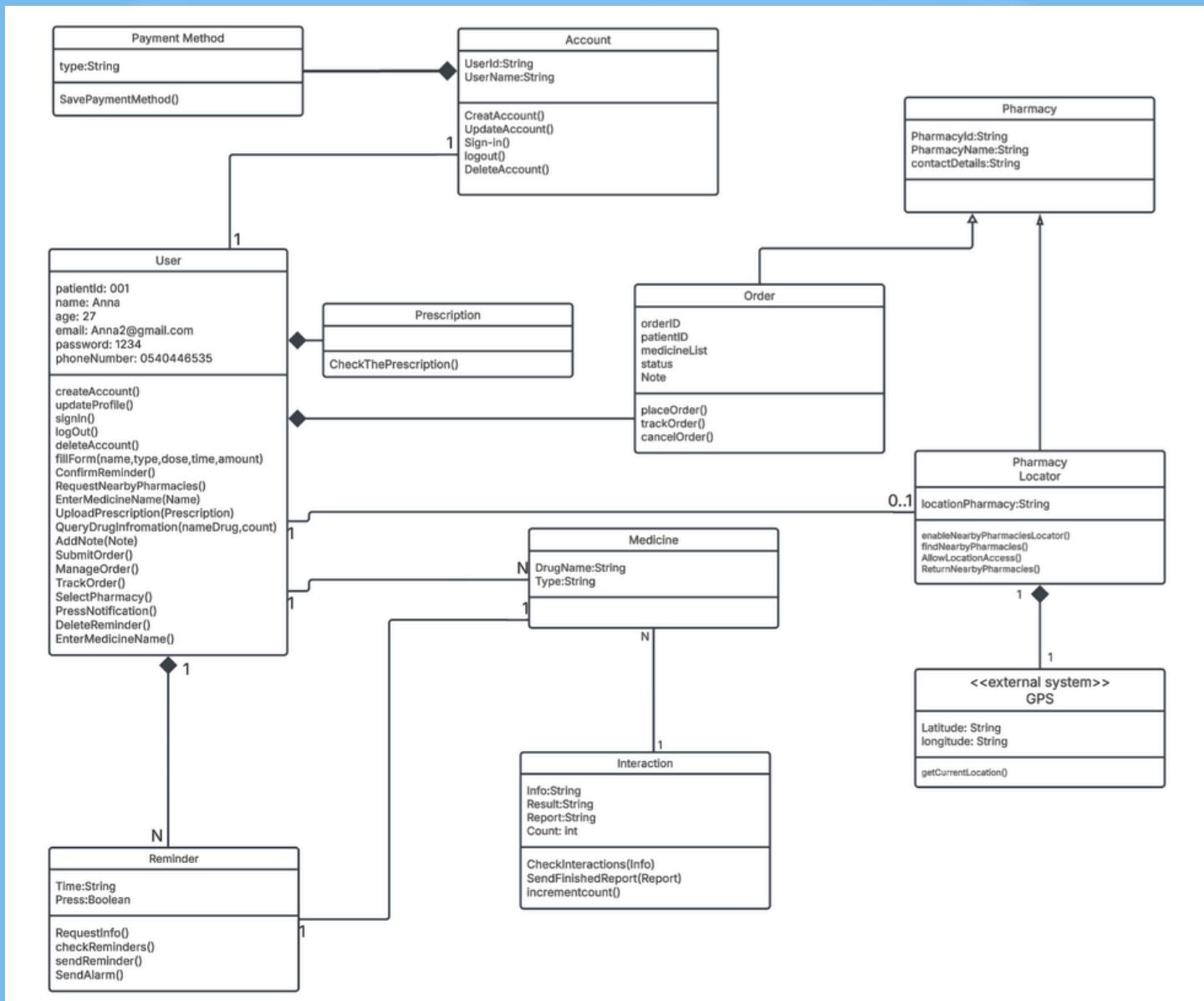
|                  |   |
|------------------|---|
| Use case Id      | UC-011  |
| Use Case Name    | Send Medicine Reminder  |
| Actors           | Primary actor : patient<br>Secondary actor: Database  |
| Description      | The system automatically sends a medication reminder to the patients to ensure they take their prescribed medicine on time.   |
| Trigger          | The system detects that the current time matches a scheduled medication reminder.   |
| Pre conditions   | The user has entered a medication.<br>The system has access to the user's preferred notification method (e.g., SMS, email, mobile app).   |
| Post conditions  | <ul style="list-style-type: none"> <li>The patient receives the reminder.</li> <li>The patient marks the remainder.</li> <li>The system logs the reminder as sent.</li> </ul>   |
| Normal Flow      | <ul style="list-style-type: none"> <li>The system checks if the current time matches any scheduled medication reminders.</li> <li>If a match is found, the system retrieves medication details (name, dosage, instructions).</li> <li>The system sends a reminder notification via the user's preferred method (SMS, email, or app).</li> <li>The patient receives the notification.</li> <li>The system logs the reminder as successfully sent.</li> </ul> |
| Alternative Flow | Notification failure :<br>If sending fails due to network issues, the system retries after 5 minutes.   |
| Priority         | High , Core functionality of the system   |

|                  |   |
|------------------|---|
| Use case Id      | UC-014  |
| Use Case Name    | Search for drug interactions.   |
| Actors           | Primary actor : patient   |
| Description      | This use case ensures drug safety by detecting potential drug interactions for users who have searched for drugs, provides risk assessments and scores, suggests alternative drugs if necessary, and allows the user to share interaction reports.  |
| Trigger          | The user adds the names of at least two drugs.  |
| Pre conditions   | <ul style="list-style-type: none"> <li>-At least two drugs must be registered in the user profile.</li> <li>-The system must have access to an updated drug interaction database.</li> </ul>  |
| Post conditions  | <p>The user is informed of possible drug interactions,</p> <p>Risk classifications (main, moderate, small) are displayed with explanations, the user has the option to share the interaction report with the healthcare provider.</p>   |
| Normal Flow      | <ul style="list-style-type: none"> <li>• The user registers his medications.</li> <li>• The system checks possible drug interactions.</li> <li>• The system displays interactions in a drop-down screen with the Read More feature.</li> <li>• If an interaction is detected, the system:</li> <li>• Provides a risk assessment and explanation.</li> <li>• Determines the intensity of the reaction out of the three degrees.</li> <li>• Suggests alternative medicines if necessary.</li> <li>• Allows the user to share the report.</li> </ul> |
| Alternative Flow | No interaction has been detected so the user is notified and is returned to the home screen.  |
| Priority         | High (Crucial to the safety of the user).   |

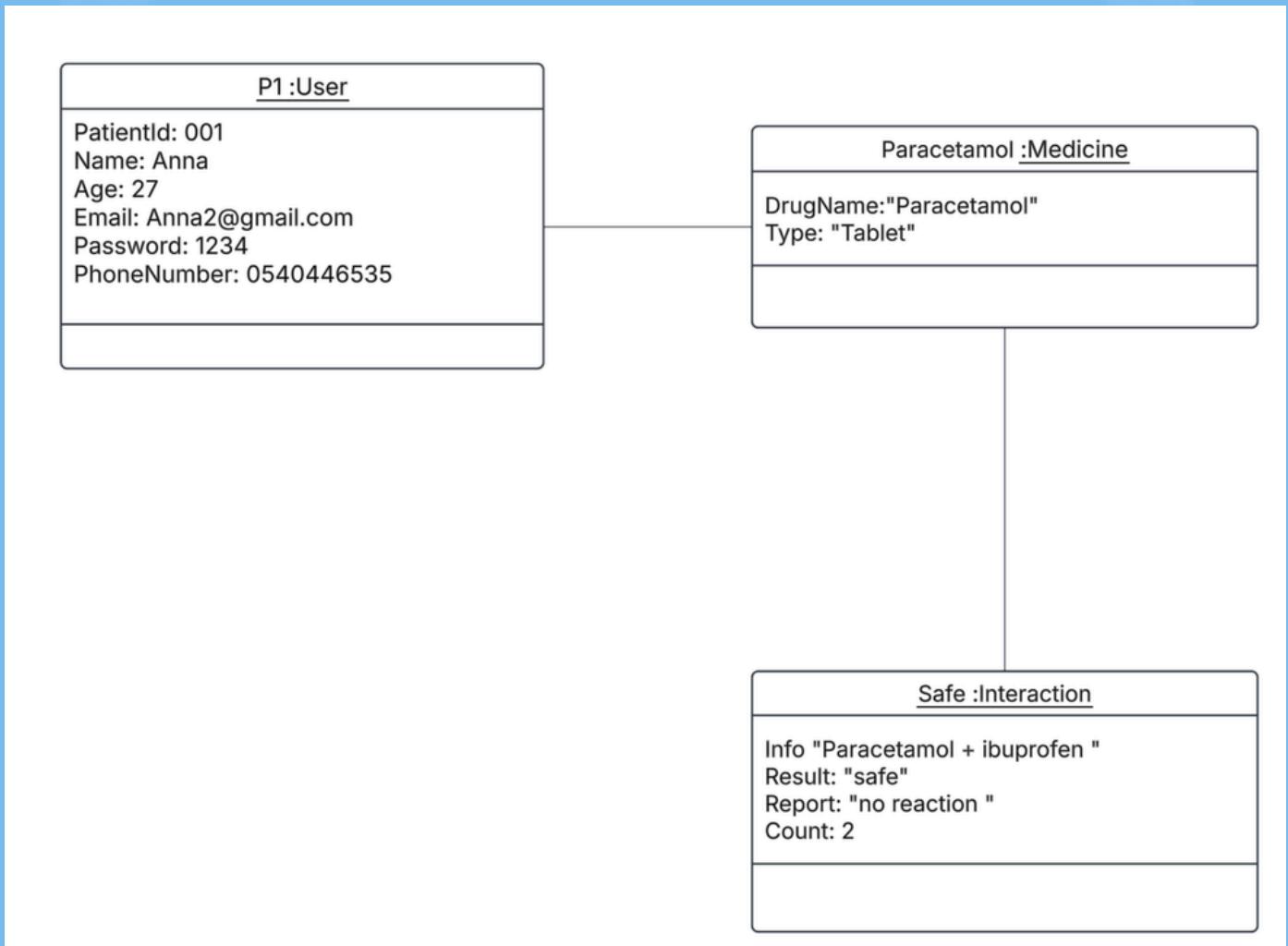
|                  |  |
|------------------|--|
| Use case Id      | UC-020   |
| Use Case Name    | Manage order   |
| Actors           | Primary actor : patient<br>Secondary actor: Database   |
| Description      | The user can modify or cancel an order before it is processed by the pharmacy. The system allows them to review their current orders and take the appropriate action. If canceled, the system confirms the cancellation and notifies the user.   |
| Trigger          | The user decides to review the order before the pharmacy processes the order.  |
| Pre conditions   | The user must have at least one active order.<br>The order must not have been processed yet by the pharmacy  |
| Post conditions  | The status of the request is changed depending on the action taken by the user(modify/delete).<br>The system sends a notification to the user about the status of the order.   |
| Normal Flow      | <ul style="list-style-type: none"> <li>• The system retrieves the user's existing order details.</li> <li>• The system displays the order summary, including items, quantities, prices, and delivery details.</li> <li>• The user reviews the order and chooses to modify or delete it.</li> <li>• If modifying, the user updates items, quantities, or delivery details.</li> <li>• If deleting, the system confirms the action before canceling the order.</li> <li>• The system updates the order accordingly and displays a confirmation message.</li> </ul> |
| Alternative Flow | <ol style="list-style-type: none"> <li>1 - The user attempts to modify or delete the order.</li> <li>2 - The system checks and finds modifications are not allowed.</li> <li>3 - The system notifies the user and suggests alternatives.</li> <li>4 - The system logs the attempt.</li> </ol>  |
| Priority         | High.  |

