

Pill Reminder application



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1. Introduction:

The Pill Reminder Application is designed to help a user manage their medication schedules effectively. This application will provide the ability for users to register and then log in into a customized dashboard where they can add, view, and manage medication reminders. The main objectives of this application are improvement in medication adherence, reduction in missing a dose, and ensuring that the user is reminded on time.

This project is developed in Java, integrating the respective GUI components into it, which make the interface interactive. The application utilizes binary files for storing data and an image-based approach to provide an end-user experience; it shows images of medicines with their respective descriptions.

2. Application Structure and Functionalities:

The **Pill Reminder Application** consists of several key components and functionalities. The following section outlines each feature in detail.

2.1 User Registration and Login

- **Registration:** New users are required to provide a unique username, password, and confirmation of the password. The system performs validation checks, including:
 - Ensuring no fields are left empty.
 - Checking if the username already exists.
 - Raising custom exceptions (EmptyField and AlreadyExist) to handle invalid input and guide users through the registration process.
- **Login:** Registered users can log in by entering their credentials. If the credentials are valid, they are directed to the **Main Page**. For incorrect credentials, an error message is shown. Additionally, the login screen includes a link for new users to navigate to the registration page.

2.2 Main Page Design

The **Main Page** serves as the central hub of the application. It includes two primary menus:

- **Menu**
- **View Reminders**

Each menu leads to various options, facilitating smooth navigation across the application.

It also has introduction of the application with welcoming message.

In the Main page, we set Timer reminder, that check the time every 10 seconds, and if reminder activated then display medicine information with alarm sound.

2.3 Menu Options

1. View Medicines

The View Medicines screen displays a comprehensive list of system-stored medications. It consists of three main sections:

- **Top Titles:** Labels indicating "Name," "Description," and "Image."
- **Items Panel:** Each medicine is shown with:
 - A small image (poster) of the medicine.
 - Its name.
 - A brief description of its purpose and usage.
- **Bottom Section:** Contains a back button to return to the main menu.

2. Add Reminders

Users can add a medication reminder by selecting a medicine and specifying a reminder time. The reminder is saved, and the system alerts the user at the designated time through a popup frame and an audio notification.

2.4 Viewing Reminders

1. Upcoming Reminders

Shows a list of reminders that are scheduled for the near future. Users can view details of each upcoming reminder, including the medication name, description, and scheduled time.

2. Missed Reminders

Displays a list of reminders that were not marked as "Taken" within the scheduled time. Users can review missed doses and take appropriate action.

3. Medication History

Shows a record of all previously marked reminders, providing users with a log of their medication adherence history.

2.5 Reminder Popup and Notifications

When a reminder time is reached, a **popup frame** is triggered to alert the user with:

- The name of the medicine.
- A description and image of the medication.
- A sound alert that loops continuously until the user takes action.

A "Mark as Taken" button is provided to allow users to confirm they have taken the medication. When this button is clicked, the reminder is marked as "taken," and the popup closes, stopping the sound.

3. Technical Overview

3.1 Data Storage and Retrieval

The application uses **binary files** to store User and Reminder objects persistently:

- **User Data:** Saved in a users.ser binary file, which includes username and password details.
- **Reminder Data:** Saved in a reminders.ser binary file, containing reminder times, medication details, and statuses.

An additional text file, initializeItems.txt, stores a list of available medicines. Each medicine entry includes its name, description, and image path, making it easy to load data into the system upon initialization.

3.2 Class Structure

The application's classes include:

- **User:** Manages user details such as username and password.
- **Medicine:** Represents medication data with properties like name, description, and an image (poster).
- **Reminder:** Stores information on scheduled reminders, including medication, reminder time, and status (taken or missed).
- **Pill_Reminder:** Acts as the primary controller, overseeing the application's core functionalities (registration, login, adding reminders, etc.).
- **FileManager:** Handles file input/output operations, such as loading and saving user and reminder data.
- **ReminderPopup:** Manages the popup notifications and handles sound alerts for scheduled reminders.

Conclusion

The Pill Reminder Application successfully provided a simple way of handling medication. Creating reminders and notifications, both visual and audio, was easy. The application safely uses binary files to store user and reminder information across sessions. The design of the application is intuitive, and by having accessible menu options and detailed views, one can have an easy time handling the application hence maintaining medication adherence.

4. Screenshots and GUI Designs

5.1 Registration Page



User Signup

PILL REMINDER

<i>First Name:</i>	Joud
<i>Last Name:</i>	Khalifa
<i>Phone Number:</i>	0535412368
<i>Email:</i>	joudkhalifa@gmail.com
<i>Username:</i>	joud
<i>Password:</i>	*****
<i>Confirm Password:</i>	*****

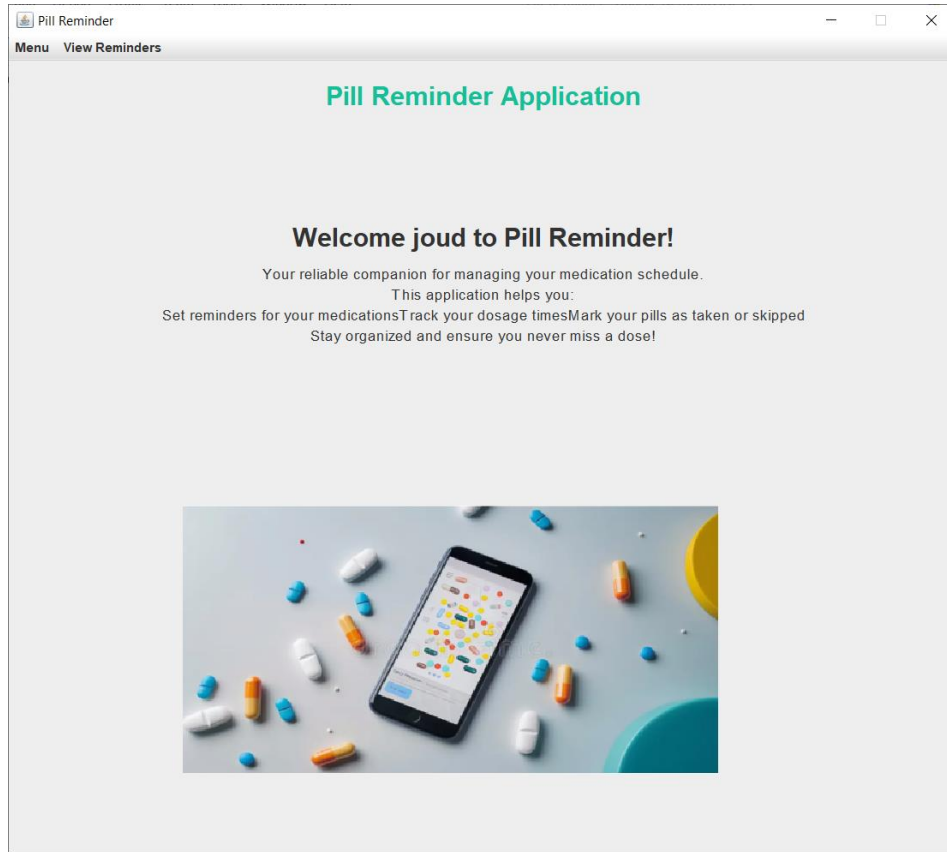
Register

5.2 Login Page







The screenshot shows a web browser window titled "User Login". The main content area features a blue rounded rectangle with a graphic of two white pills and a clock icon with a red border. Below the graphic, the text "PILL REMINDER" is displayed in white. The login form consists of two input fields: "Username:" with the value "joud" and "Password:" with the value "*****". A blue "Login" button is positioned below the password field. At the bottom of the form, there is a link that says "Don't have an account? (Register)".

5.3 Main Page




5.4 view medicines:

Medicines Information		
Name :	Description :	
	NEUROBION	a dietary supplement designed to support nerve health and alleviate symptoms related to nerve damage.
	PANADOL	a pain reliever and fever reducer commonly used for headaches, muscle aches, and fever.
	ASPIRIN	a medication used to relieve pain, reduce inflammation, and lower fever; also used for heart health in low doses.
	AMOXICILLIN	a common antibiotic used to treat bacterial infections such as respiratory infections, ear infections, and skin infections.