|                  |   |
|------------------|---|
| Use case Id      | UC-023  |
| Use Case Name    | Send medicine order   |
| Actors           | Primary actor : Patient<br>Secondary actor: Database  |
| Description      | The patient can order medicine by enter the name of the medication and upload the prescription and add notes for the pharmacist ,then the system processes the order and confirm the request, then sent the order to the pharmacy, and the user after sent the order can manage the order and track order .   |
| Trigger          | The patient initiates an order by entering medication details and send the request.   |
| Pre conditions   | -The user must log in.<br>-The system can access to user profile.   |
| Post conditions  | -The order successfully submitted.<br>-The system saves the request information.<br>-The system sent to the user a confirmation message.  |
| Normal Flow      | <ul style="list-style-type: none"> <li>• After the user adds the wanted medications</li> <li>• The system makes sure the information is correct.</li> <li>• The user can add notes if needed .</li> <li>• Then the user sends the request.</li> <li>• The system sends the order to the pharmacy .</li> <li>• The user receives an order confirmation.</li> <li>• Then the user can manage the order by(modify/cancel).</li> <li>• And the user can track order status</li> </ul> |
| Alternative Flow | If the user enters the wrong medical prescription or the prescription is incorrect and invalid, then the system informs the user and requests the correct medical prescription.   |
| Priority         | High(core functionality) .  |

# Class Diagram



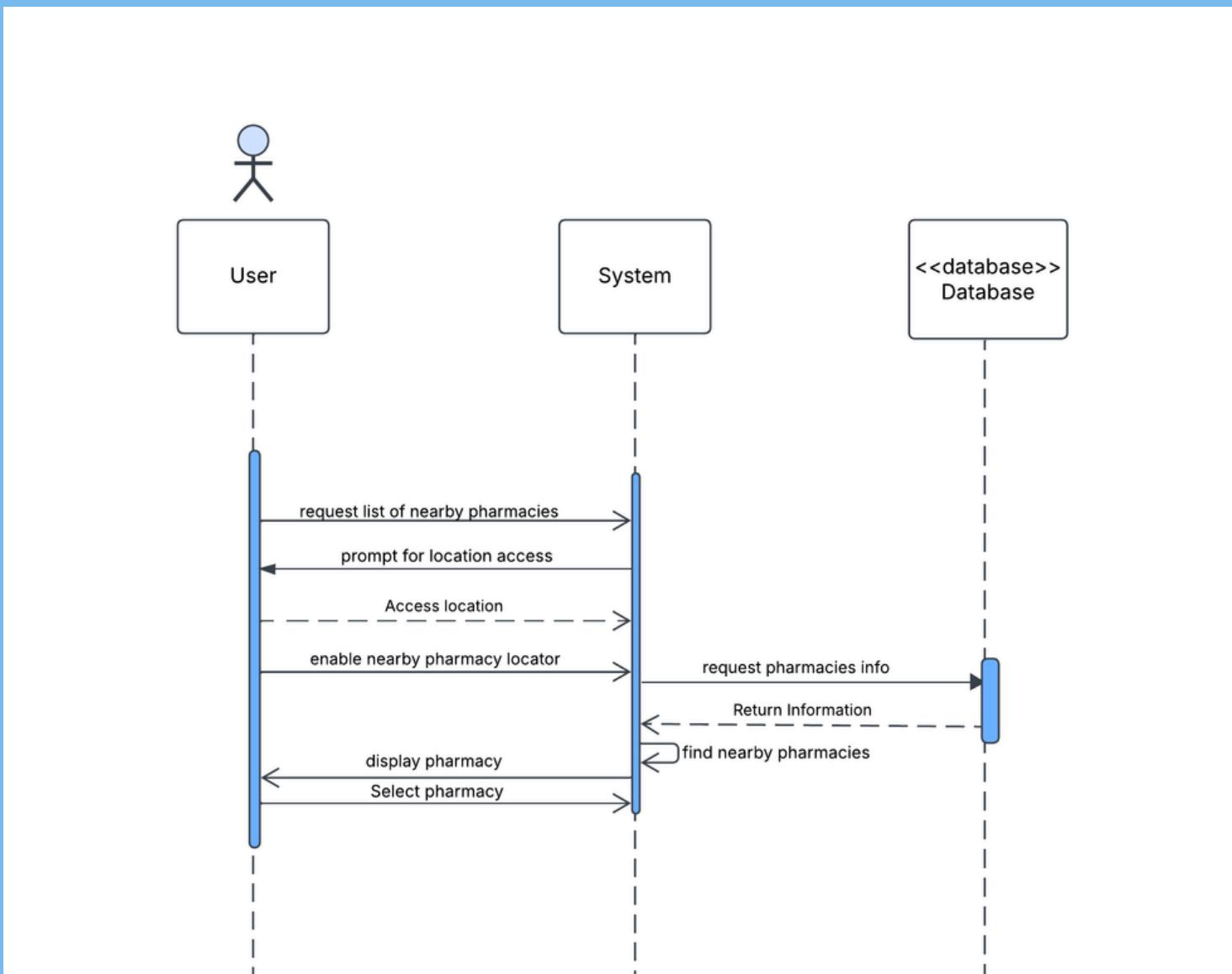
# Object Diagram



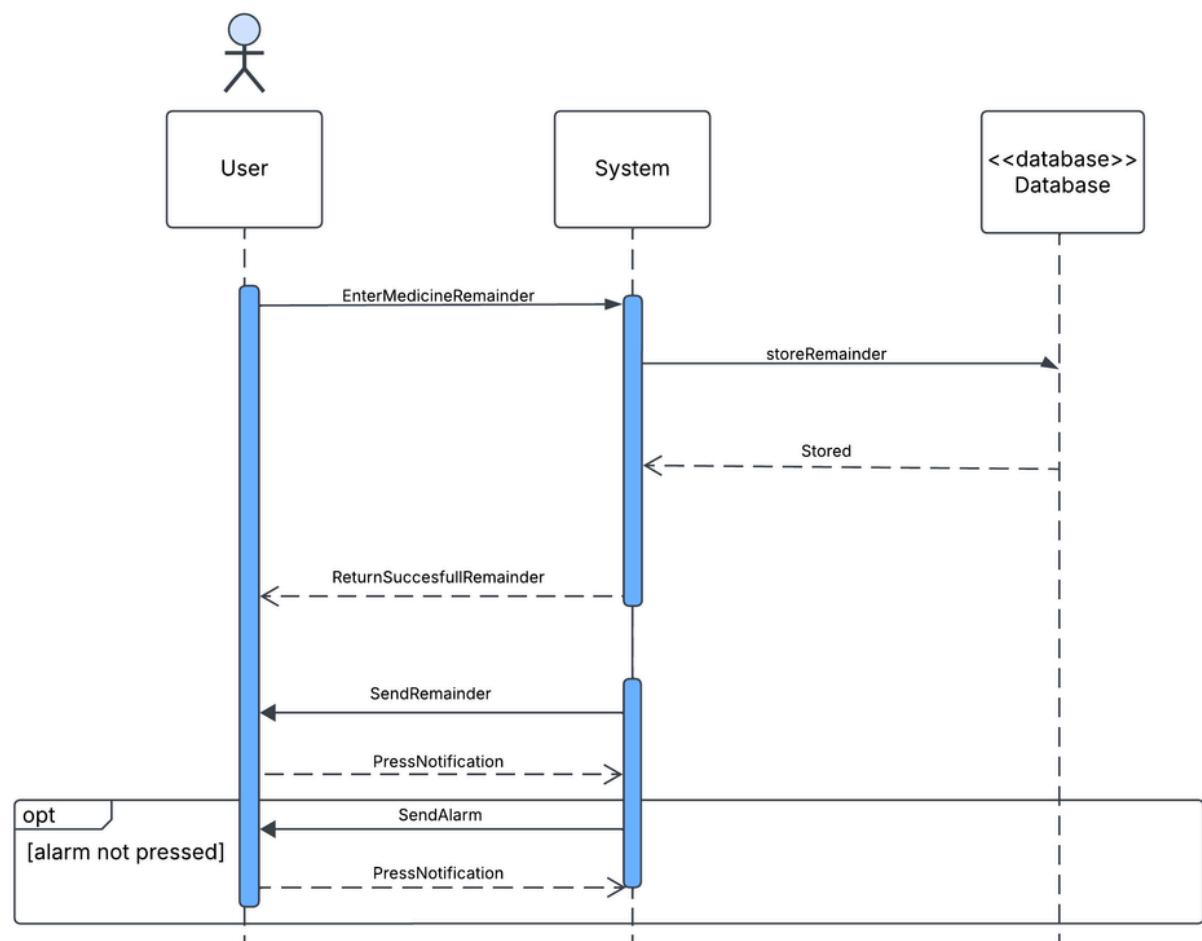
# INTERACTION DIAGRAMS

## SYSTEM SEQUENCE DIAGRAMS

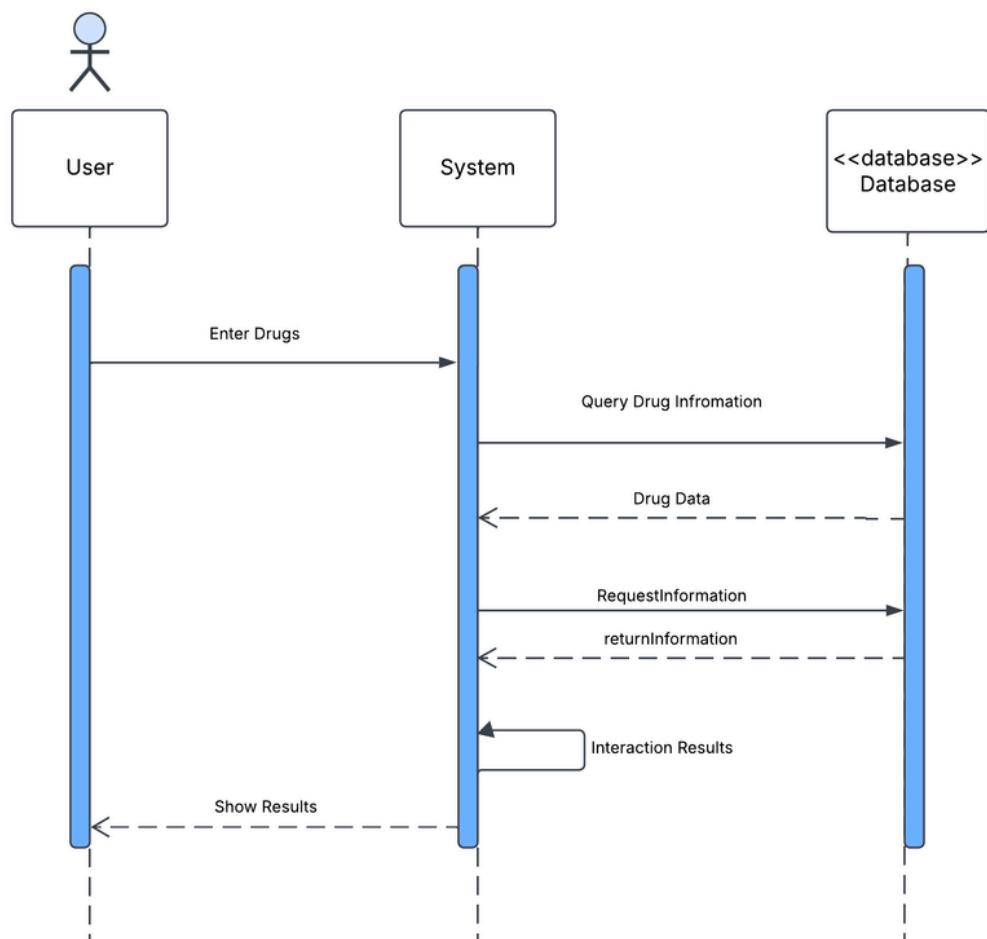
## UC-006 < SEARCH FOR NEAREST PHARMACIES >



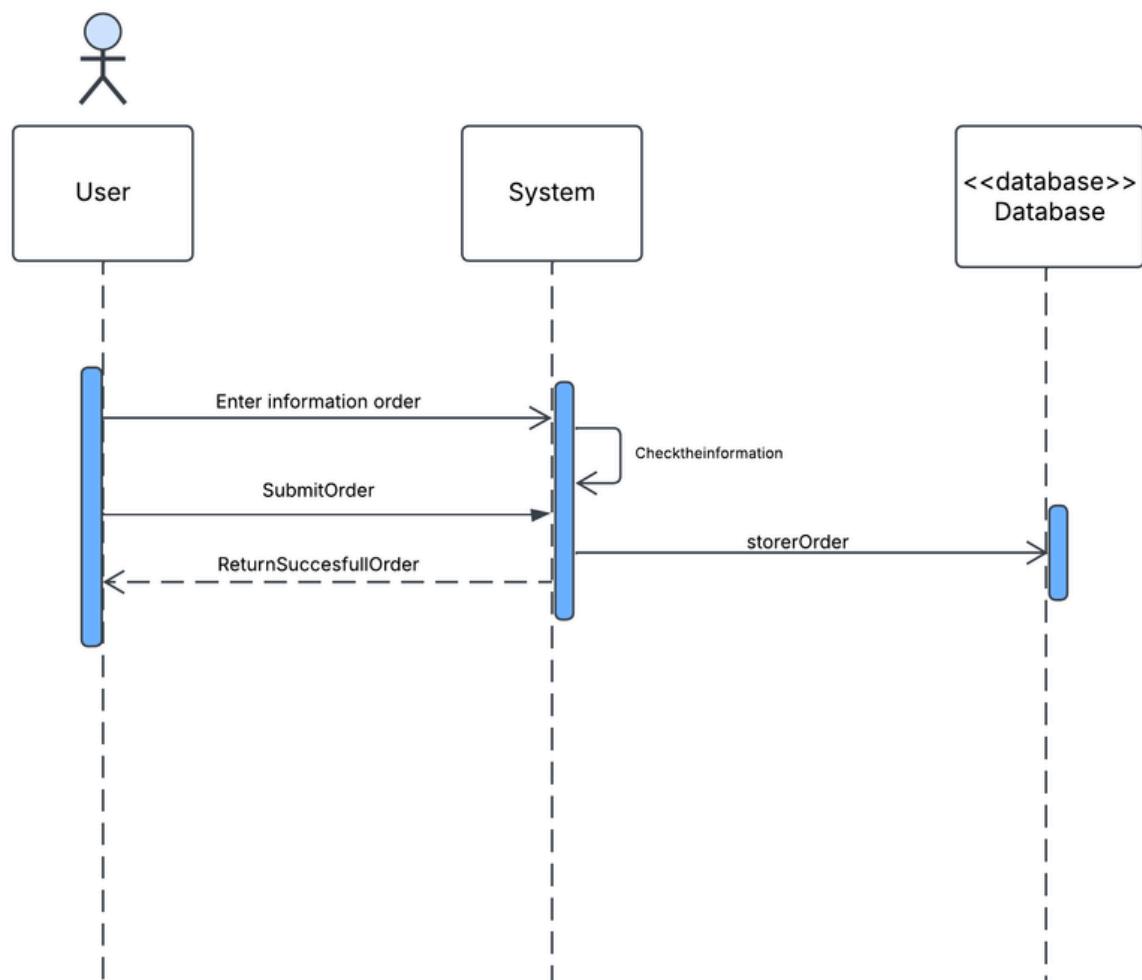
## UC-011 < SEND MEDICINE REMINDER >



## UC-014 < SEARCH FOR DRUG INTERACTIONS >



## UC-023 < SEND MEDICINE ORDER >

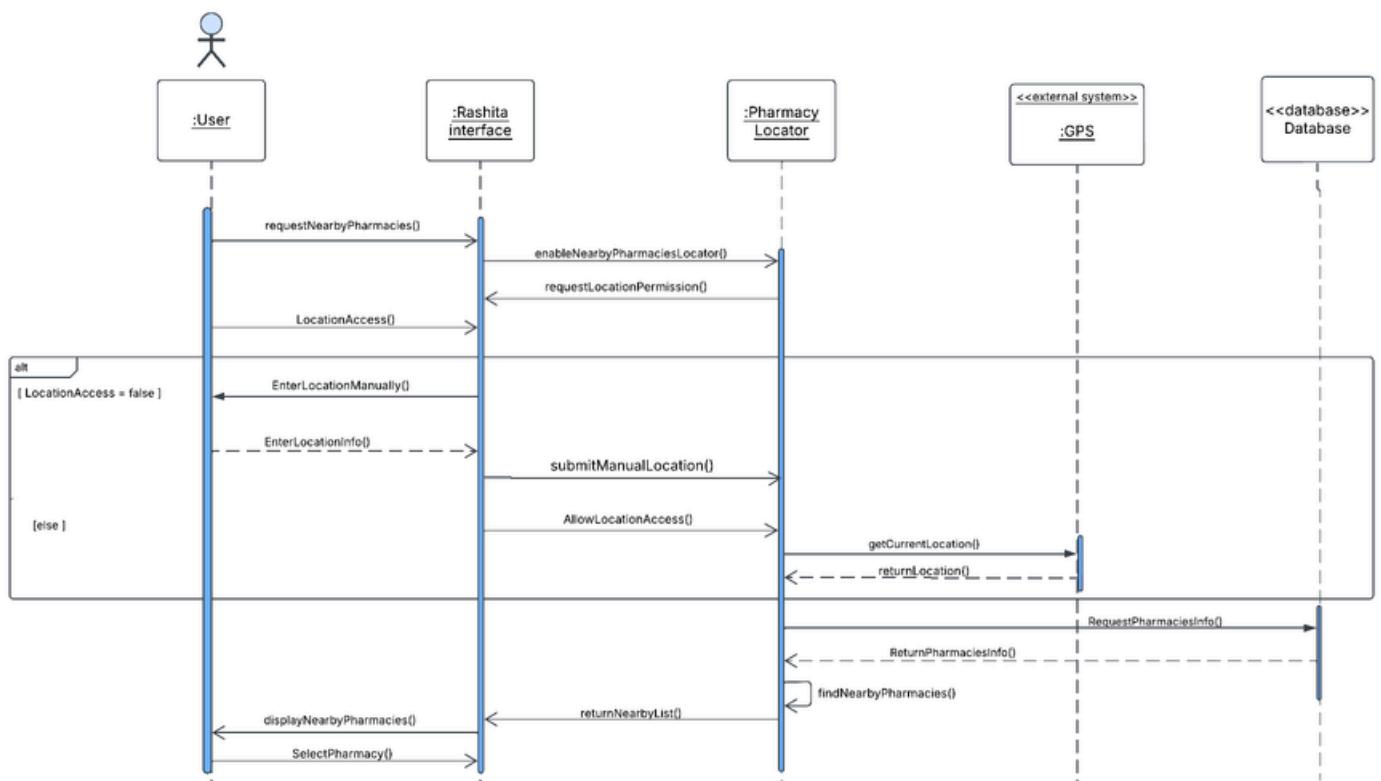




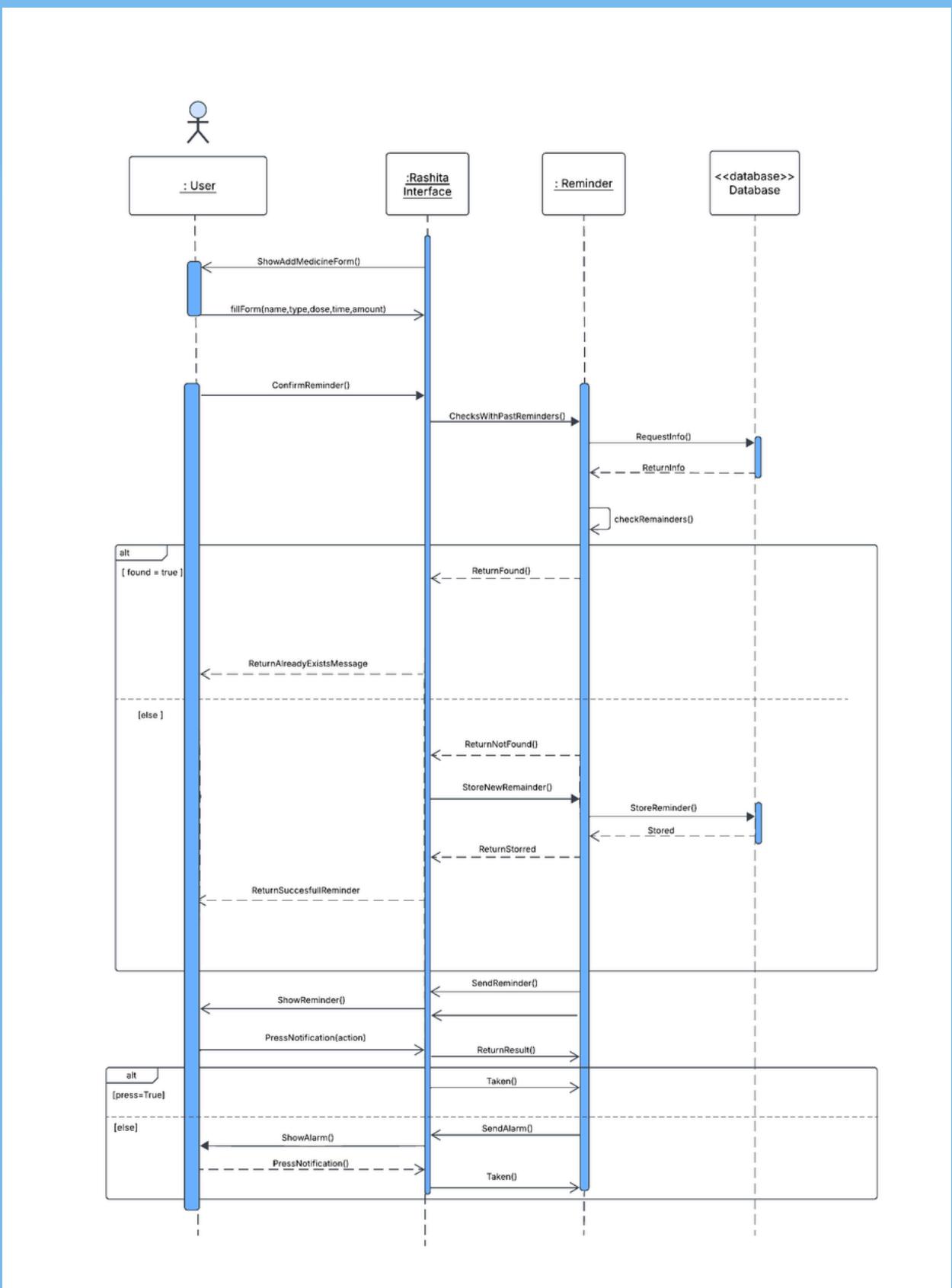
# INTERACTION DIAGRAMS

## SEQUENCE DIAGRAMS

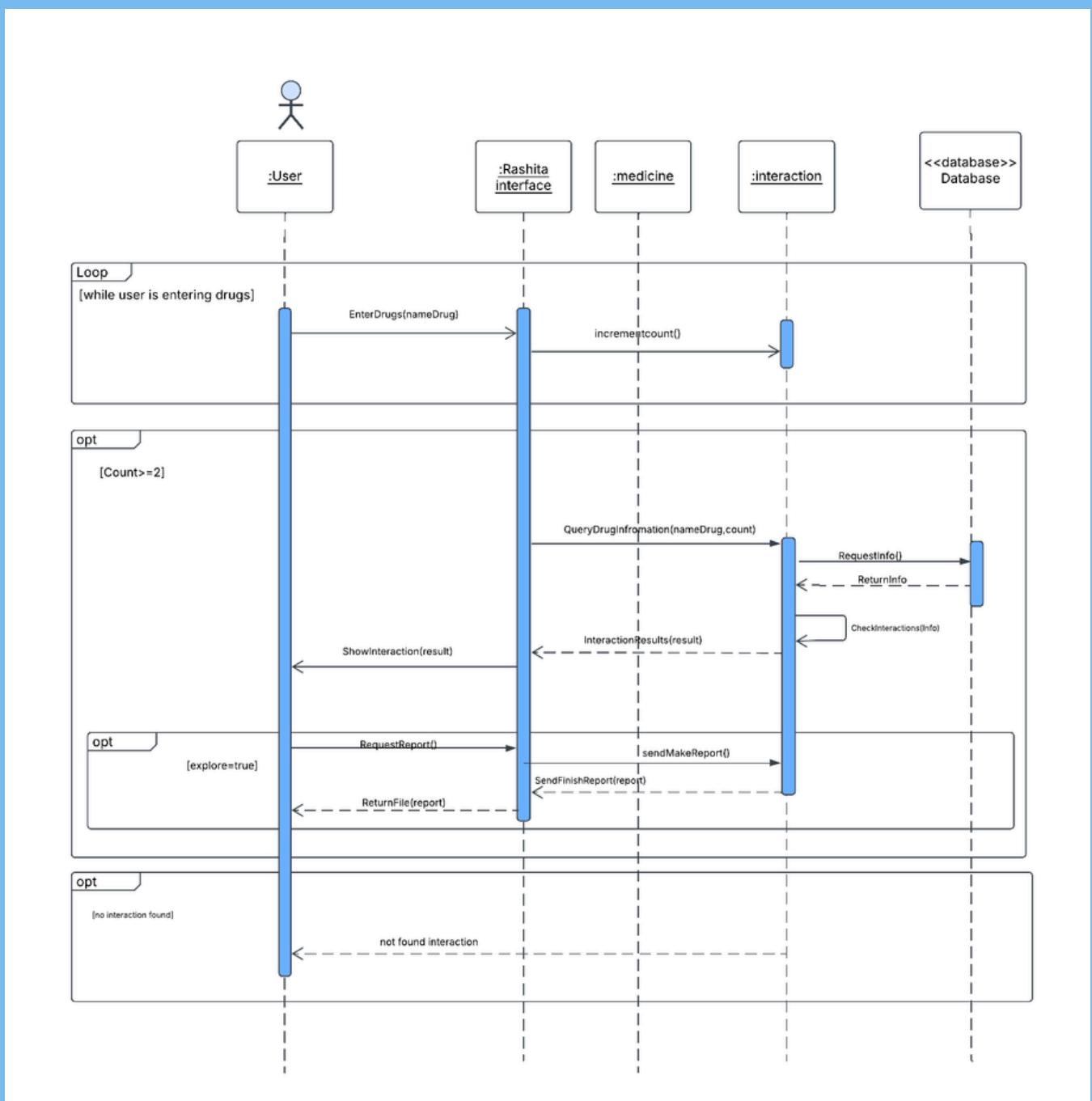
# UC-006 < SEARCH FOR NEAREST PHARMACIES >



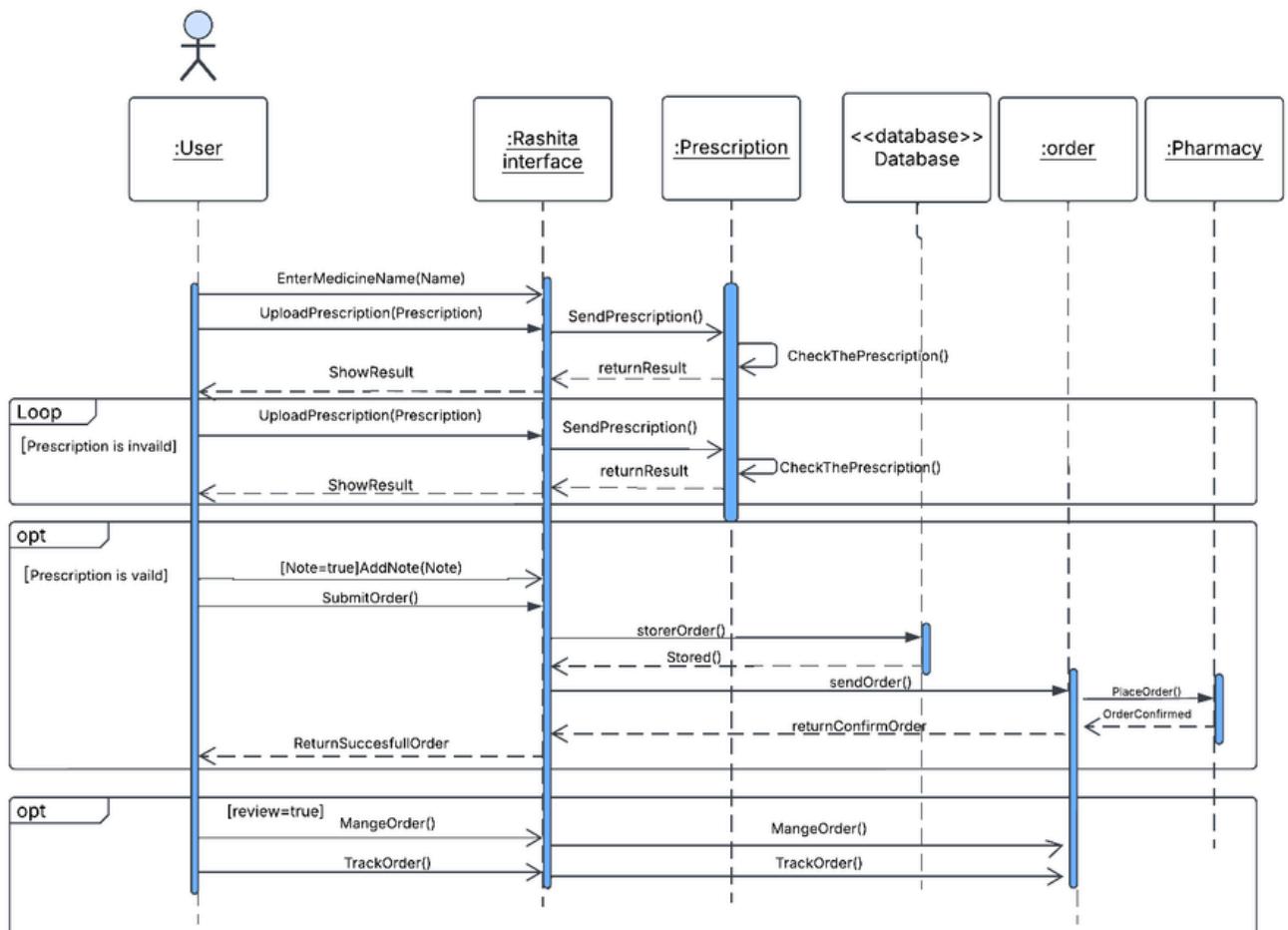
# UC-011 < SEND MEDICINE REMINDER >



# UC-014 < SEARCH FOR DRUG INTERACTIONS >

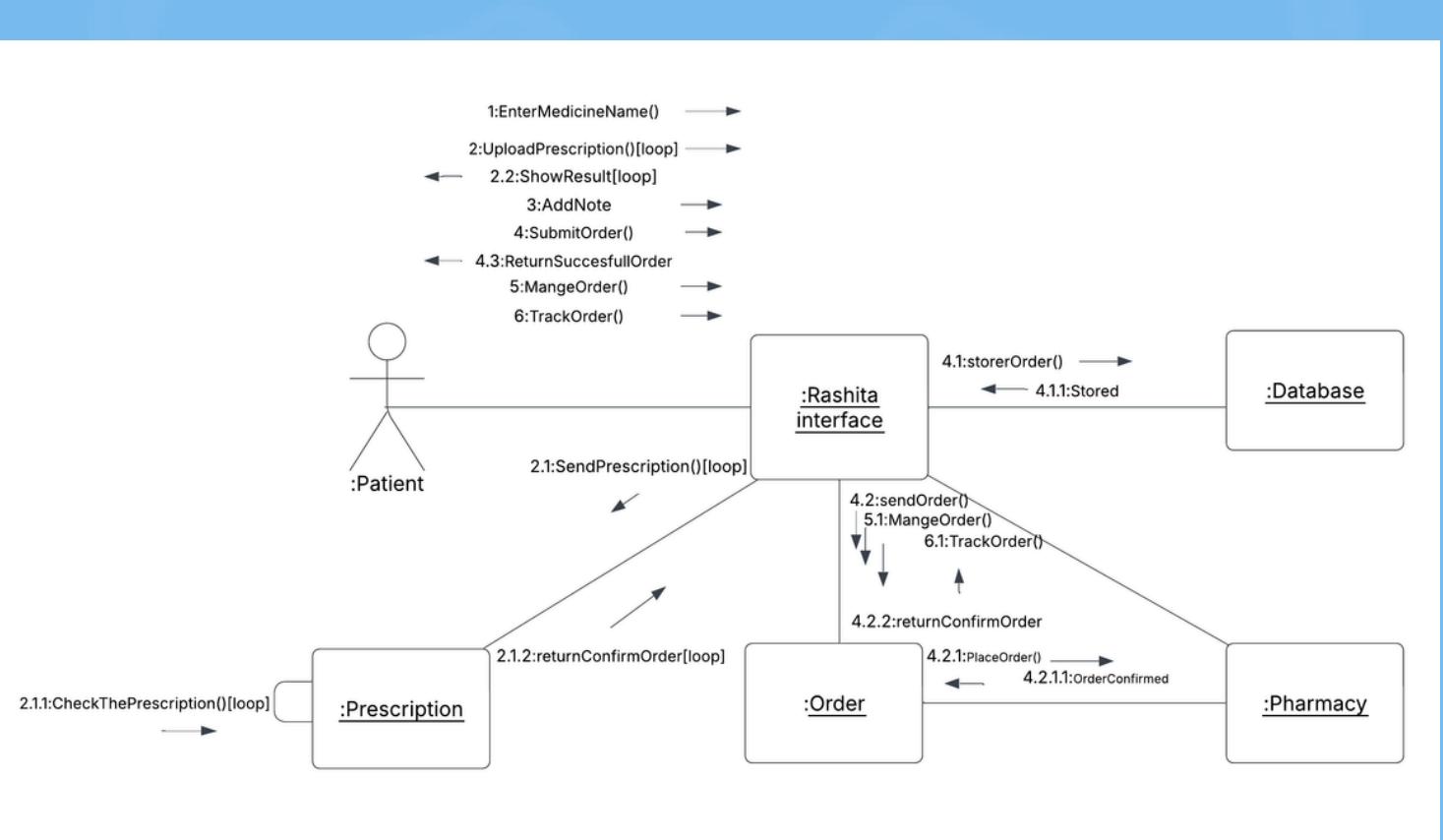


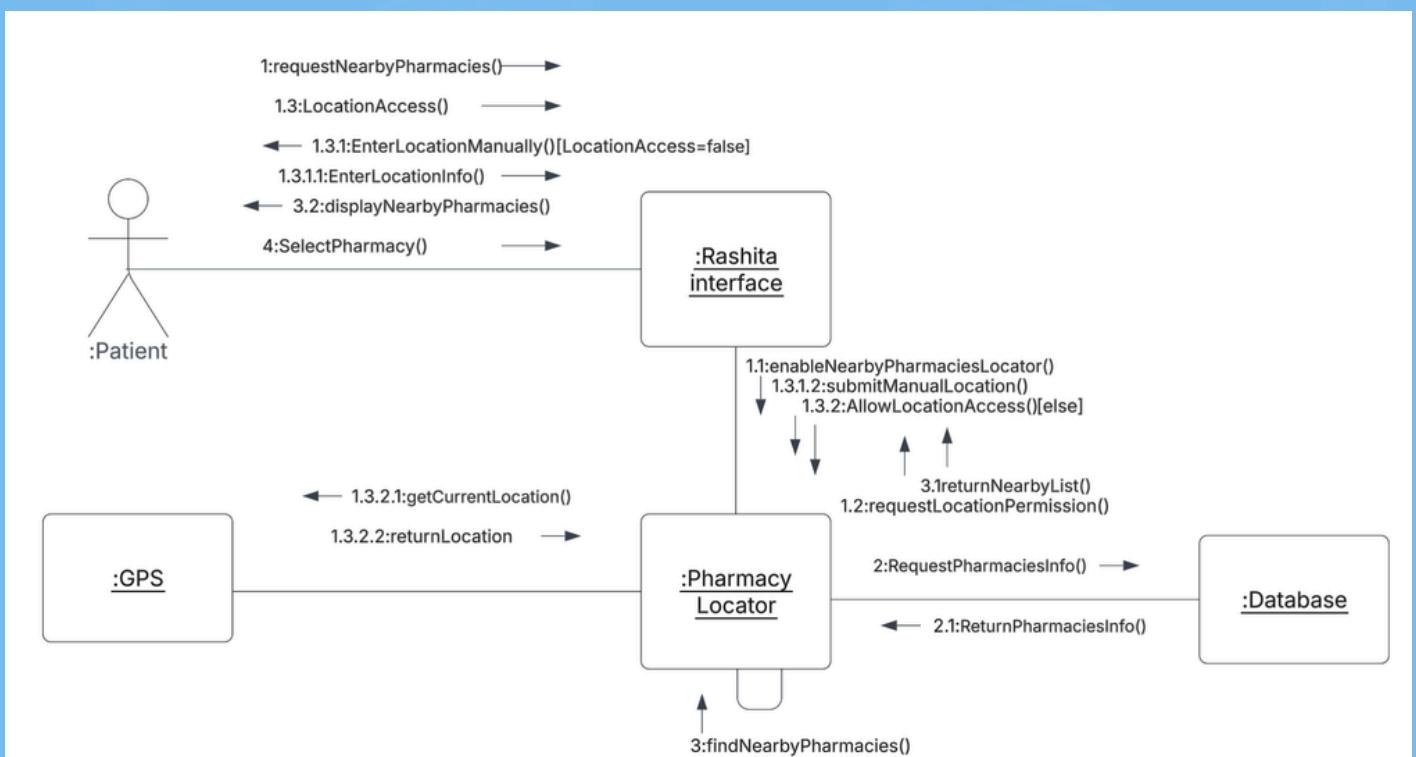
# UC-023 < SEND MEDICINE ORDER >



# INTERACTION DIAGRAMS

## COLLABORATION DIAGRAM





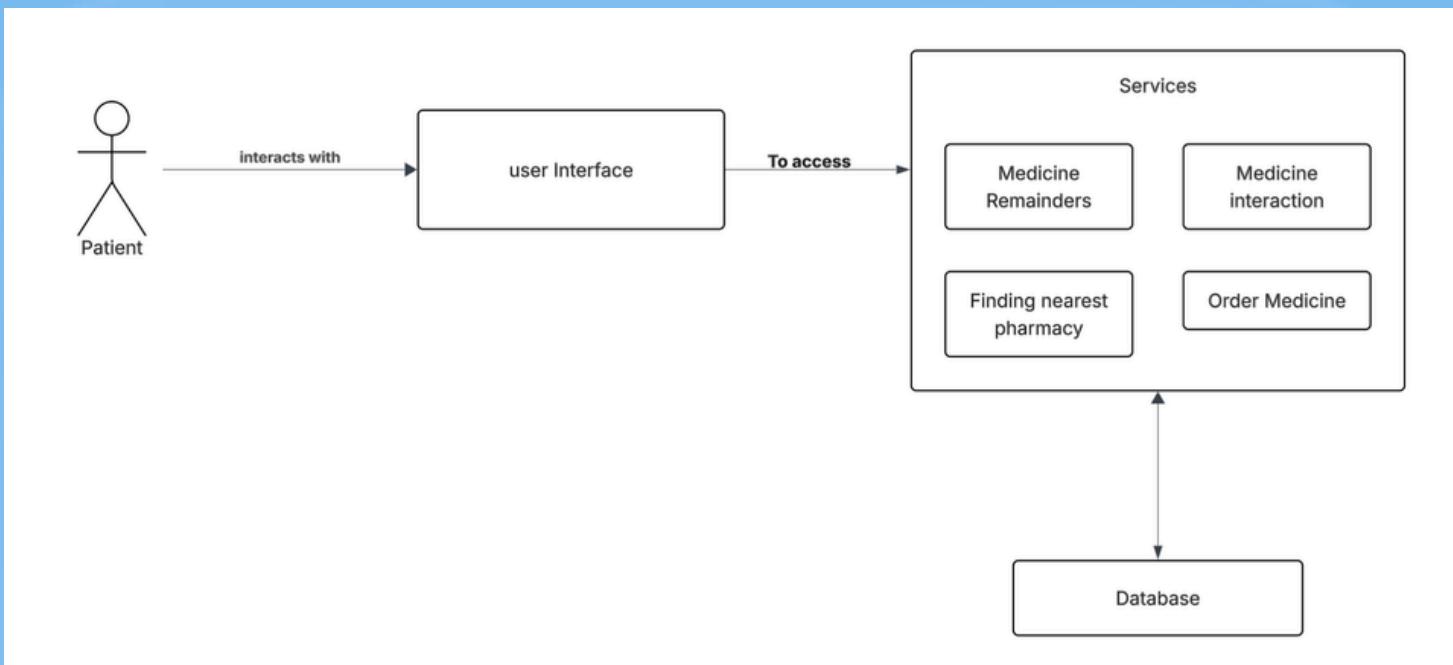


# SYSTEM ARCHITECTURE AND SYSTEM DESIGN

## ARCHITECTURAL DIAGRAM

## Architectural Styles

We chose a combination of Layered Architecture, Client-Server Architecture, and Microservices-style modularity for our Rashita mobile application. The Layered Architecture helps us structure the system into logical layers such as the user interface, services (business logic), and database, making the app easy to develop, maintain, and scale. The Client-Server Architecture allows the mobile client to interact with the backend services through a well-defined interface. Additionally, we adopted a modular approach inspired by Microservices, where key services like medicine reminders, drug interaction checking, pharmacy locator, and medicine ordering are designed as independent components. This ensures flexibility and potential for future scalability and maintenance.



## Description

- The Patient is the primary user who interacts with the system via the User Interface on a mobile device.

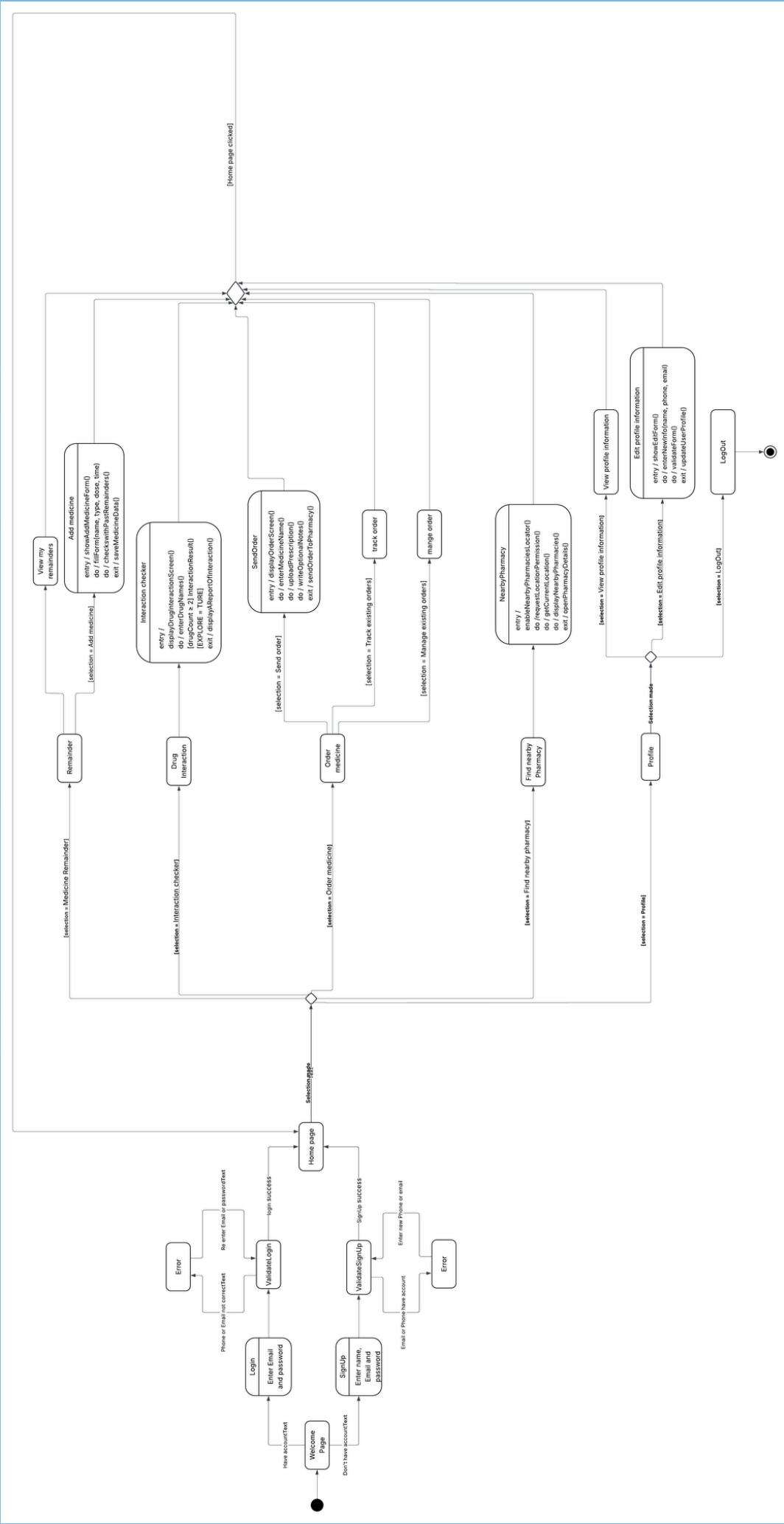
The UI allows access to various Services, which represent the system's business logic. These include:

- Medicine Reminders: Manages schedules and sends notification reminders.
- Medicine Interaction: Checks for possible chemical interactions between medications.
- Finding Nearest Pharmacy: Uses location data to suggest nearby pharmacies.
- Order Medicine: Allows users to place orders for prescriptions or over-the-counter medication.
- All services interact with a shared Database, which stores user profiles, prescriptions, reminder settings, interaction rules, and pharmacy data.



# SYSTEM ARCHITECTURE AND SYSTEM DESIGN

## STATE DIAGRAM





# SYSTEM ARCHITECTURE AND SYSTEM DESIGN

## DESIGN OF TEST

|                              |  |
|------------------------------|--|
| <b>Test case id:</b>         | TC-001 _Enable Nearby Pharmacies   |
| <b>Unit to test:</b>         | Pharmacy Locator, GPS  |
| <b>Assumptions:</b>          | The user has enabled location services and granted location access.  |
| <b>Steps to be executed:</b> | <ul style="list-style-type: none"><li>-User opens the app and enables location access.</li><li>- User requests to find nearby pharmacies.</li><li>- System retrieves and displays nearby pharmacies with relevant information.</li></ul> |
| <b>Expected result:</b>      | A list of nearby pharmacies is displayed with contact information, address, and distance.  |
| <b>Pass/Fail:</b>            | The system displays the correct list / The system fails to retrieve or display nearby pharmacies.  |

|                              |  |
|------------------------------|--|
| <b>Test case id:</b>         | TC-002_Send Medicine Reminder  |
| <b>Unit to test:</b>         | Reminder ,Medicine   |
| <b>Assumptions:</b>          | The user has already added medications and set up notification preferences.  |
| <b>Steps to be executed:</b> | <ul style="list-style-type: none"><li>-System checks the current time against scheduled reminders.</li><li>- System retrieves medication details.</li><li>-System sends a reminder using preferred notification method.</li><li>-User receives the notification.</li></ul> |
| <b>Expected result:</b>      | User receives the notification on time with correct medication details.  |
| <b>Pass/Fail:</b>            | User receives reminder / Reminder not received or delayed.   |

|                              |   |
|------------------------------|---|
| <b>Test case id:</b>         | TC-003_Manage order   |
| <b>Unit to test:</b>         | Order , Account   |
| <b>Assumptions:</b>          | The user has at least one active order.   |
| <b>Steps to be executed:</b> | <ul style="list-style-type: none"><li>- User navigates to current orders.</li><li>- User selects an order to modify or delete.</li><li>- System confirms the action and updates the order status.</li></ul> |
| <b>Expected result:</b>      | Order is modified or deleted, and user is notified.   |
| <b>Pass/Fail:</b>            | Order successfully modified or deleted / System fails to update the order.  |

|                              |   |
|------------------------------|---|
| <b>Test case id:</b>         | TC-004_Search for drug interactions.  |
| <b>Unit to test:</b>         | Interaction , Medicine  |
| <b>Assumptions:</b>          | User has at least one active order.   |
| <b>Steps to be executed:</b> | <ul style="list-style-type: none"><li>- User selects option to check drug interactions.</li><li>- System processes medications and identifies interactions.</li><li>-System provides risk details and recommendations</li></ul> |
| <b>Expected result:</b>      | Interaction report is shown with risk levels and recommendations  |
| <b>Pass/Fail:</b>            | Interaction information shown / System fails to detect or display interactions.   |

|                              |   |
|------------------------------|---|
| <b>Test case id:</b>         | TC-005_Send medicine order  |
| <b>Unit to test:</b>         | Order , Prescription , Pharmacy   |
| <b>Assumptions:</b>          | The User is logged in and has filled in medication details  |
| <b>Steps to be executed:</b> | <p>User enters medication name and uploads prescription.</p> <p>-User adds optional notes and submits the order.</p> <p>-System validates and sends the order to the pharmacy.</p> <p>-User receives confirmation and can track/manage the order.</p> |
| <b>Expected result:</b>      | Order is successfully processed, confirmed, and visible for management  |
| <b>Pass/Fail:</b>            | Order confirmed and tracked / Order not processed or failed validation.   |

# Unit Testing

## Service: Nearby Pharmacy Locator

- Test if location access prompt appears.
- Test if location is correctly fetched from device.
- Test if the correct list of pharmacies is retrieved from the database.

## Service: Medicine Reminder System

- Test if a reminder can be created and stored correctly.
- Test if notifications trigger at the right time.
- Test if reminder settings (sound, repeat, etc.) are saved.

## Service: Order Management

- Test if the user can view active orders.
- Test if modify/cancel functions work as intended.
- Test if changes are saved in the database.

## Service: Drug Interaction Checker

- Test if medication names are received from the user profile.
- Test if the interaction engine identifies known conflicts.
- Test if alerts are displayed correctly.

## Service: Send Medicine Order

- Test if medication name and notes are saved.
- Test if prescription upload works correctly.
- Test if the order request is submitted.



# Integration Testing

## Service: Nearby Pharmacy Locator

- Check if the app fetches and displays nearby pharmacies after location access is granted.
- Ensure correct pharmacy details (name, address, contact) appear on map or list.

## Service: Medicine Reminder System

- Ensure reminders trigger notifications based on time and medication.
- Check if logging the reminder time interacts properly with the user's medication history.

## Service: Order Management

- Ensure order changes reflect in the user's profile and database.
- Check if notifications are sent after order updates.

## Service: Drug Interaction Checker

- Ensure adding medications triggers an automatic interaction scan.
- Check if interaction results integrate with the report-sharing feature.

## Service: Send Medicine Order

- Check if the system processes uploaded prescriptions and sends the order to the pharmacy.
- Ensure confirmation and tracking integrate with the user's dashboard.

The comprehensive unit and integration testing for our medicine application ensures that each service functions reliably both on its own and as part of a connected ecosystem. From locating nearby pharmacies to managing medicine orders, every feature has been rigorously tested to deliver a seamless, safe, and supportive user experience. This layered testing approach builds confidence in our system's stability and lays a strong foundation for future enhancements and scalability.

# User FeedBack



## User 1: 28years – University Student

“The reminder feature is great! I always forget my medicine, so getting alerts really helps. However, I had a little trouble understanding how to set the time for each dose. A simpler interface would be awesome.”

[Design Insight: UI for setting reminders needs simplification and tooltips.](#)



## User 2: 42years – General Physician

“The drug interaction checker is very helpful, especially for patients on multiple medications. I’d suggest adding a reference or source for the interaction results to increase trust.”

[Design Insight: Add sources or explainers for interaction warnings.](#)



## User 3: 65years – Retired

“I was able to find nearby pharmacies, but I got confused when trying to place an order. Maybe bigger buttons or a voice assistant could help older users like me.”

[Design Insight: Improve accessibility features for elderly users.](#)



## User 4: 33years – Office Worker

“The app works well overall. I liked the pharmacy locator and order features. It would be nice if the app remembered my previous orders for quick reordering.”

[Design Insight: Add a “repeat order” or order history feature.](#)



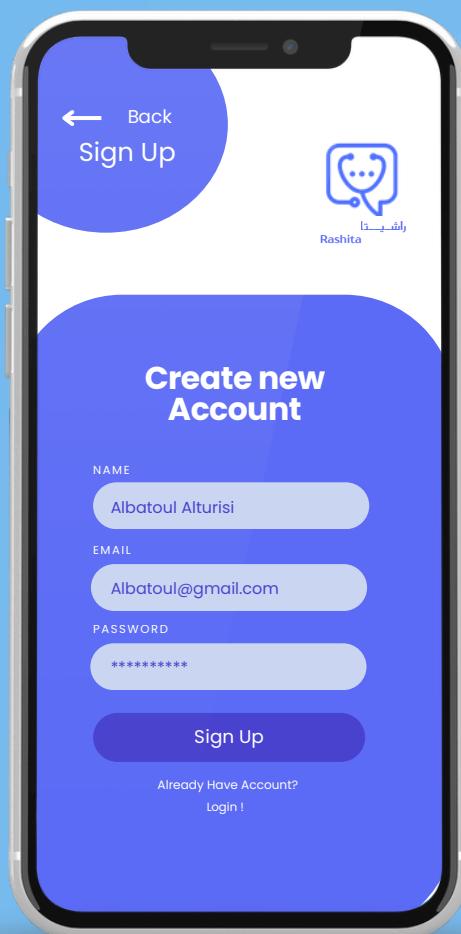
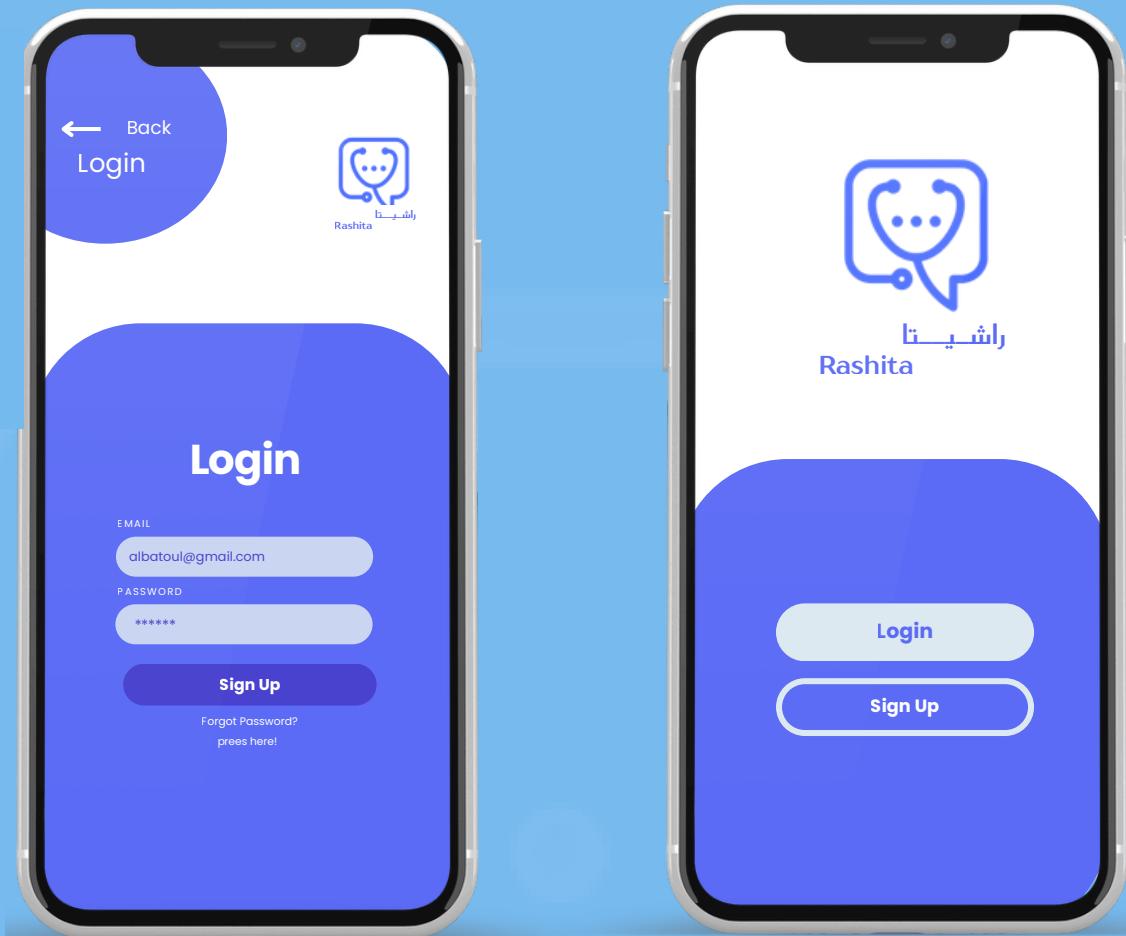
## User 5: 30years– Nurse

“It’s a solid start! Everything feels smooth. Just make sure the database of medicines is regularly updated — that’s super important.”

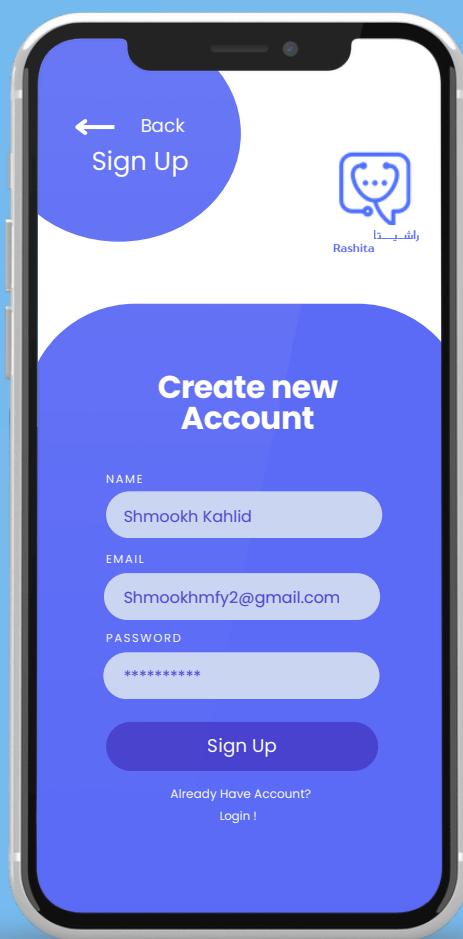
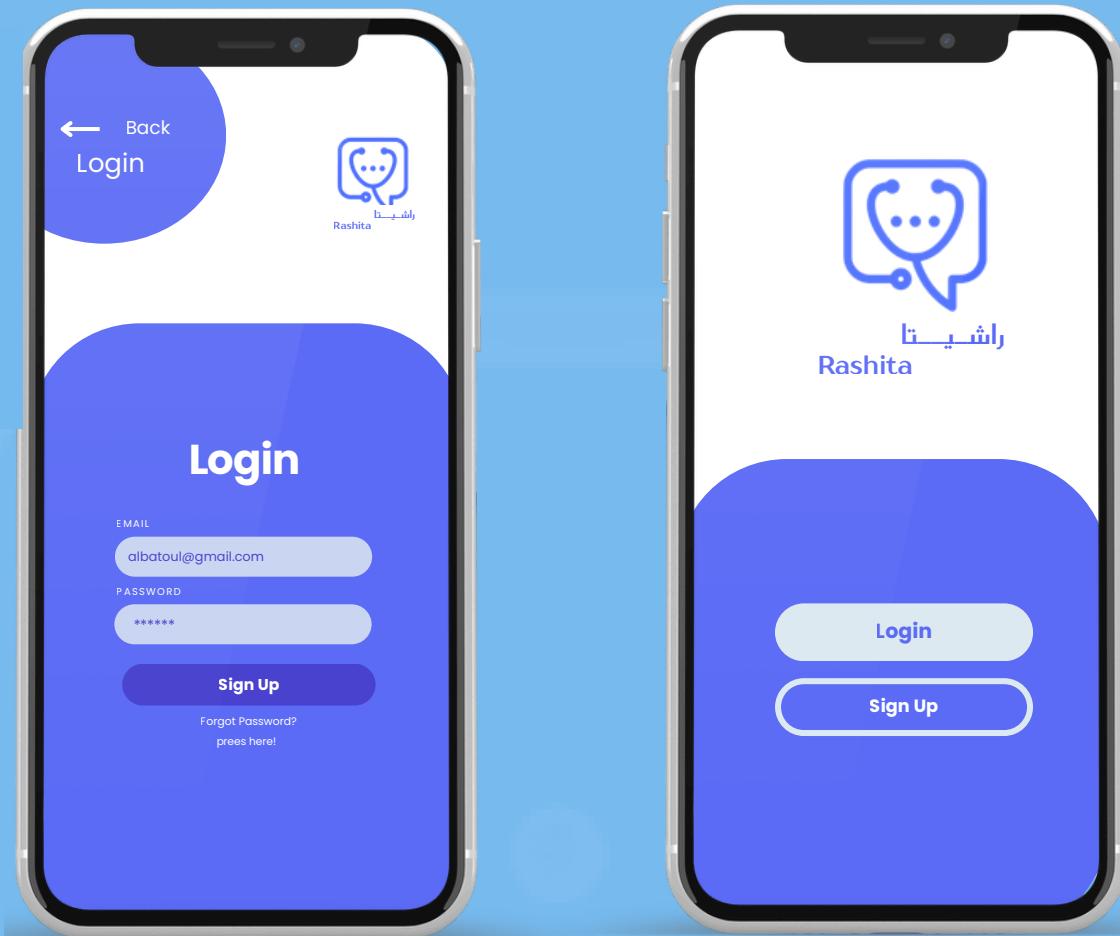
[Design Insight: Set up an update mechanism for the medicine list.](#)

# USER INTERFACE

# OUR INTERFACE

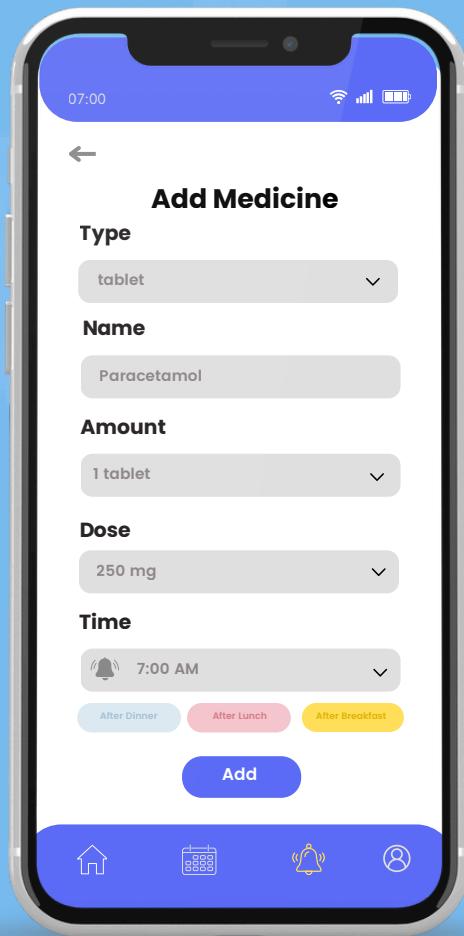
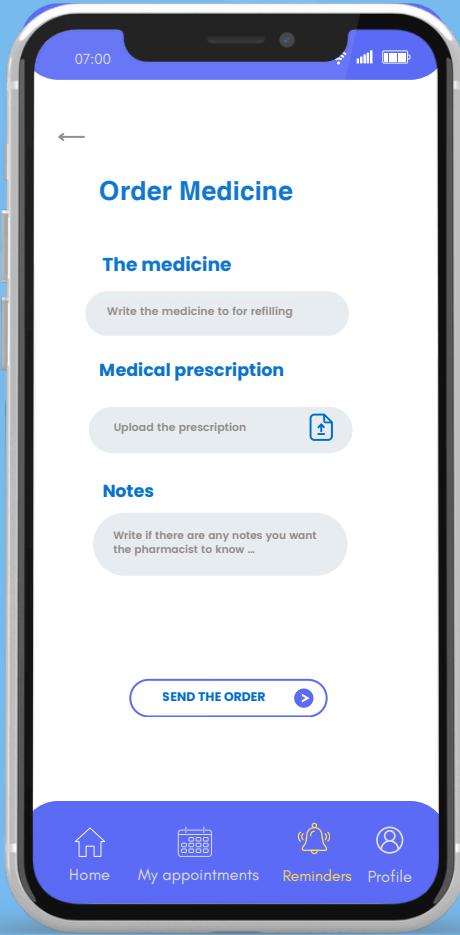
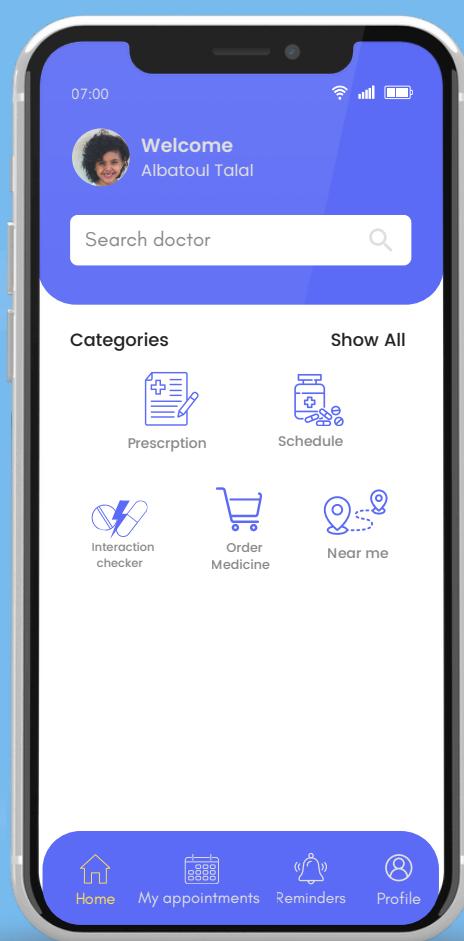
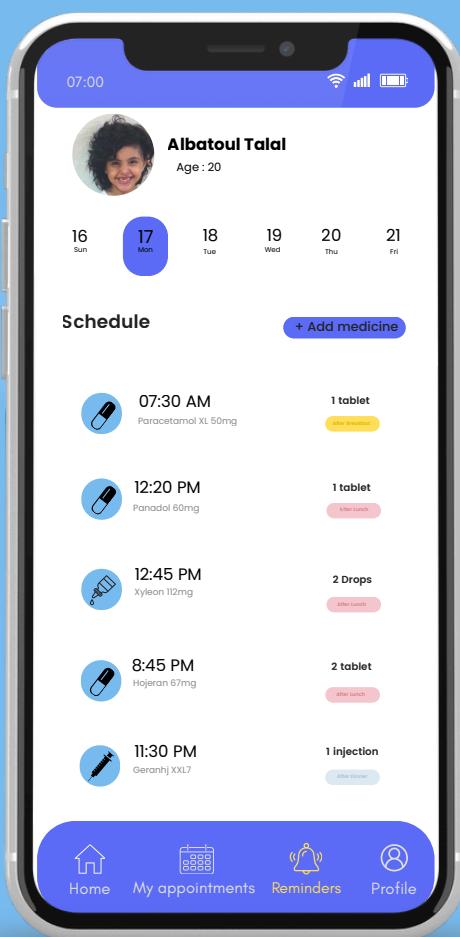


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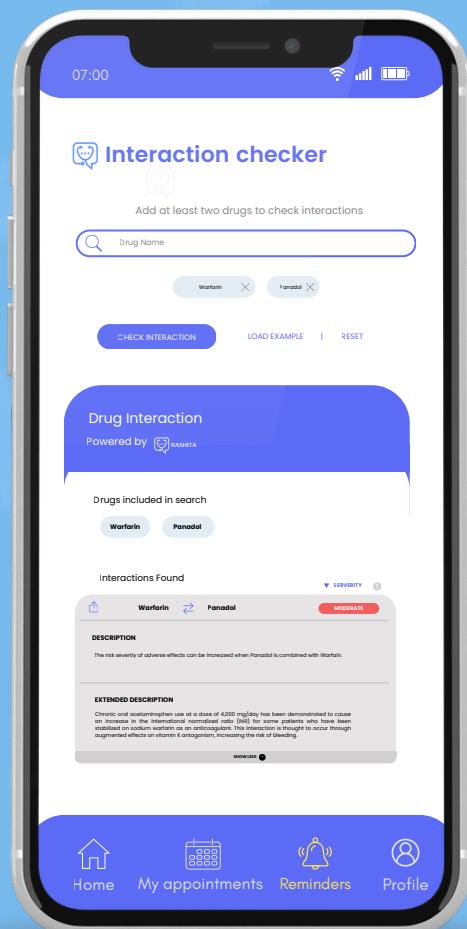
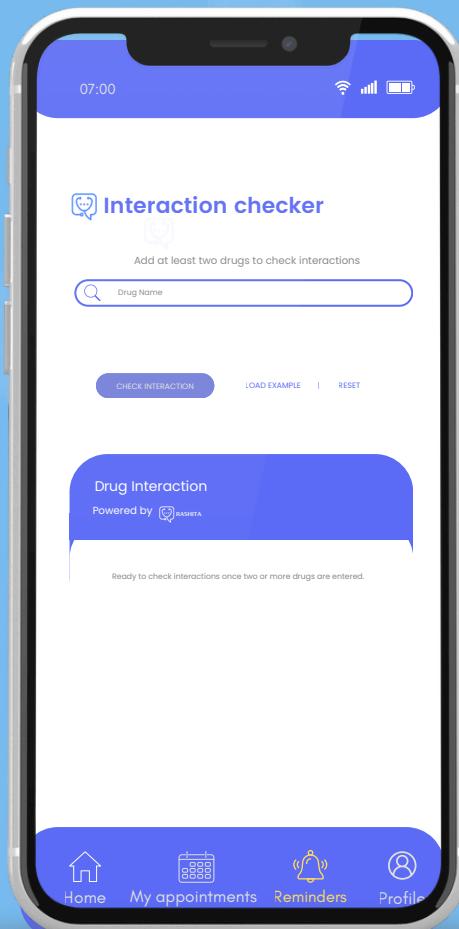
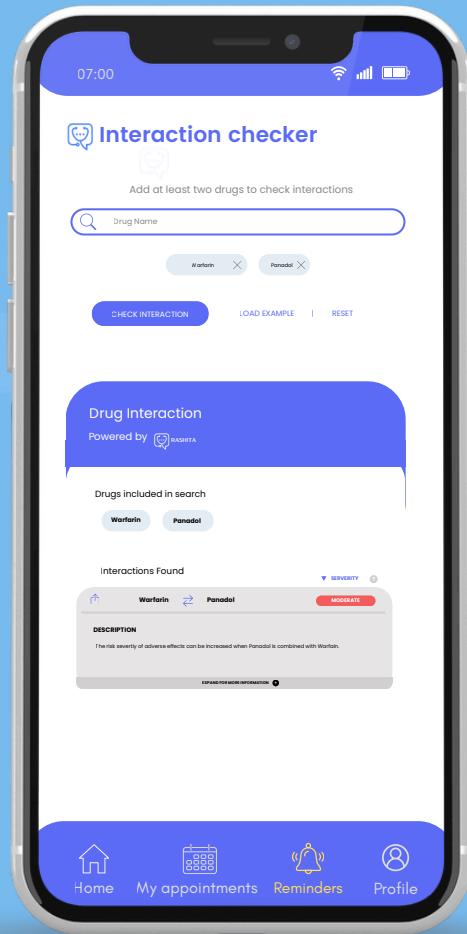
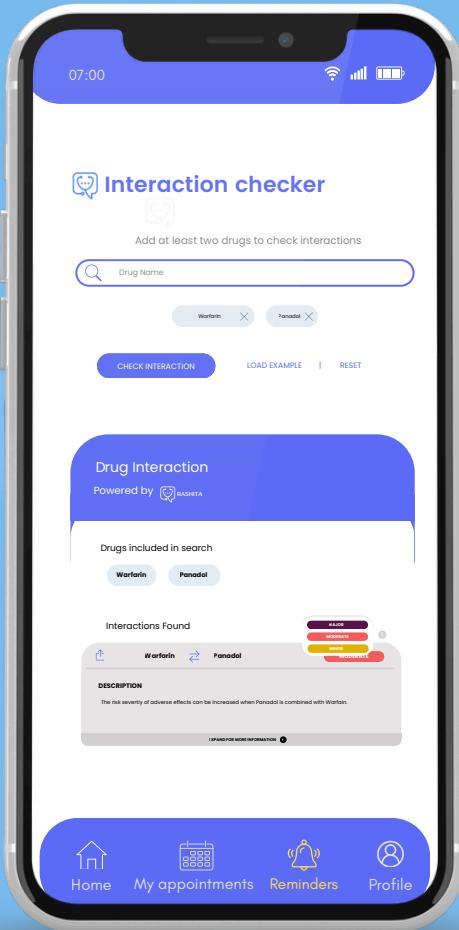




# OUR INTERFACE



# OUR INTERFACE





# OUR INTERFACE

The image displays two smartphones side-by-side, both showing the Rashita mobile application interface against a light blue background.

**Left Phone Screen (List View):**

- Header:** "Nearby Pharmacies" with a small blue icon.
- Content:** A list of seven pharmacies with their details:
  - King Salman Rd - Alnarjis - Riyadh (1.2 Km)
  - Uthman ibn Affan Rd - Alnarjis - Riyadh (1.4 Km)
  - Anas ibn Malik Rd - Alnarjis - Riyadh (1.4 Km)
  - King Abdulaziz Rd - Alnafli - Riyadh (2.0 Km)
  - Anas ibn Malik Rd - Almalqa - Riyadh (2.0 Km)
  - Prince Saud Alfares Rd - Hittin - Riyadh (2.0 Km)
  - Uthman ibn Affan Rd - Alnarjis - Riyadh (2.0 Km)
- Bottom Navigation Bar:** Icons for Home, My appointments, Reminders, and Profile.

**Right Phone Screen (Map View):**

- Header:** "Nearby Pharmacies" with a small blue icon.
- Content:** A map of a city area showing the locations of the pharmacies listed on the left screen. Each location is marked with a green pin and labeled with its name in Arabic and English (e.g., "Al romansiah", "Symphony clinic").
- Bottom Navigation Bar:** Icons for Home, My appointments, Reminders, and Profile. A blue button at the bottom center says "Google List view" with a list icon.



# REFERENCE LIST

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[1] <https://eceweb1.rutgers.edu/~marsic/books/SE/projects/HealthMonitor/2019-g2-report3.pdf>

[2] <https://eceweb1.rutgers.edu/~marsic/books/SE/projects/HealthMonitor/2013-g7-report3.pdf>

[3] <https://eceweb1.rutgers.edu/~marsic/books/SE/projects/HealthMonitor/2014-g12-report3.pdf>

[4] Medisafe, "Medisafe App Features," Medisafe, 2024. [Online]. Available: <https://medisafeapp.com/en/features/>. [Accessed: Jan. 29, 2025].

[5] Medisafe, "Medication Management and Drug Interactions," Medisafe, 2024. [Online]. Available: <https://medisafeapp.com/en/features/>. [Accessed: Jan. 29, 2025].

[6] Pharmacy & Chemist Finder, "Find Nearby Pharmacies," Google Play Store, 2024. [Online]. Available: <https://play.google.com/store/apps/details?id=de.pnpq.pharmacylocator>. [Accessed: Jan. 29, 2025].

[7] RxLocal, "RxLocal Mobile App," RxLocal, 2024. [Online]. Available: <https://www.rxlocal.com/pharmacist>. [Accessed: Jan. 29, 2025].

[8] MedAdvisor, "Medication Management App," MedAdvisor, 2024. [Online]. Available: <https://www.mymedadvisor.com/medication-management-app>. [Accessed: Jan. 29, 2025].