Back

5.5 Add Reminder:

Add New Reminder



Select Medicine:

NEUROBION

Select Days:

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

Select Time:

05:50

Add Reminder

5.6 Show Upcoming reminder:

Pill Reminder Application

Welcome joud to Pill Reminder!

Your reliable companion for managing your medication schedule.


This application helps you:

Set reminders for your medications Track your dosage times Mark your pills as taken or skipped

Stay organized and ensure you never miss a dose!

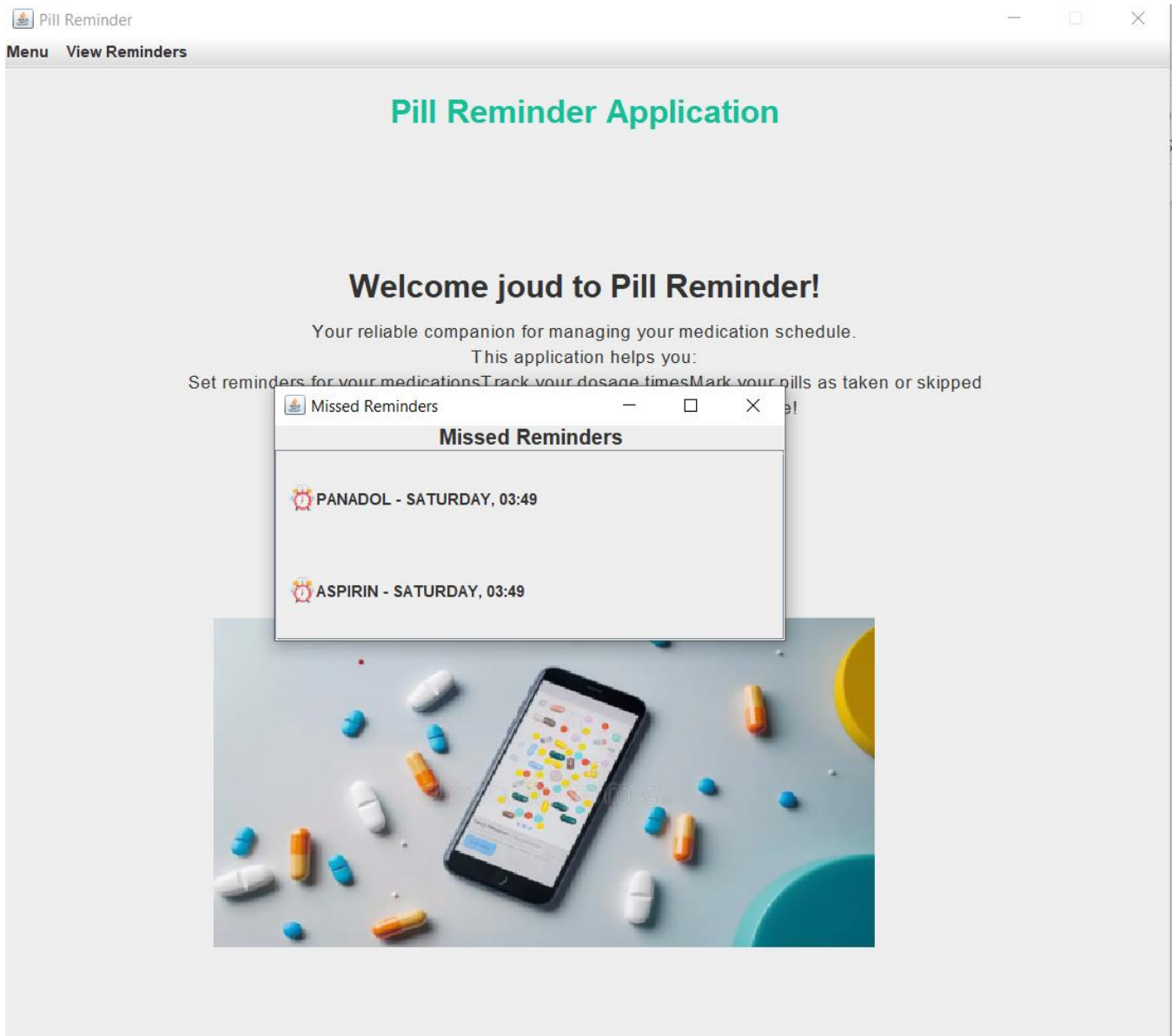
Upcoming Reminders _ □ ×

Today's Upcoming Reminders

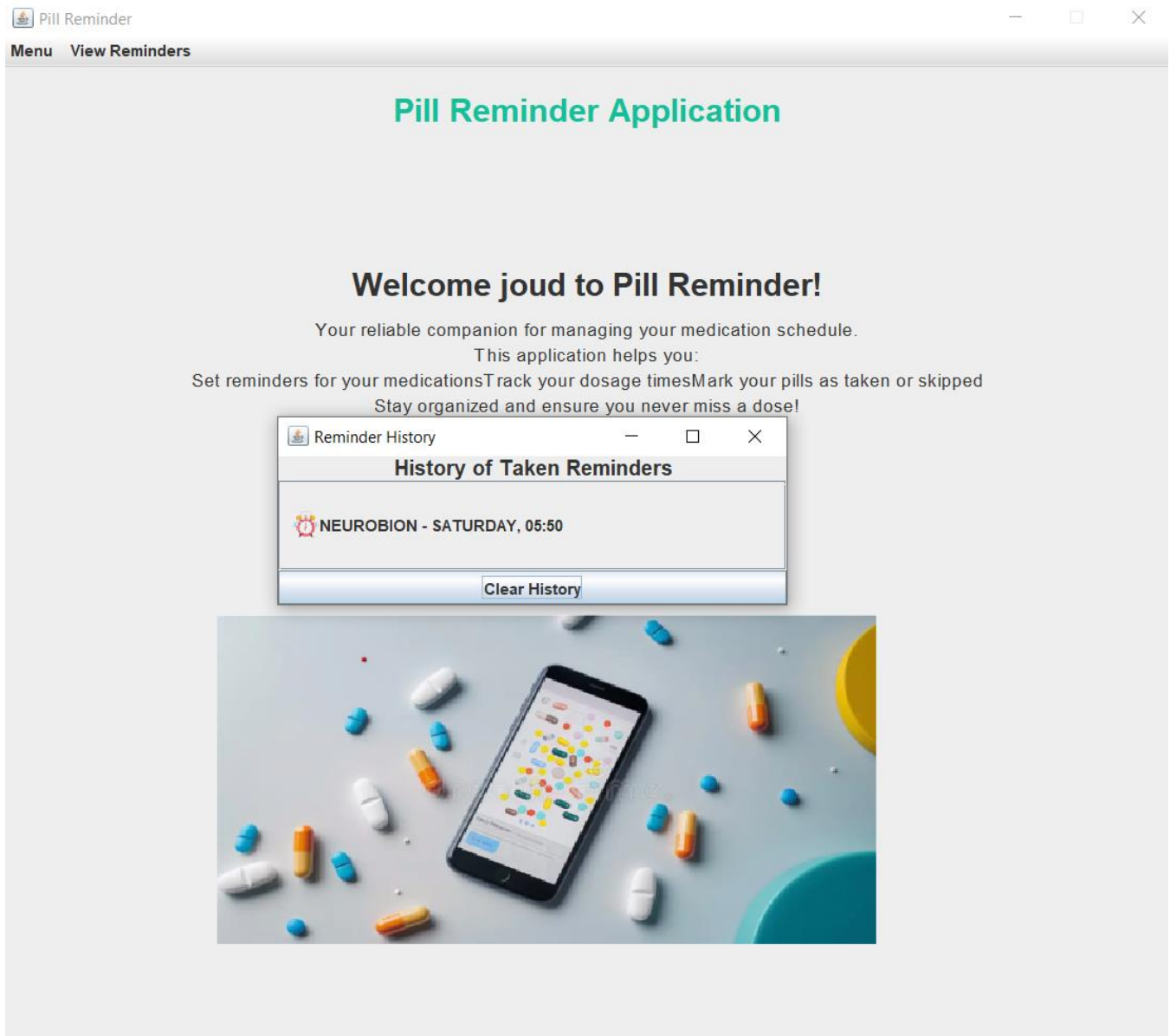
 NEUROBION - 05:50	<input type="button" value="Mark as Taken"/>
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5.7 Show Missed Reminders:



5.8 Show History of Medications:



5.9 Popup Reminder Frame:

