Medicine Alert and Reminder System (MARS)

Team Number: 16

Team Members:

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- Harish Kolla - 44
- Sreeya Reddy Daripalli - 18
- Ravali Nalla - 59

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Introduction

Medicine Alert and Reminder System is the system which provides the complete system for medicine management. It helps users to add their medicines with the recommended time and the app will remind to take medicines on specific time. If a medicine must have a minimum gap of hours, then app will remind of the next dosage of medicine after recommended gap between two dosages.

For more detailed information go through the Increment-I Documentation:

https://github.com/pareshkasare/ASE_Project/blob/master/Documentation/Increament-1%20Report.pdf

Increment Objectives

OBJECTIVES:

The main aim of this application is to provide the user the ability to schedule and notify about the medicine/pill to be taken at appropriate times through android device and smart watch.

Features of Final Increment

Features we are deploying are:

- Update the medicine information
- Delete medicine
- Display the medicines scheduled
- Extending notifications on Smart Watch and record user actions.
- Medicine alerts as notification with action button.

Detailed Design Features (Wireframes & UML)

Login Wireframe:

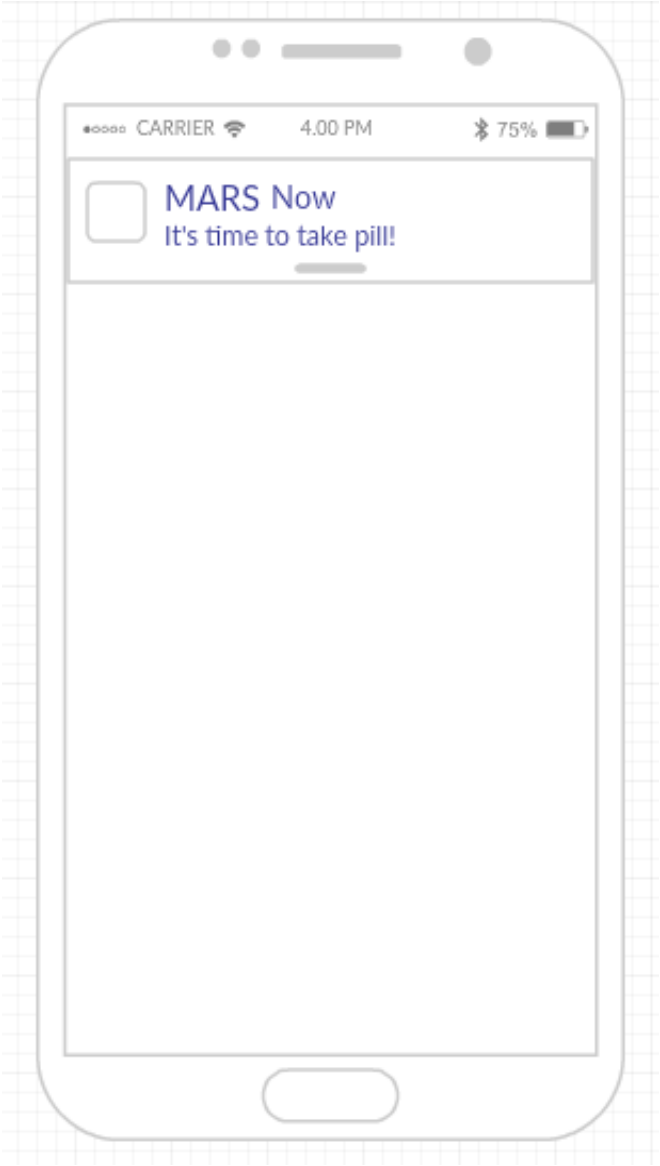
Register Wireframe:

MainActivity Wireframe:

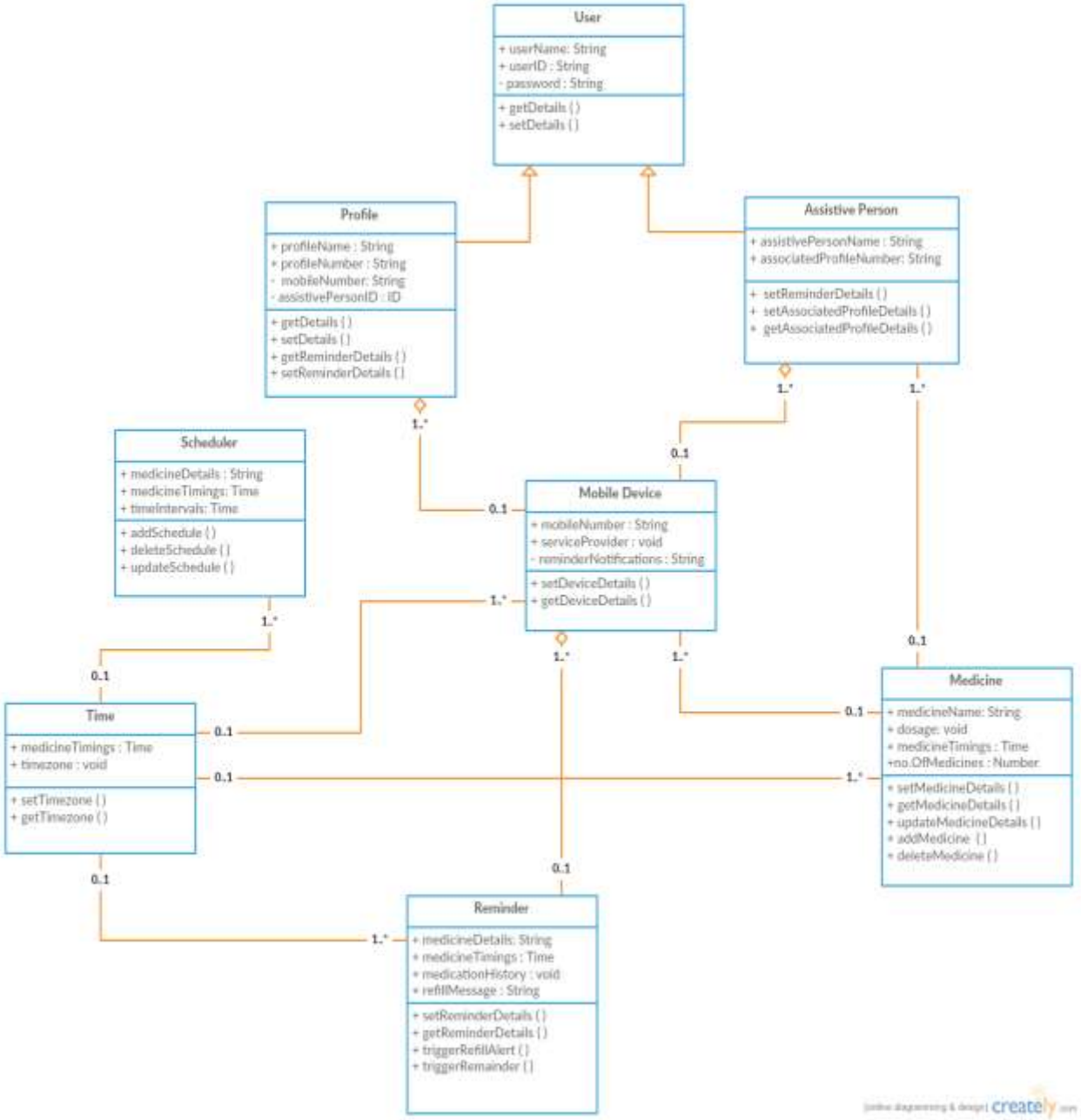
AddActivity Wireframe:

UpdateActivity Wireframe:

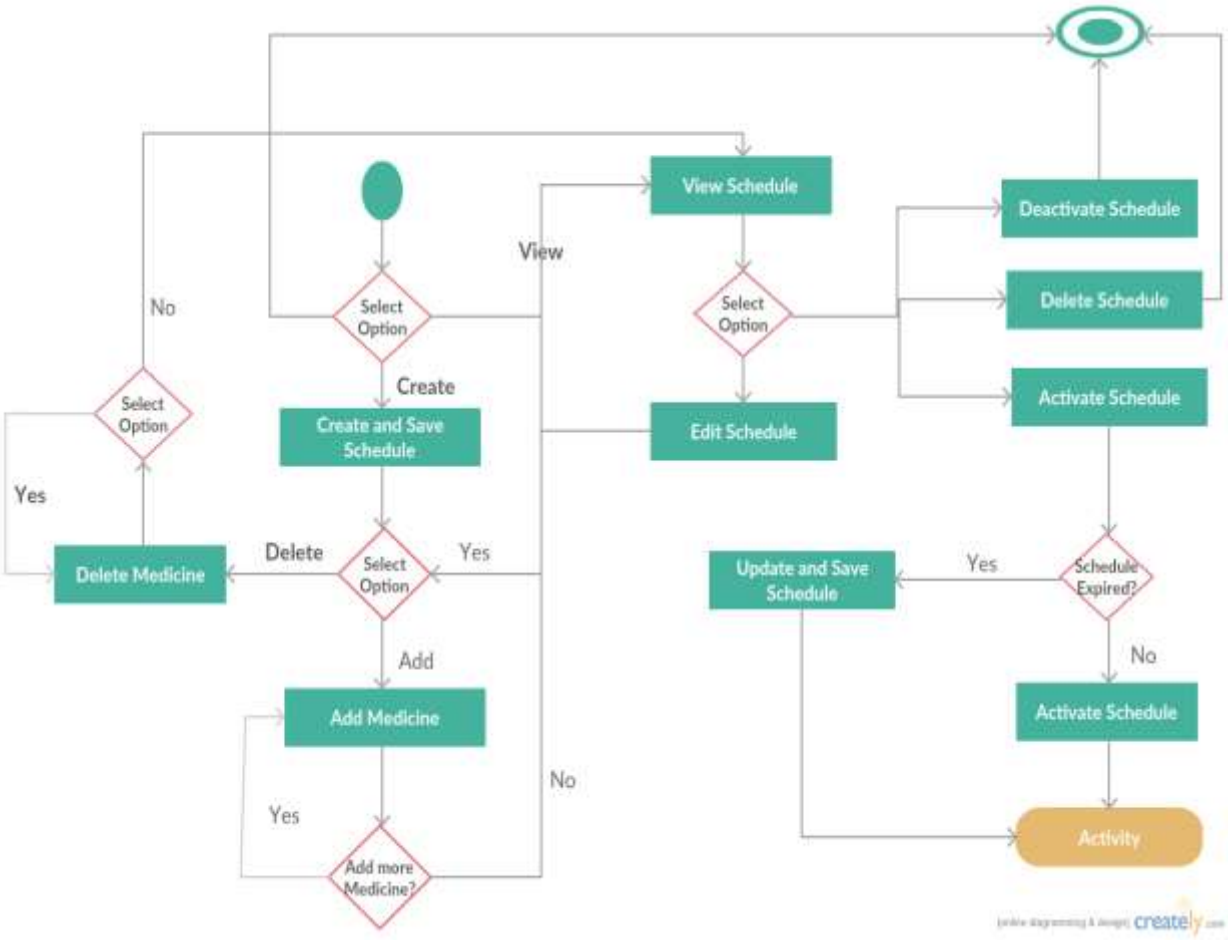
Notification Activity Wireframe:



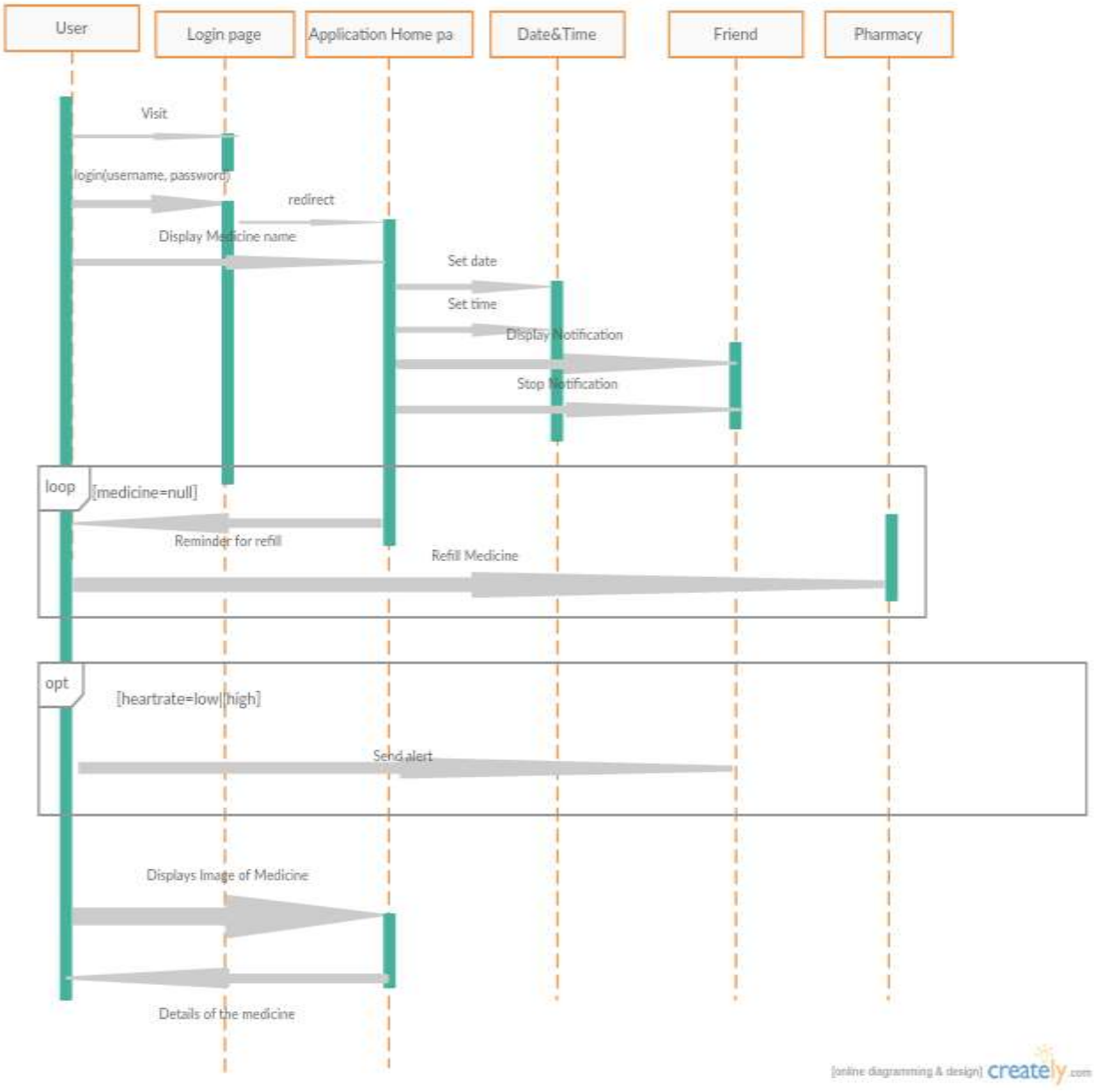
Class Diagram:



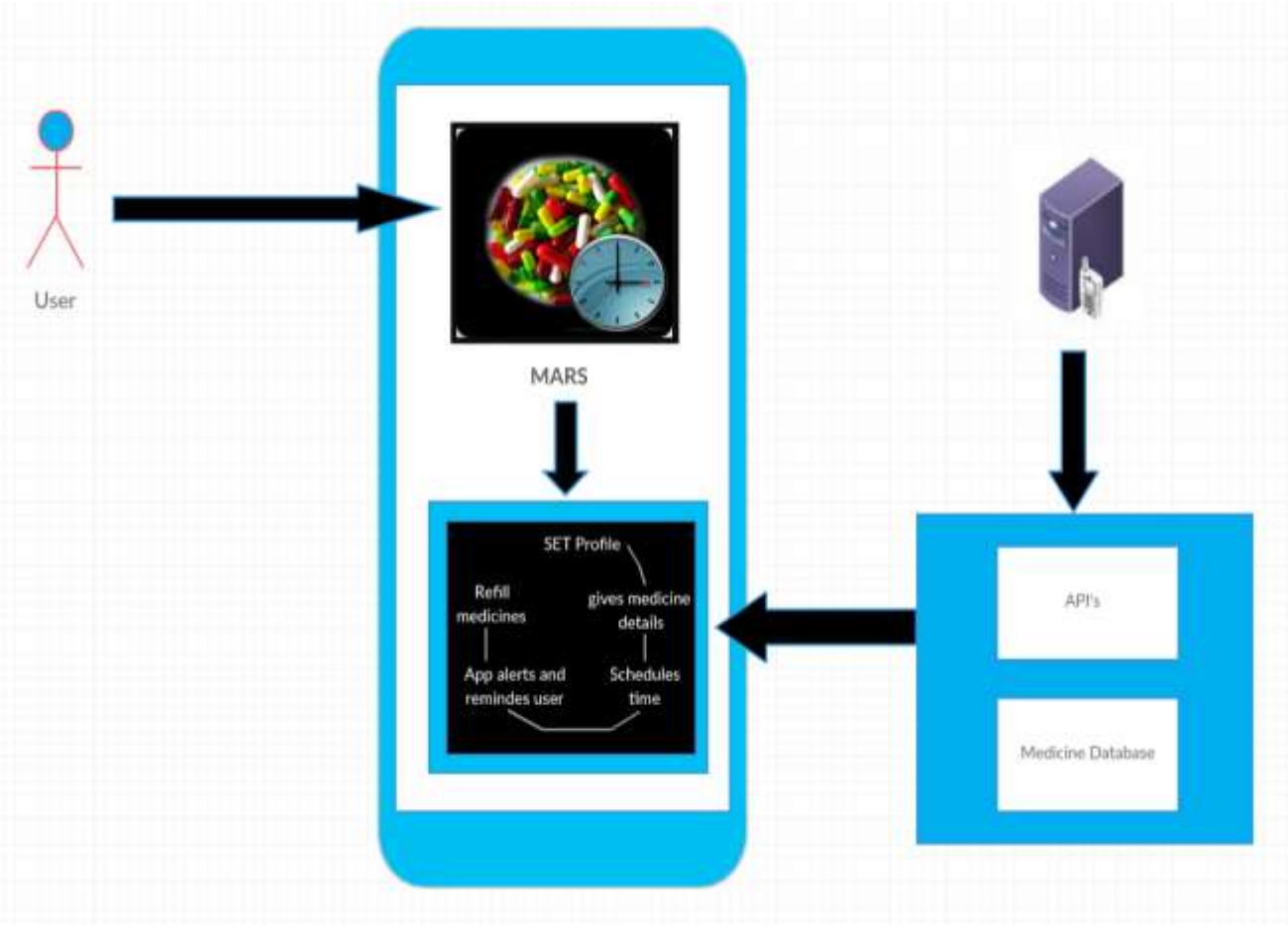
Activity Diagram:



Sequence Diagram:



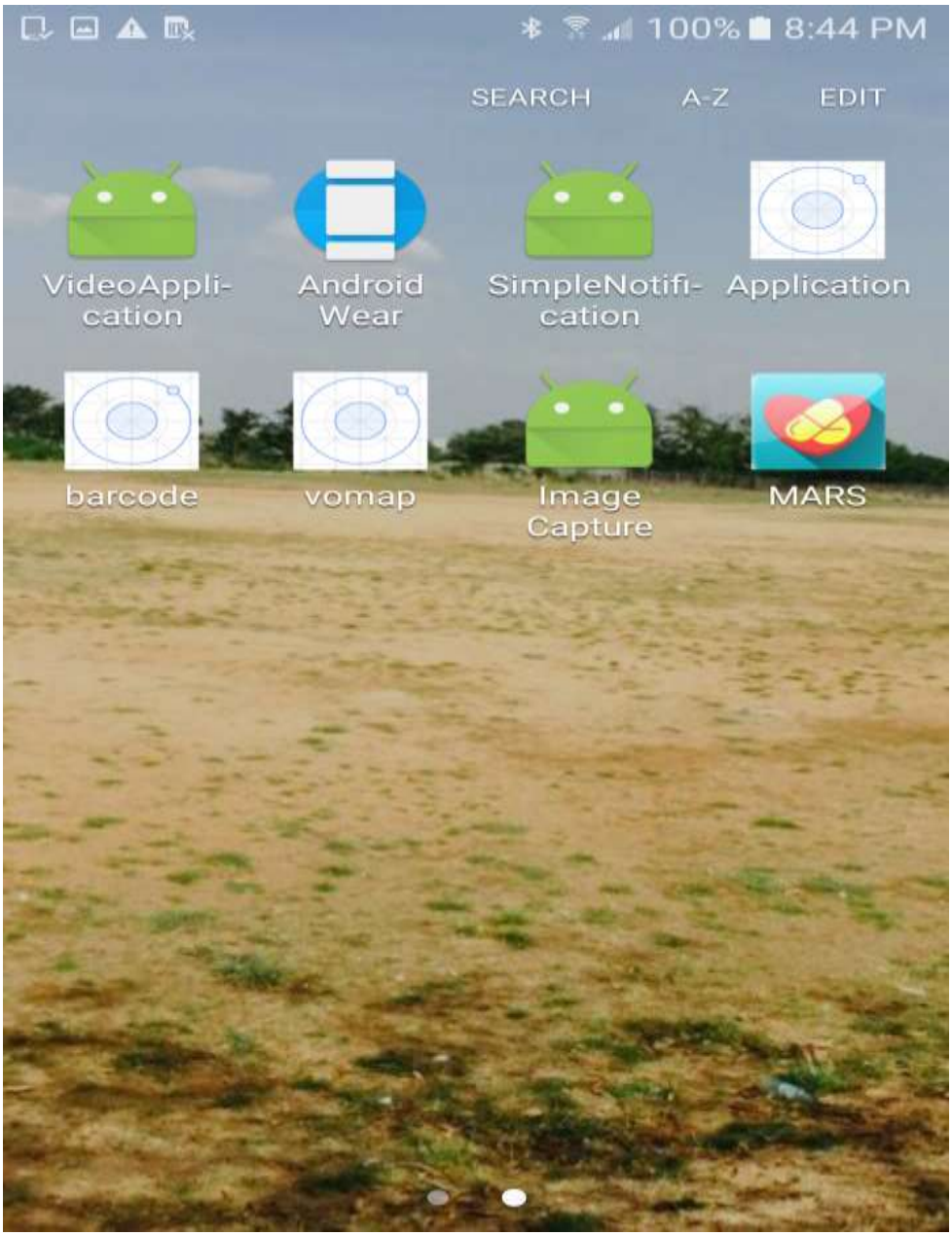
Architecture Diagram:

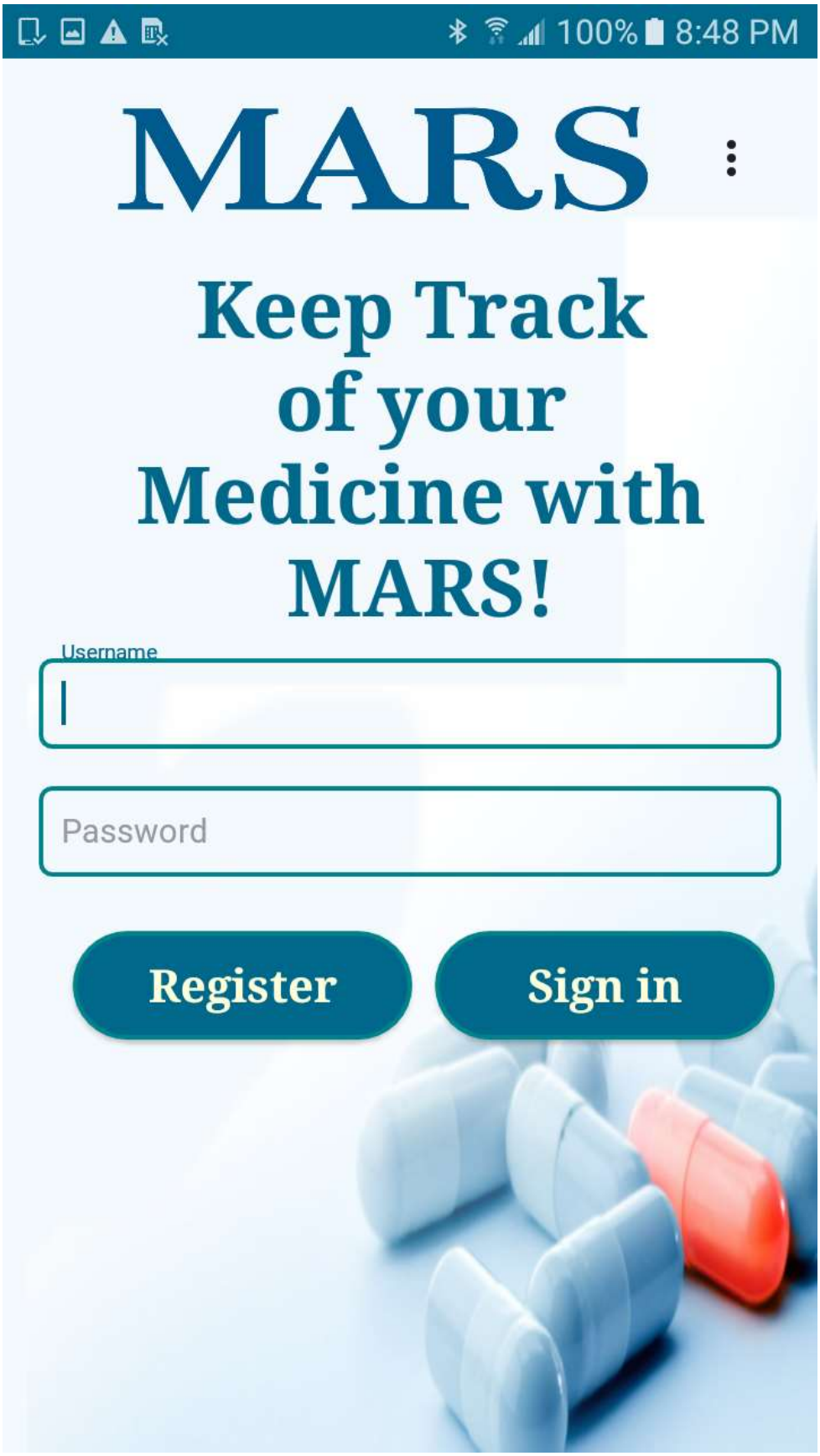


Final Increment Implementation

Login Activity Screen in Android:

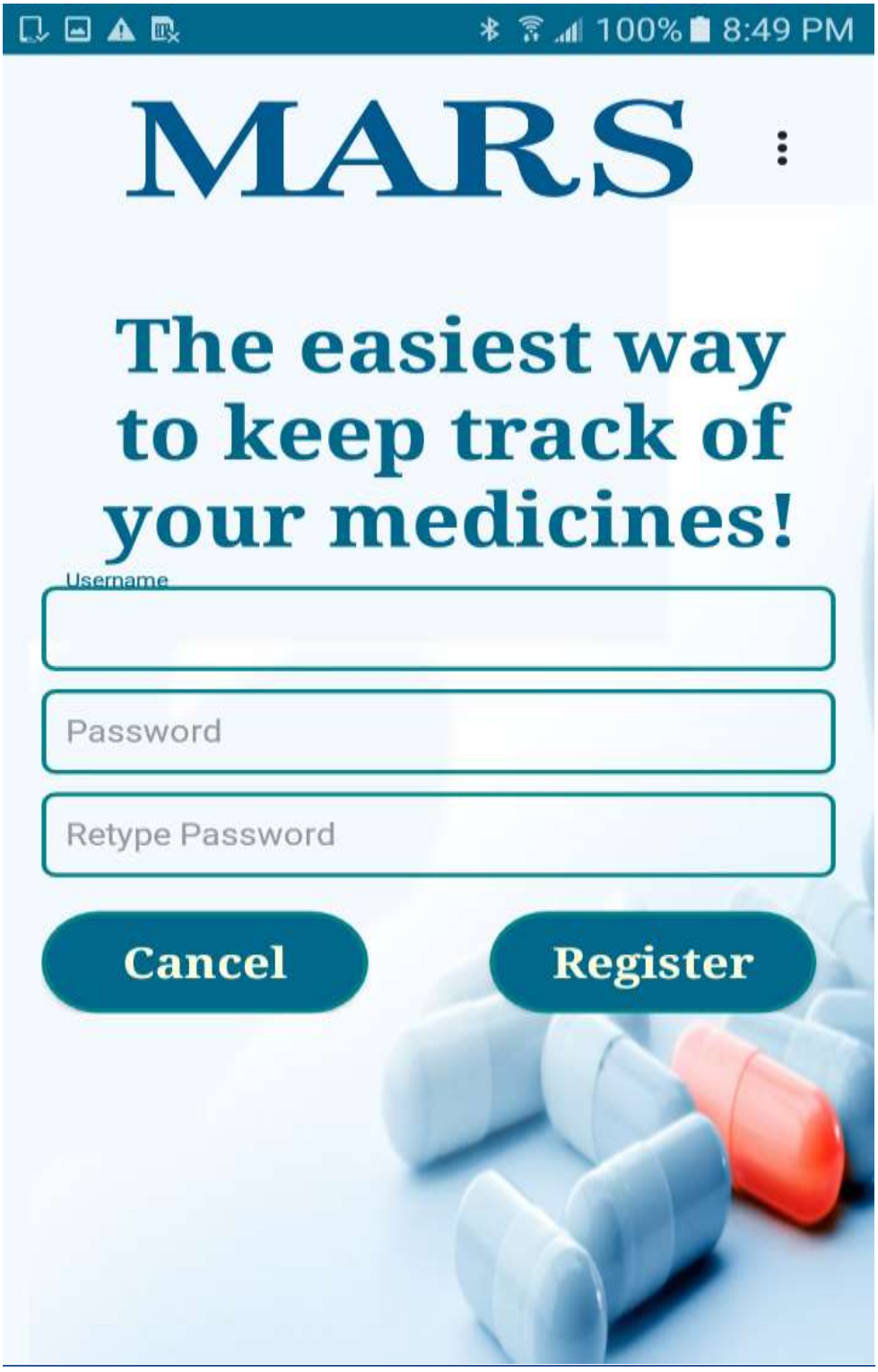
Once the application is run in the Android Studio, the page which opens is the access page which asks for permission whether to use the contacts in the mobile or not as shown below. Once the permission is given to access the contacts application is redirected to the below page.



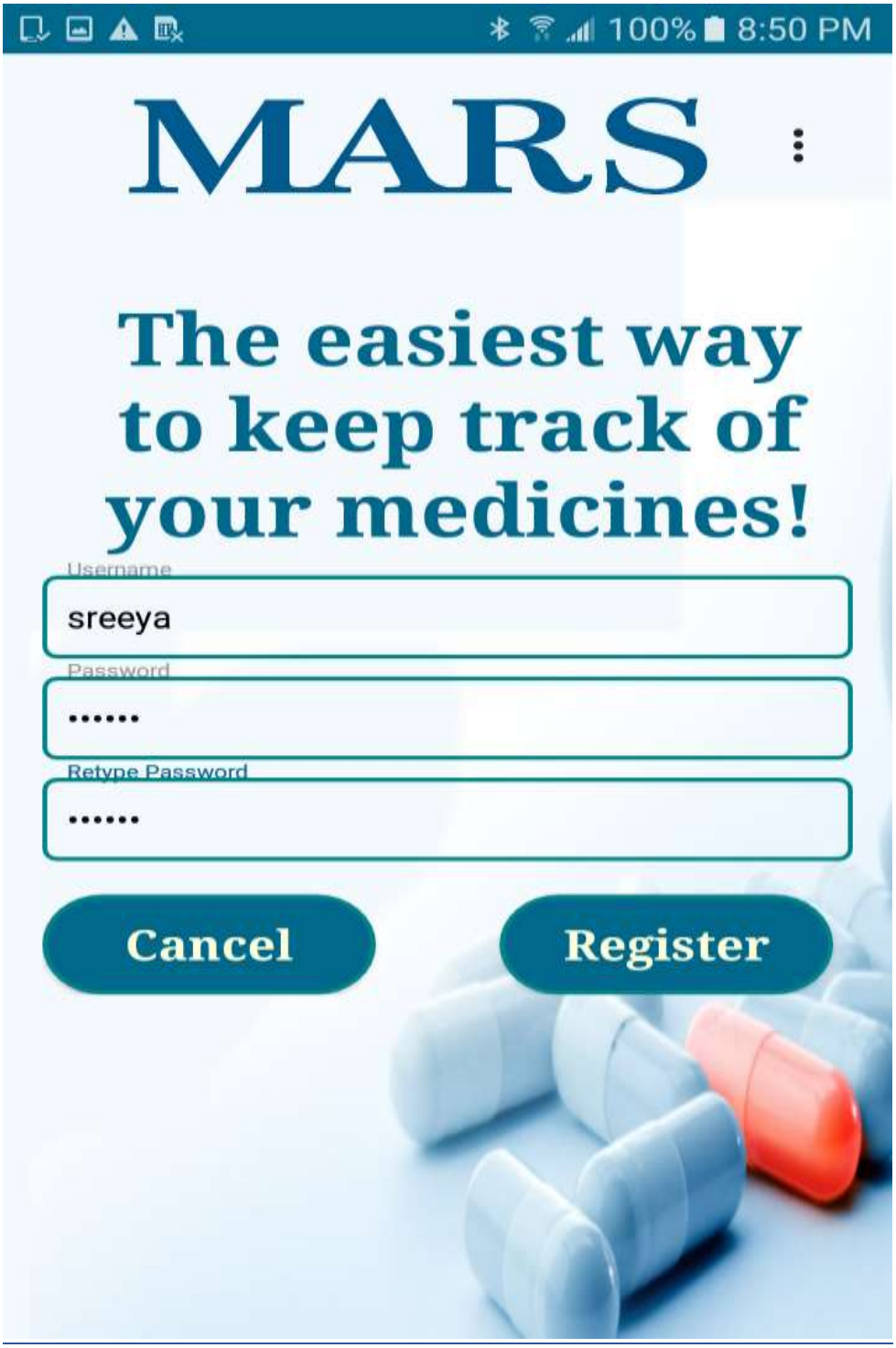

100% 8:48 PM
MARS
Keep Track of your Medicine with MARS!
Username
Password
Register
Sign in

Register Activity Screen in Android:

If the user/admin isn't registered with the application then he will be redirected to the below page.



Now the user will fill all the details which are required to get registered into the application as shown below else the application gives an error message.



Login Activity Screen in Android:

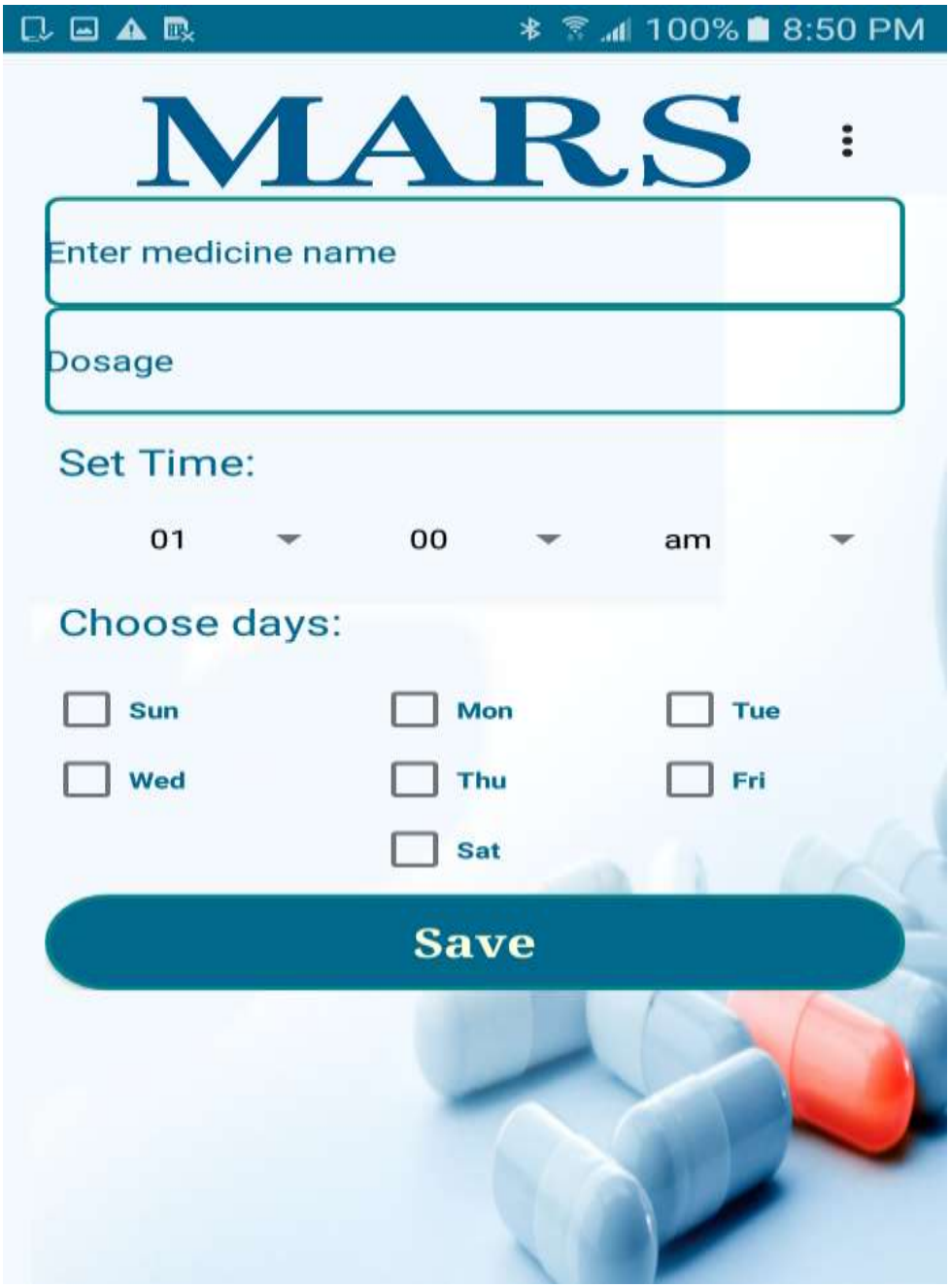
After the user/admin is registered into the application, he will be redirected to the login page. Now, the user will enter his own credentials in order to login to the application.

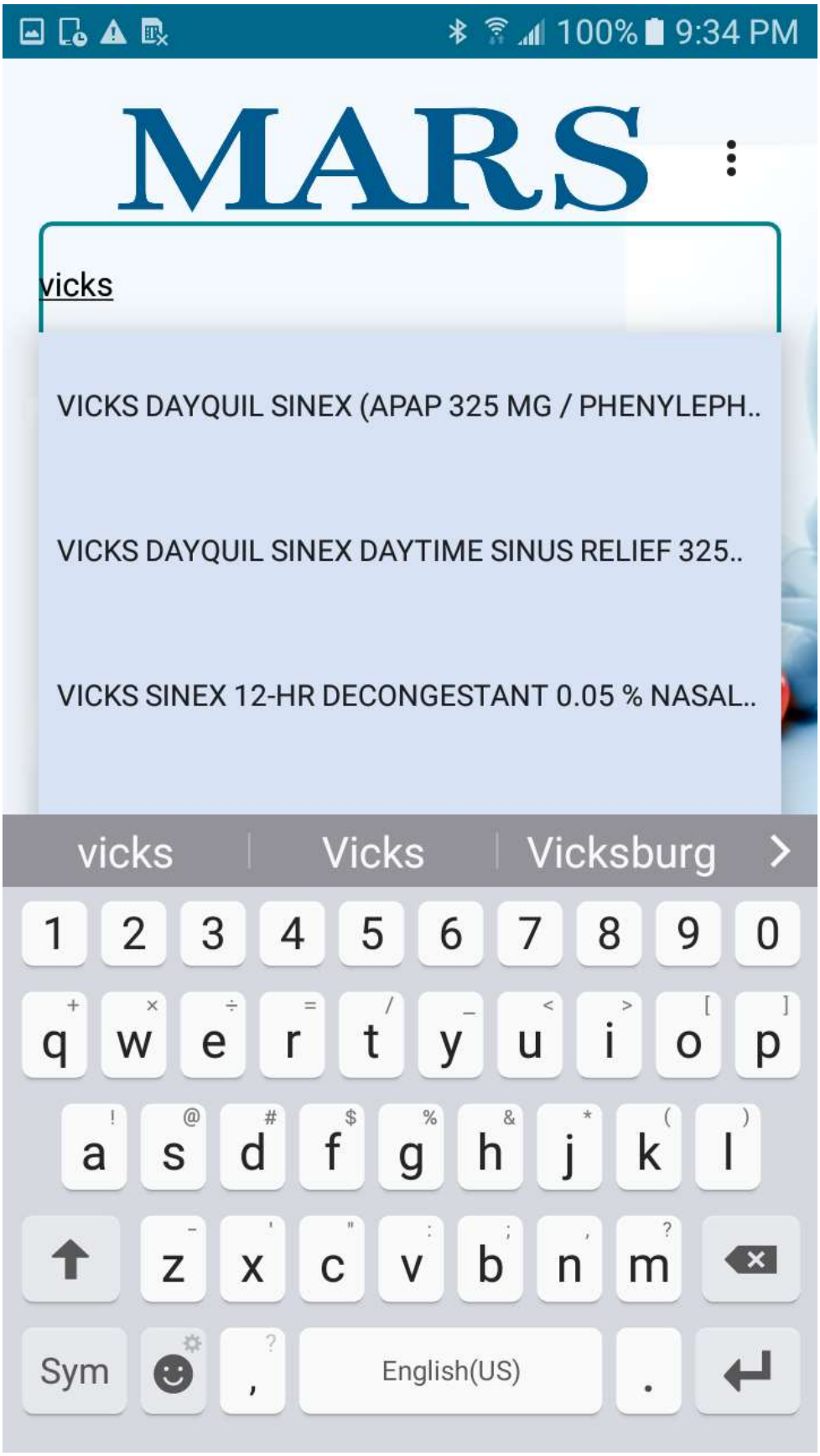
Main Activity Screen in Android:

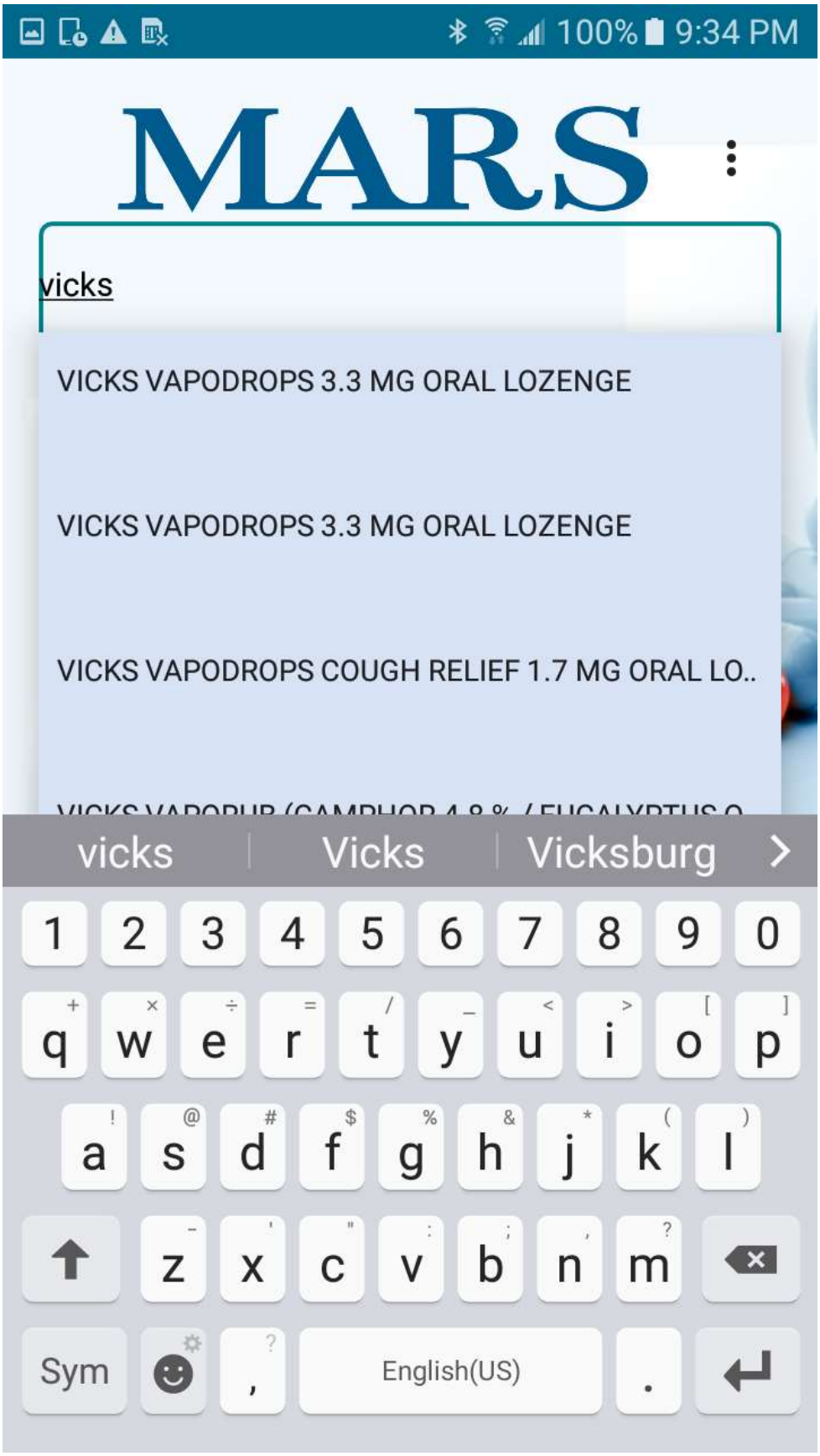
Once the user has logged in, the login page is redirected to the main activity page.

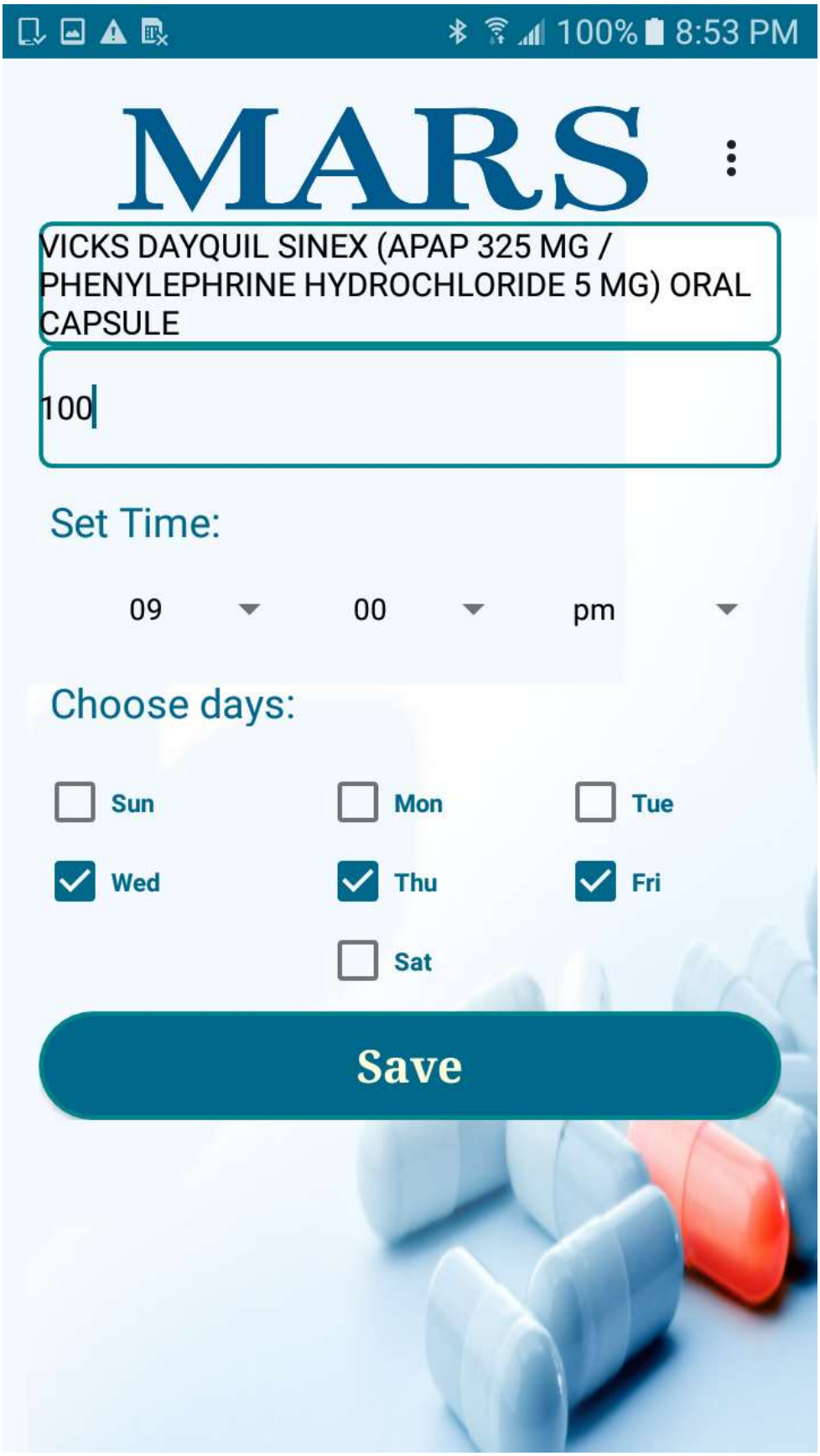
Add Activity Screen in Android:

By clicking on the plus button below the user will be redirected to the Add Activity where the users medicine information is filled in. The user now will enter the Medicine name, dosage amount and the time and days on which the medicine should be taken as shown below. Autocomplete is used for the medicine name as shown in the below screenshots. Now, this information is stored in new user file which gets created as the user fills in new medicine information into Add Activity.



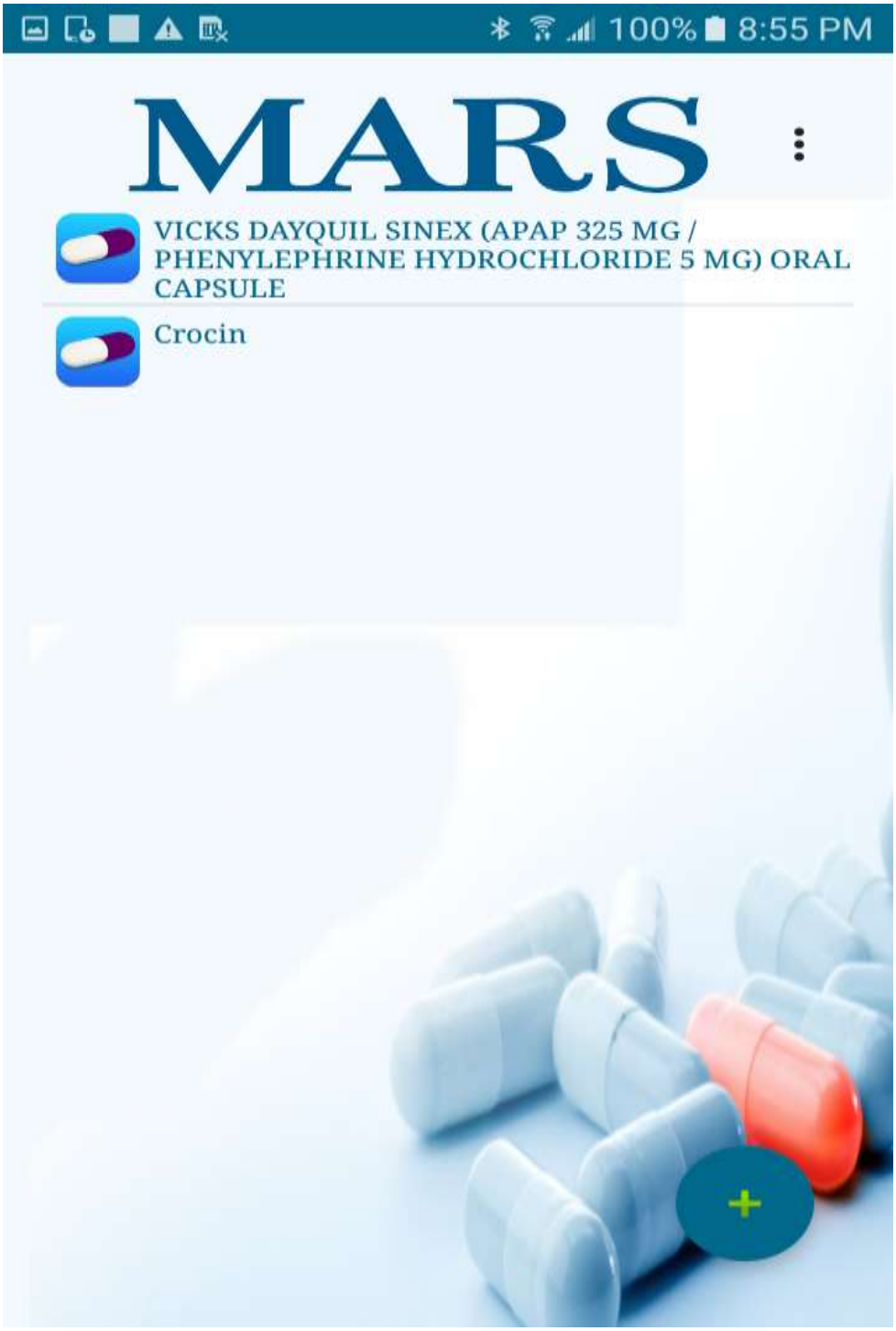

100% 9:34 PM
MARS
vicks
VICKS DAYQUIL SINEX (APAP 325 MG / PHENYLEPH..
VICKS DAYQUIL SINEX DAYTIME SINUS RELIEF 325..
VICKS SINEX 12-HR DECONGESTANT 0.05 % NASAL..
vicks
Vicks
Vicksburg
1 2 3 4 5 6 7 8 9 0
q w e r t y u i o p
a s d f g h j k l
z x c v b n m
Sym
English(US)


100% 9:34 PM
MARS
vicks
VICKS VAPODROPS 3.3 MG ORAL LOZENGE
VICKS VAPODROPS 3.3 MG ORAL LOZENGE
VICKS VAPODROPS COUGH RELIEF 1.7 MG ORAL LO..
vicks
Vicks
Vicksburg
1 2 3 4 5 6 7 8 9 0
q w e r t y u i o p
a s d f g h j k l
z x c v b n m
Sym
English(US)


100% 8:53 PM
MARS
VICKS DAYQUIL SINEX (APAP 325 MG / PHENYLEPHRINE HYDROCHLORIDE 5 MG) ORAL CAPSULE
100
Set Time:
09
00
pm
Choose days:
Sun
Mon
Tue
Wed
Thu
Fri
Sat
Save

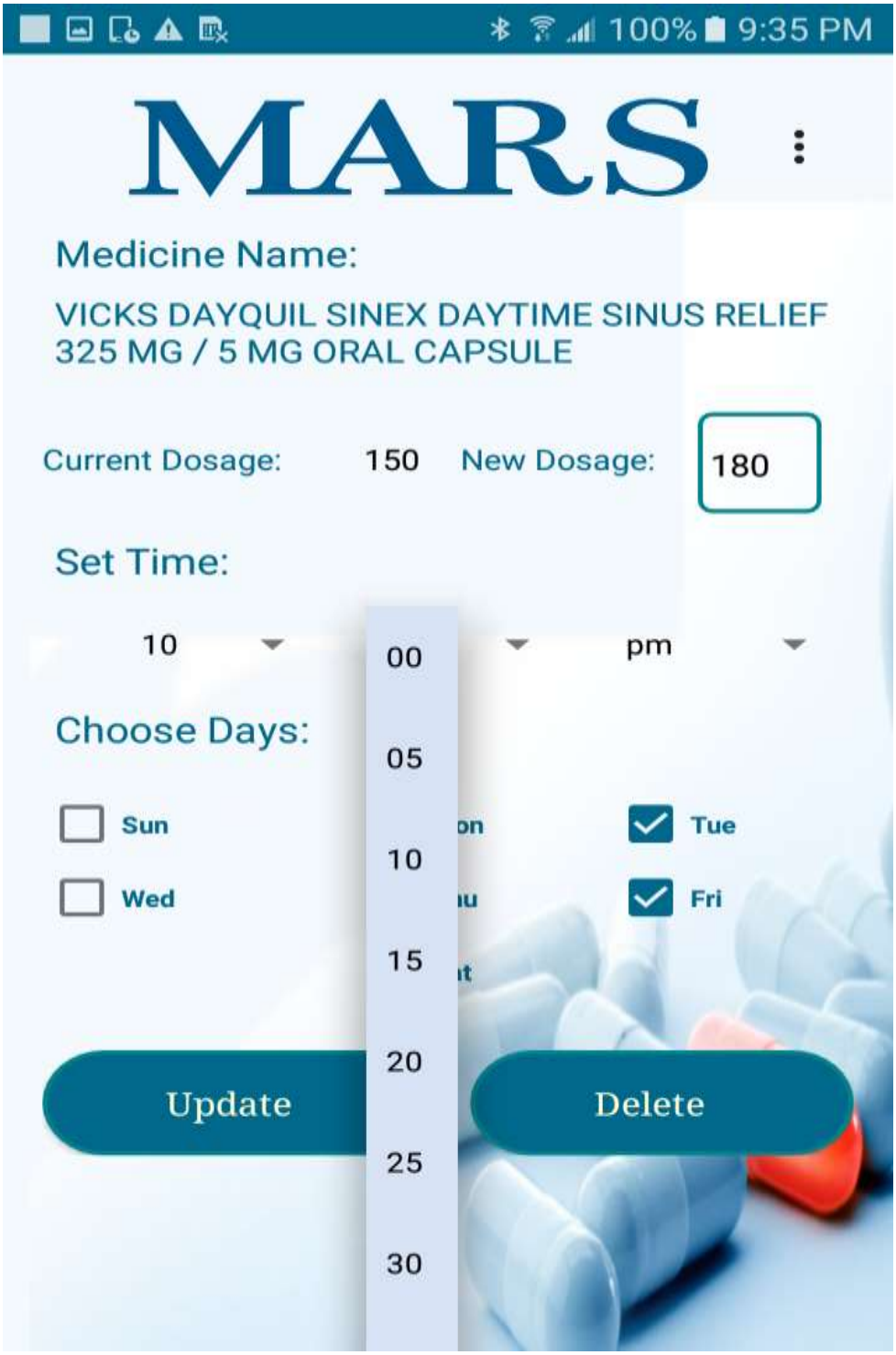
Main Activity Screen in Android:

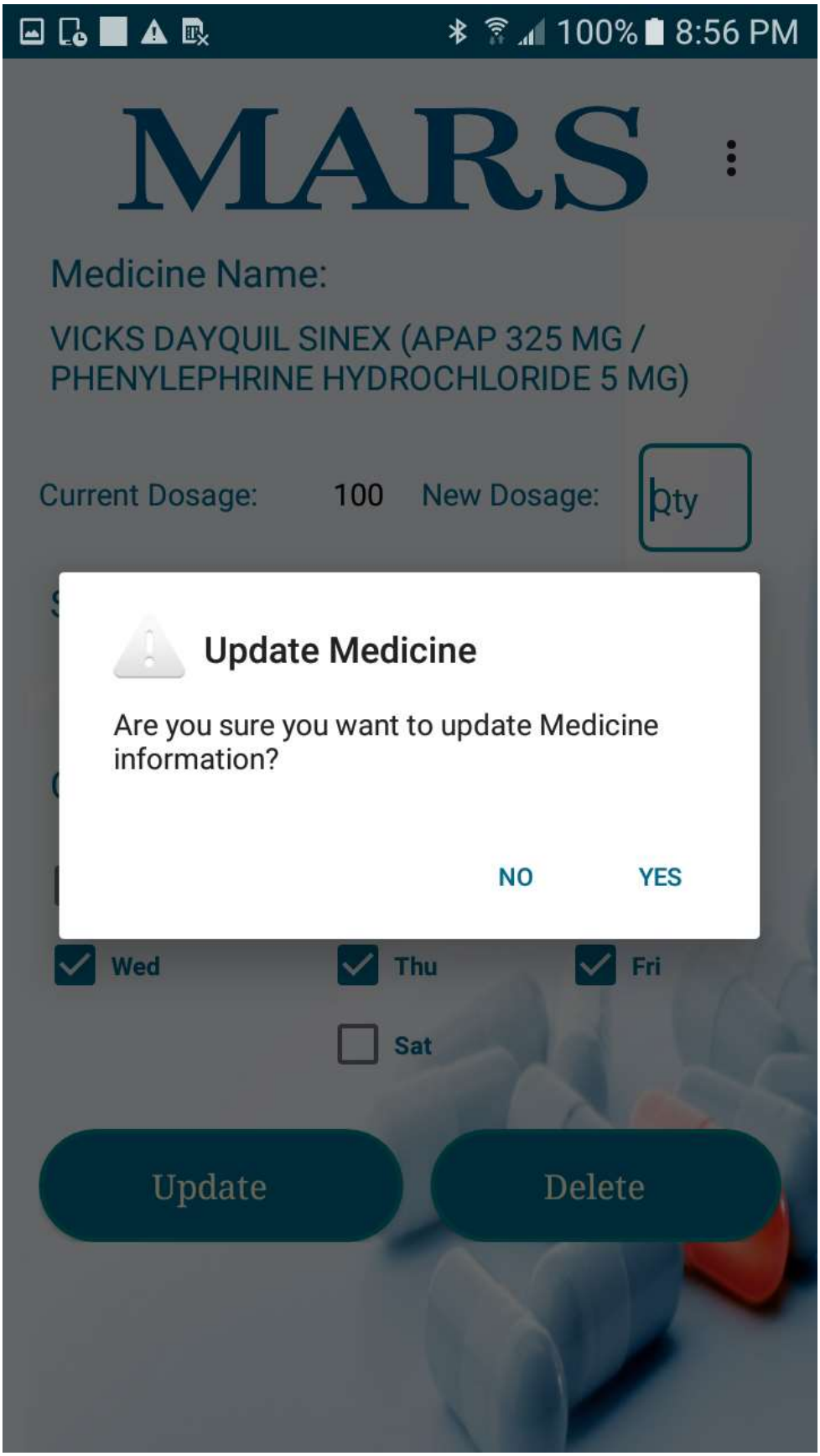
This user file gets saved with the name of the medicine and appears as an icon in the Main Activity as shown below. On_click of these medicine icons will redirect to the Update Activity.

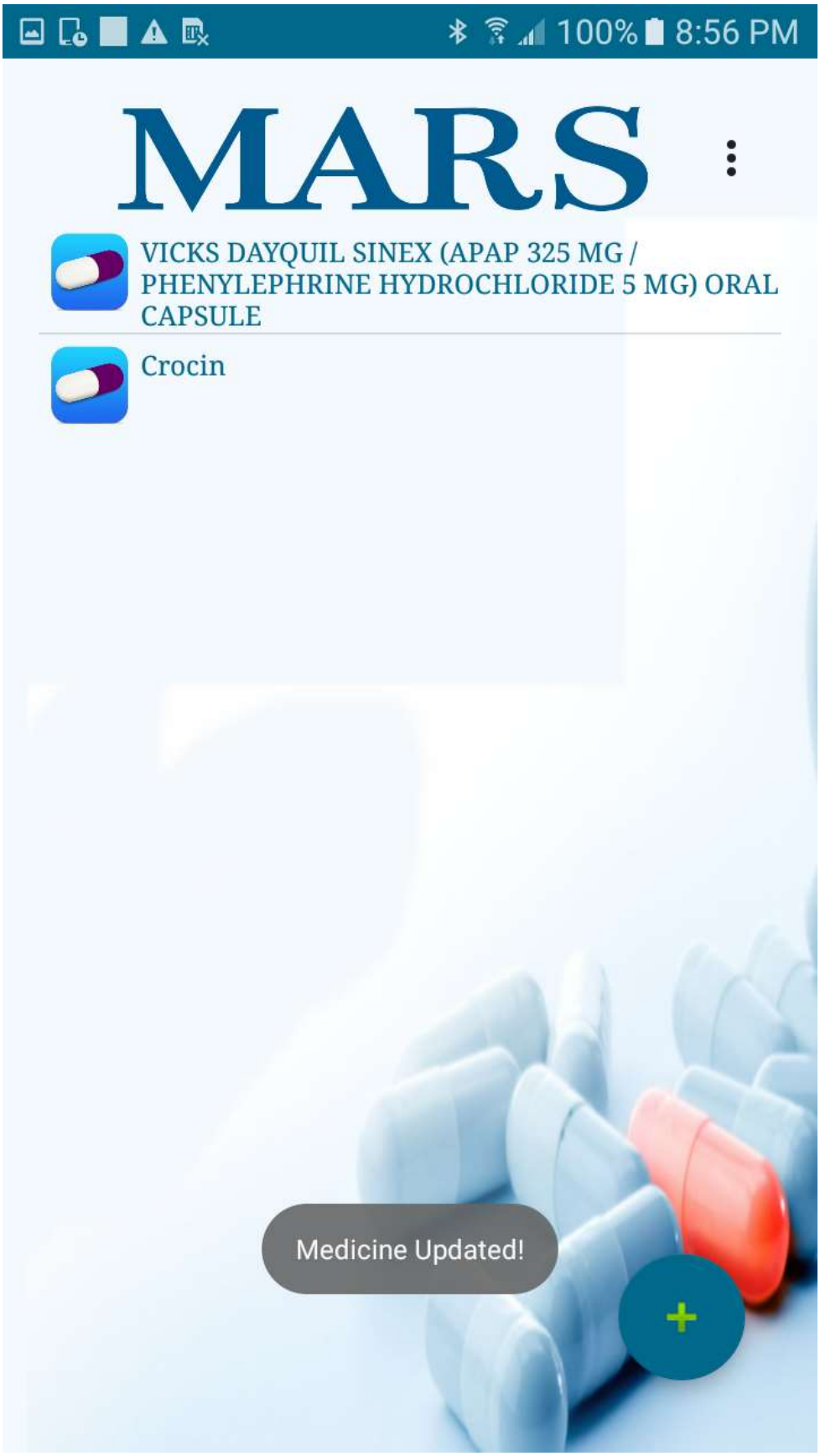


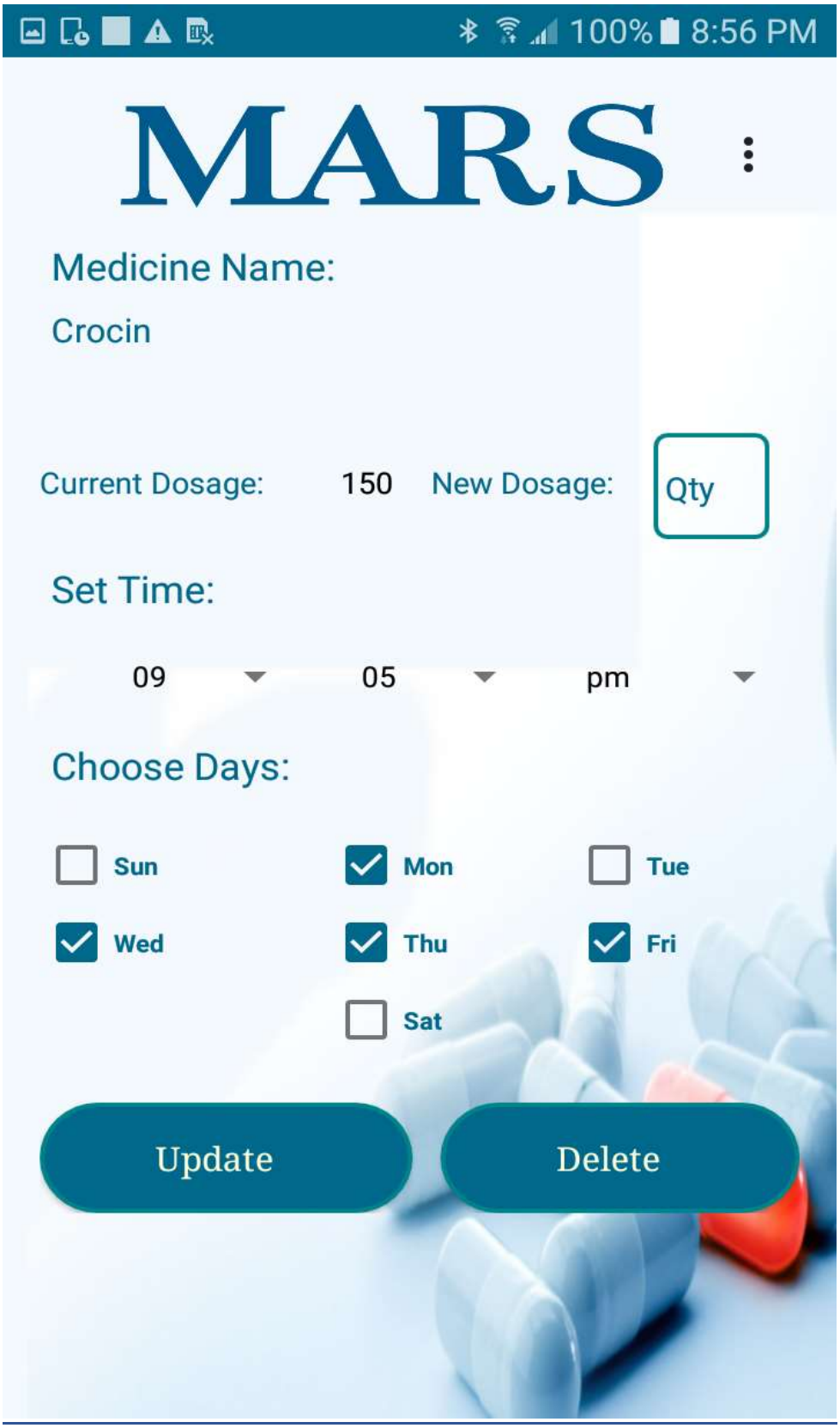
Update Activity Screen in Android:

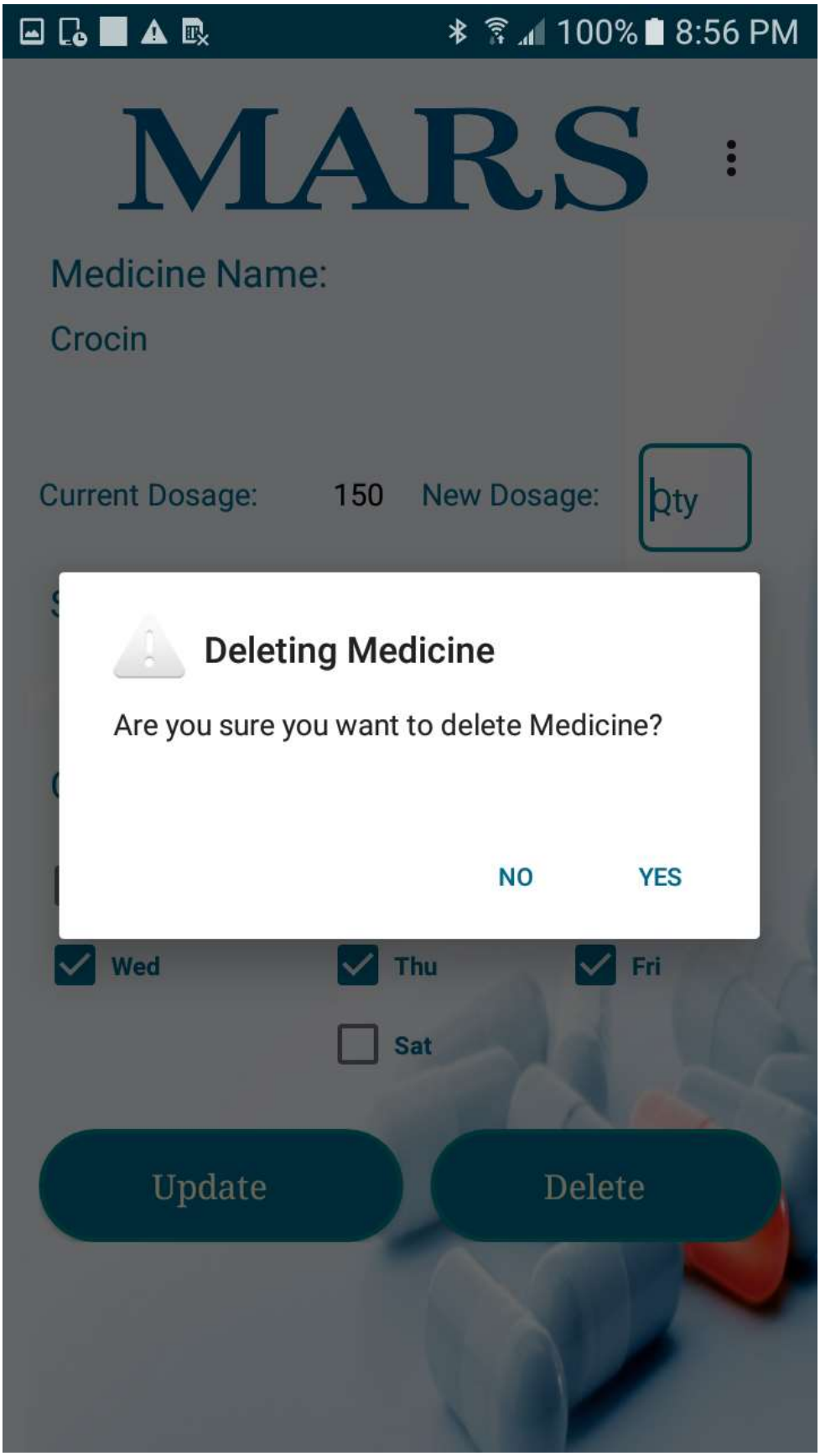
In this activity we can edit the medicine details and also delete it once the medicine course is done.




100% 8:56 PM
MARS
Medicine Name:
VICKS DAYQUIL SINEX (APAP 325 MG / PHENYLEPHRINE HYDROCHLORIDE 5 MG)
Current Dosage: 100 New Dosage: Qty
Update Medicine
Are you sure you want to update Medicine information?
NO
YES
Wed
Thu
Fri
Sat
Update
Delete


100% 8:56 PM
MARS
VICKS DAYQUIL SINEX (APAP 325 MG / PHENYLEPHRINE HYDROCHLORIDE 5 MG) ORAL CAPSULE
Crocin
Medicine Updated!

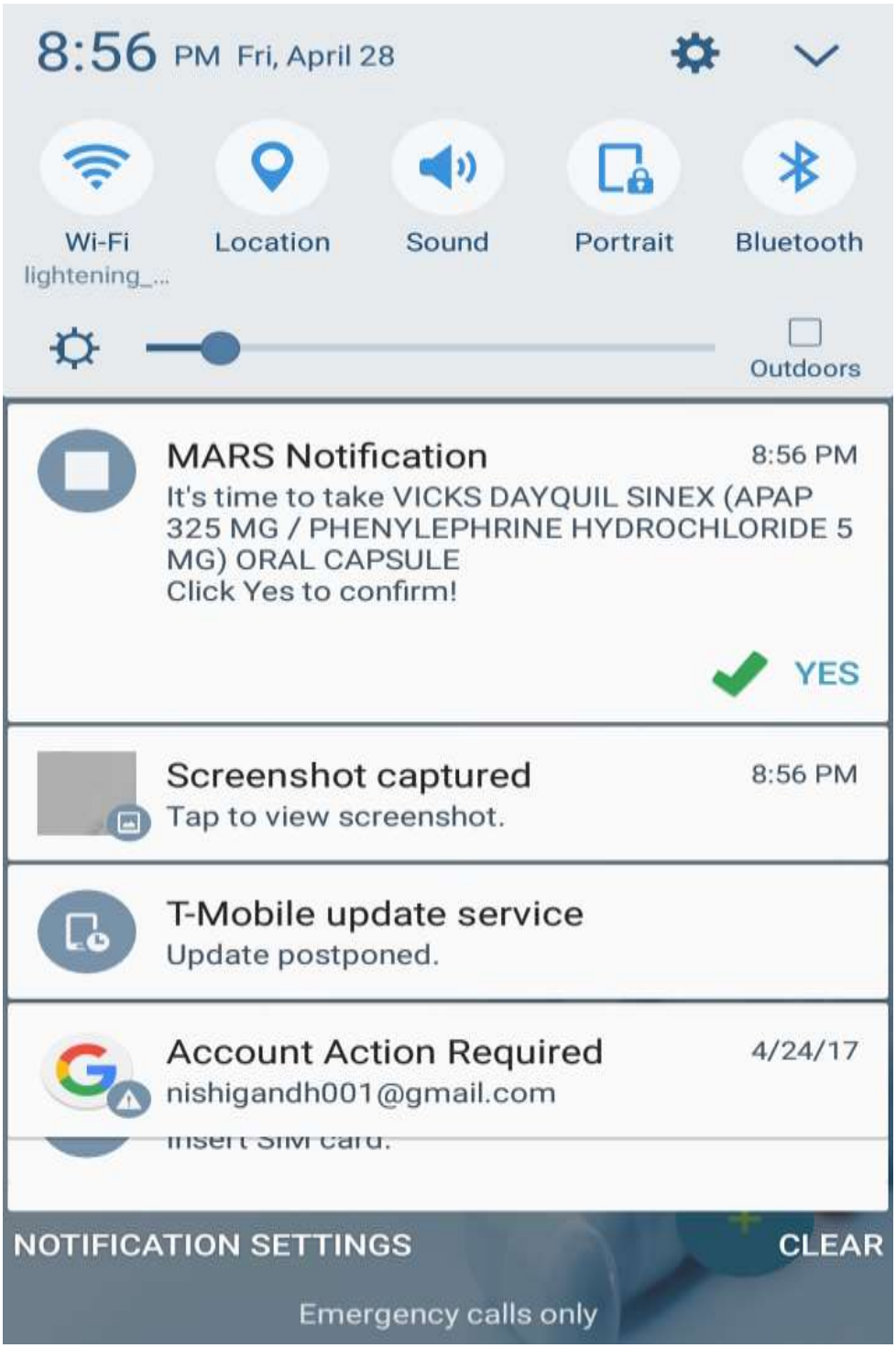

100% 8:56 PM
MARS
Medicine Name:
Crocin
Current Dosage: 150 New Dosage: Qty
Set Time:
09 05 pm
Choose Days:
Sun
Mon
Tue
Wed
Thu
Fri
Sat
Update
Delete


100% 8:56 PM
MARS
Medicine Name:
Crocin
Current Dosage: 150 New Dosage: Qty
Deleting Medicine
Are you sure you want to delete Medicine?
NO
YES
Wed
Thu
Fri
Sat
Update
Delete

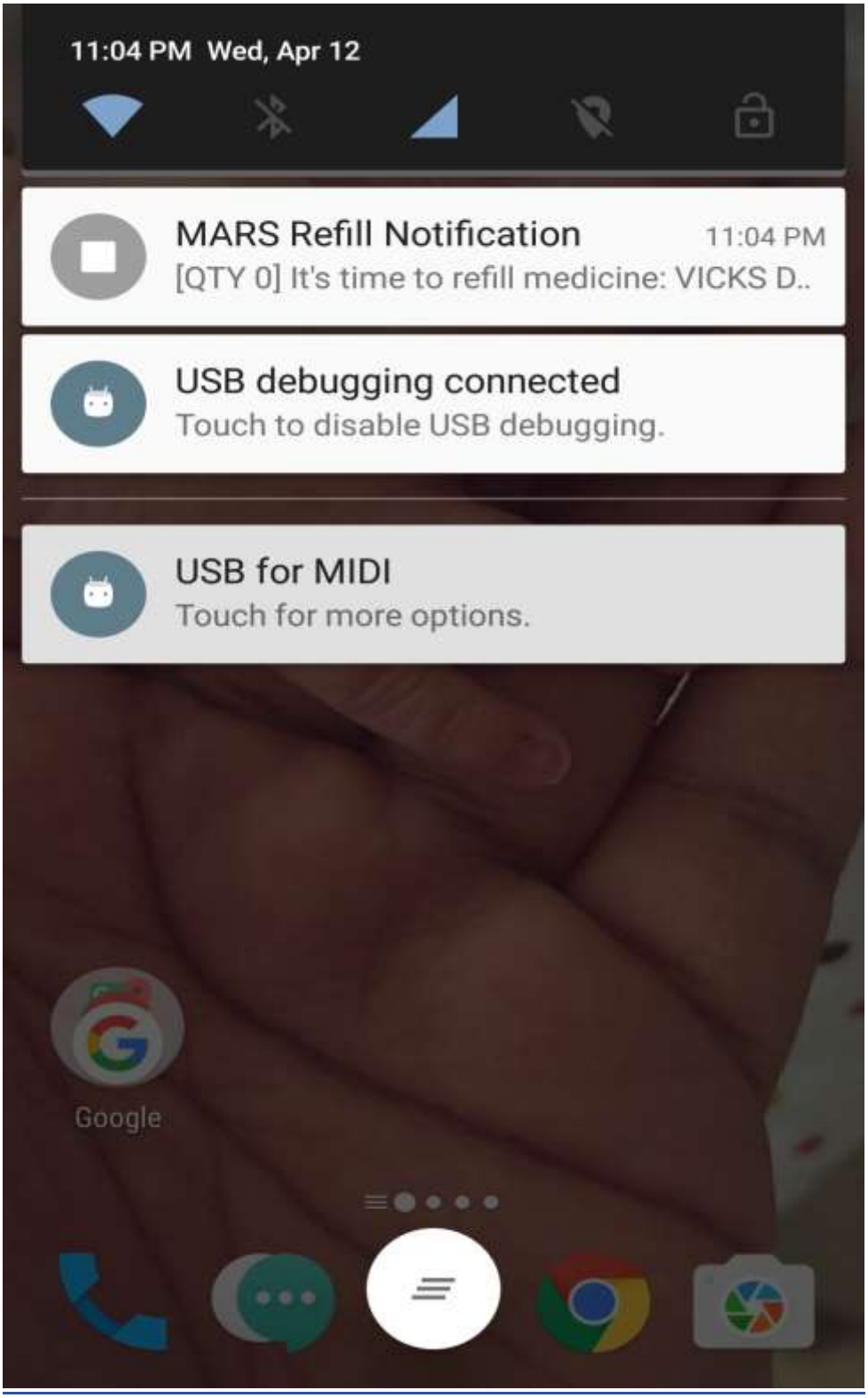

100% 8:56 PM
MARS
VICKS DAYQUIL SINEX (APAP 325 MG / PHENYLEPHRINE HYDROCHLORIDE 5 MG) ORAL CAPSULE
Medicine Deleted!

Notification Activity Screen in Android:

This activity will retrieve the medicine information from the Main Activity and will create a notification according to the time mentioned in the user file of a medicine as shown below. By tapping the notification, the user will be confirming that the medicine is taken.

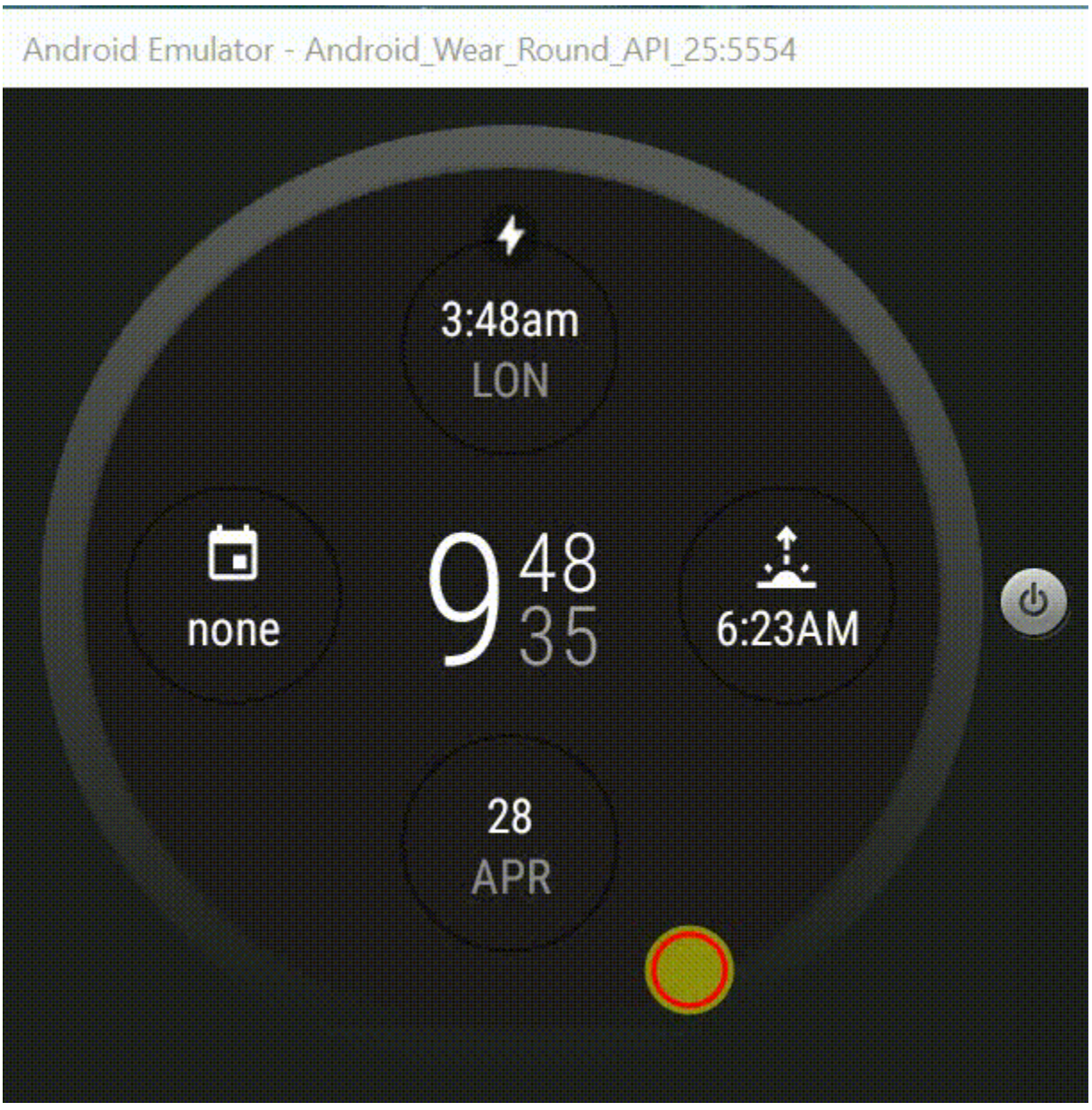


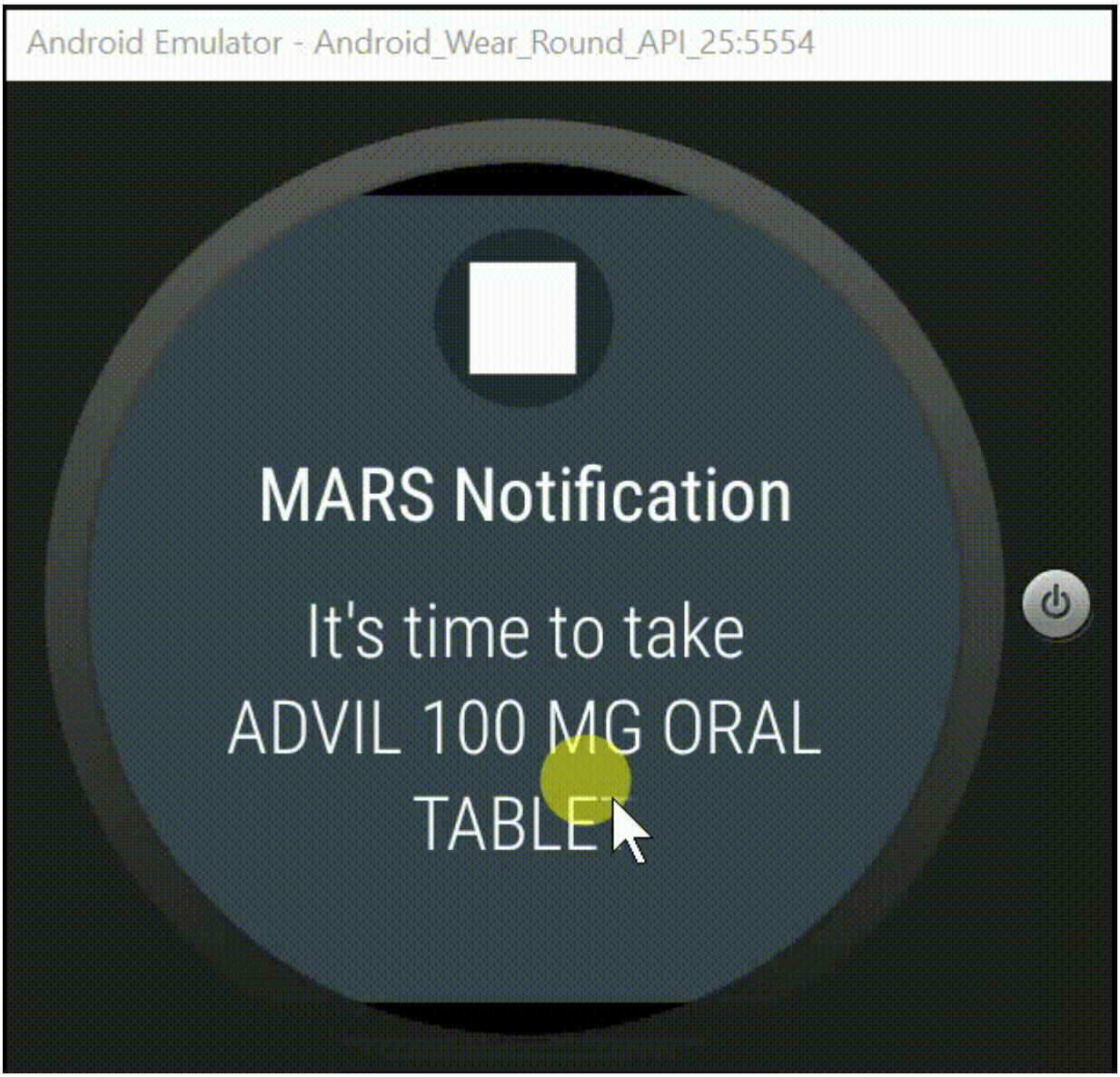
When the medicines count reaches 0, the Refill Notification is created as shown below.

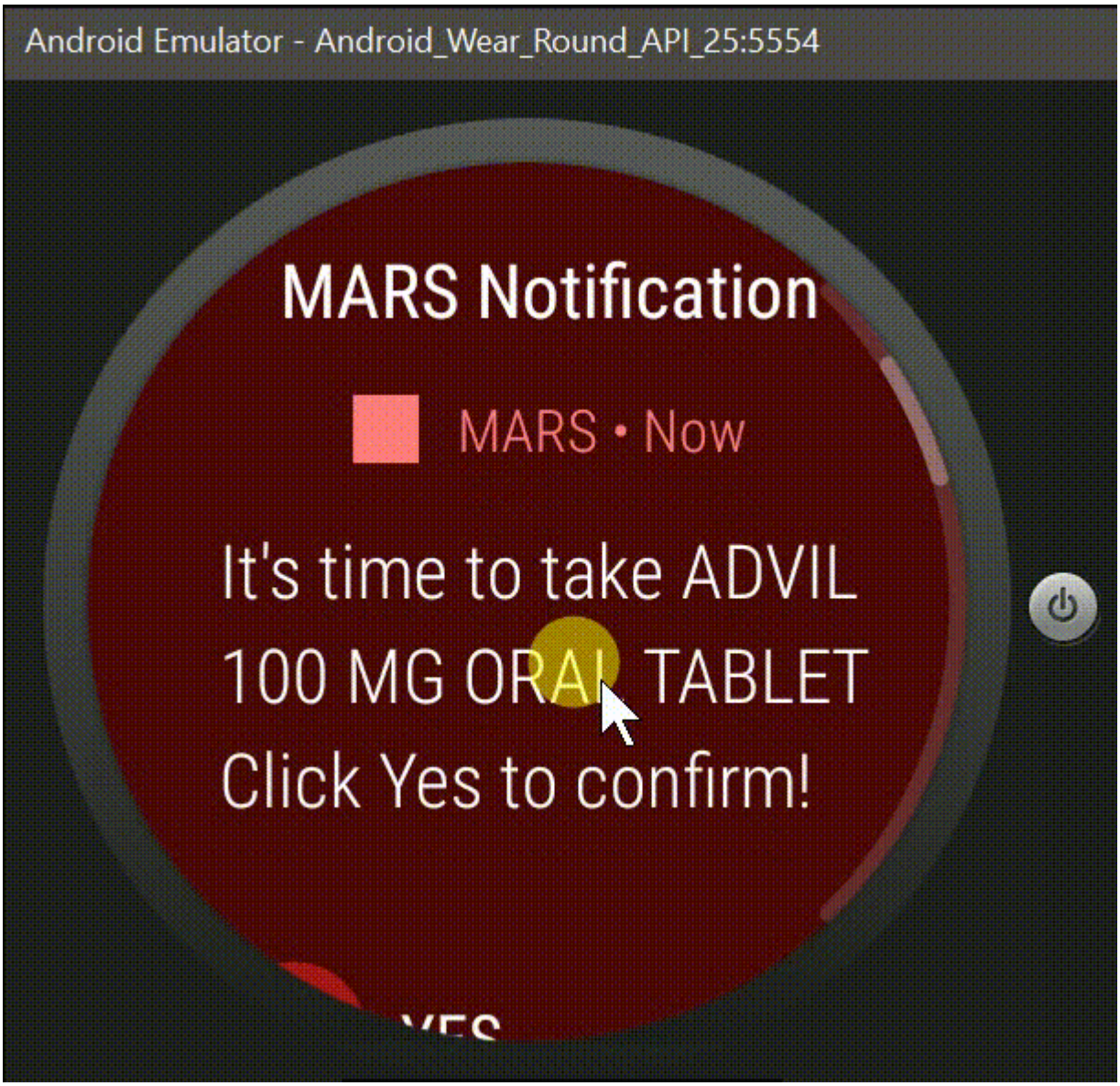


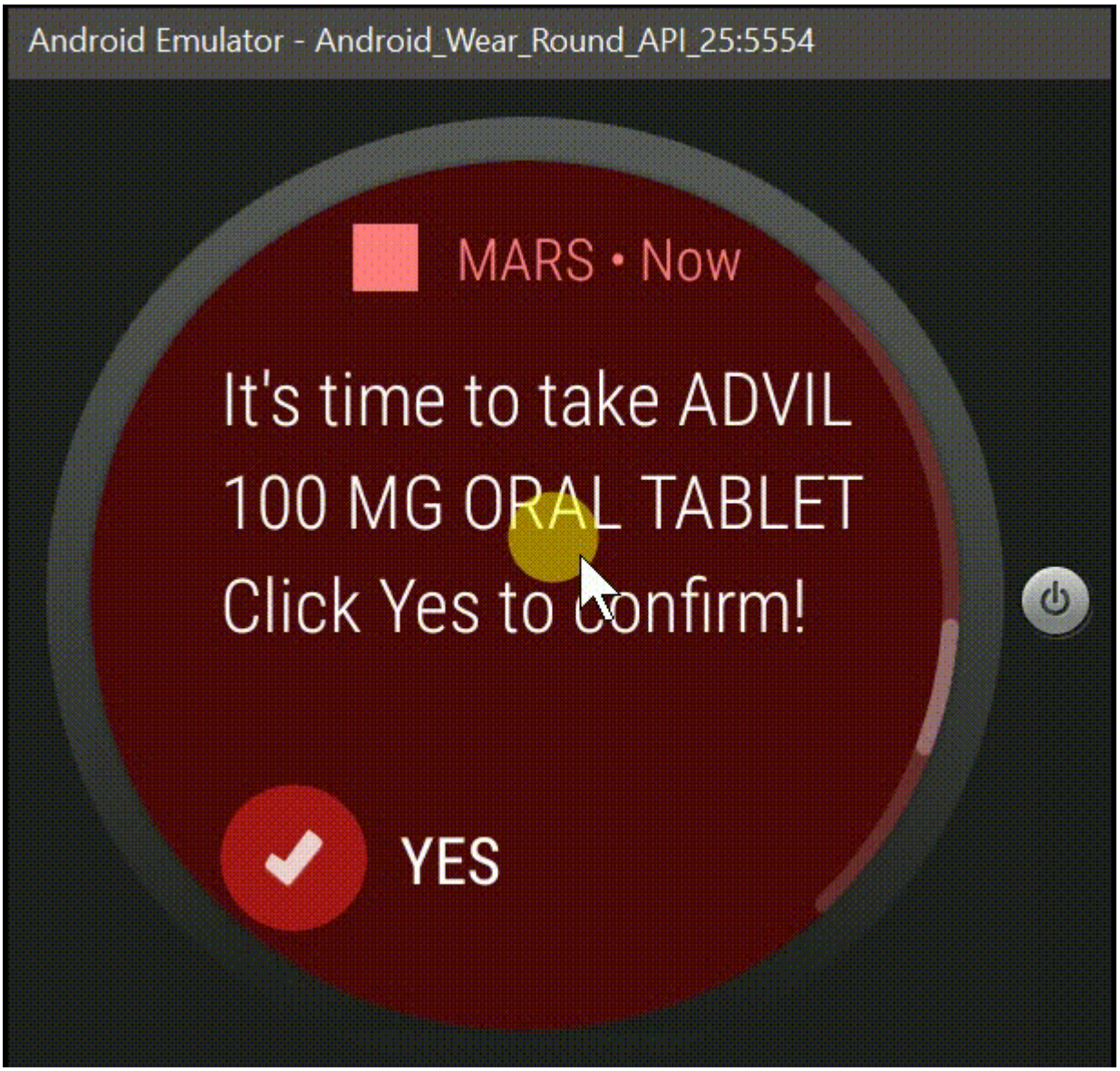
Smart Watch Implementation:

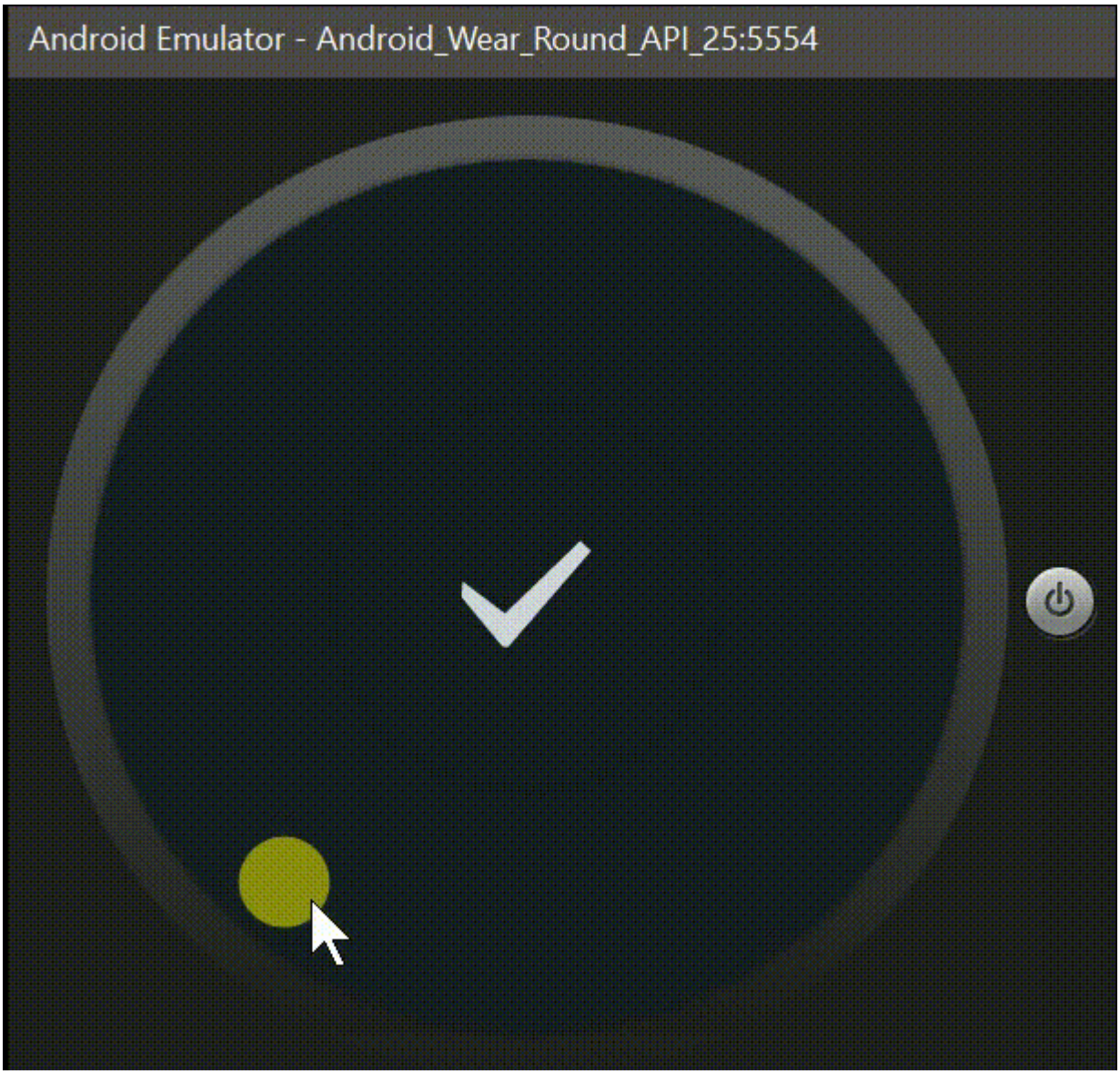
We deployed our Application to Smart Watch so that users get notifications to their own watches when their Android devices are not in reach.



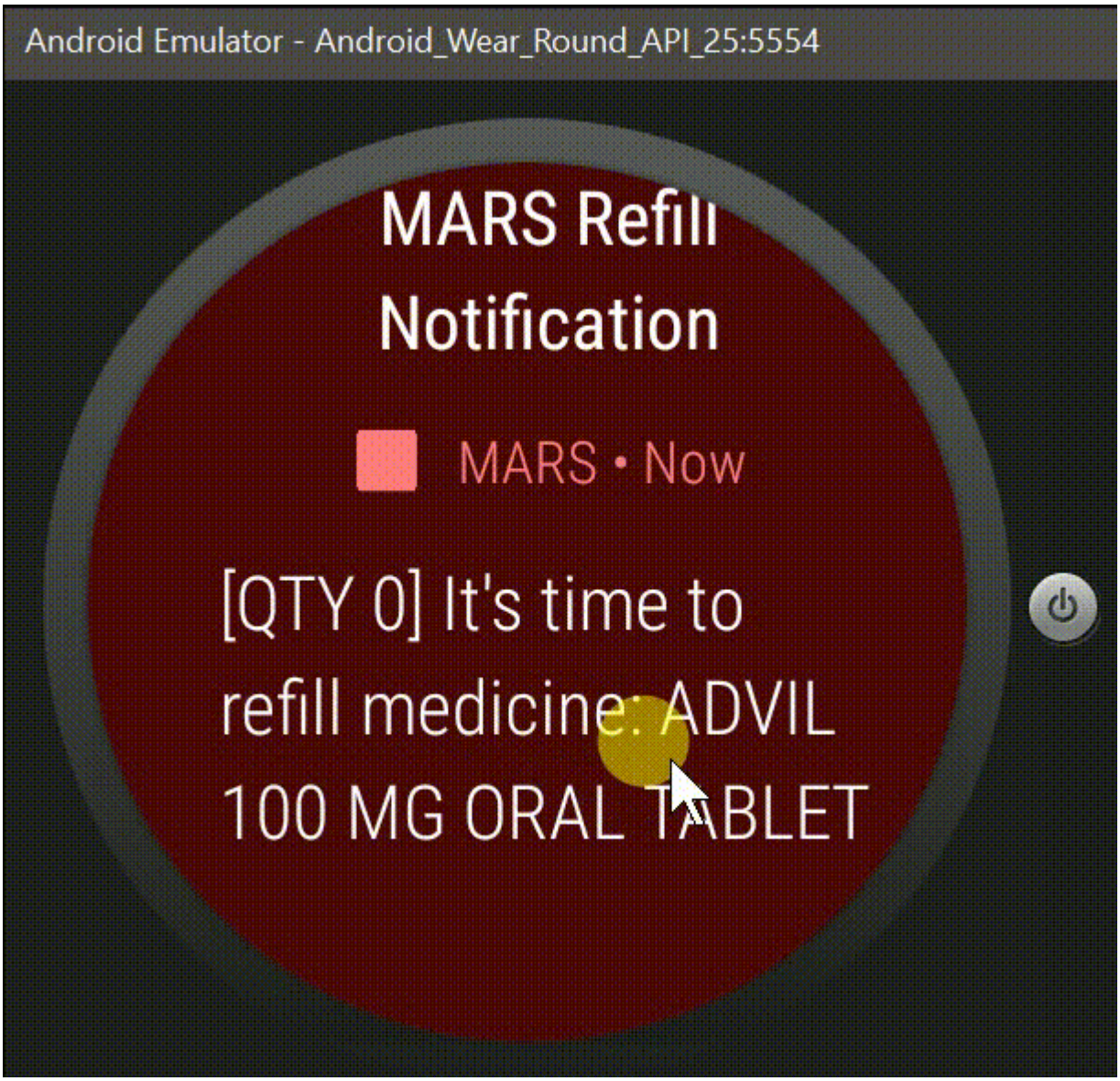

Android Emulator - Android_Wear_Round_API_25:5554
MARS Notification
It's time to take
ADVIL 100 MG ORAL
TABLET

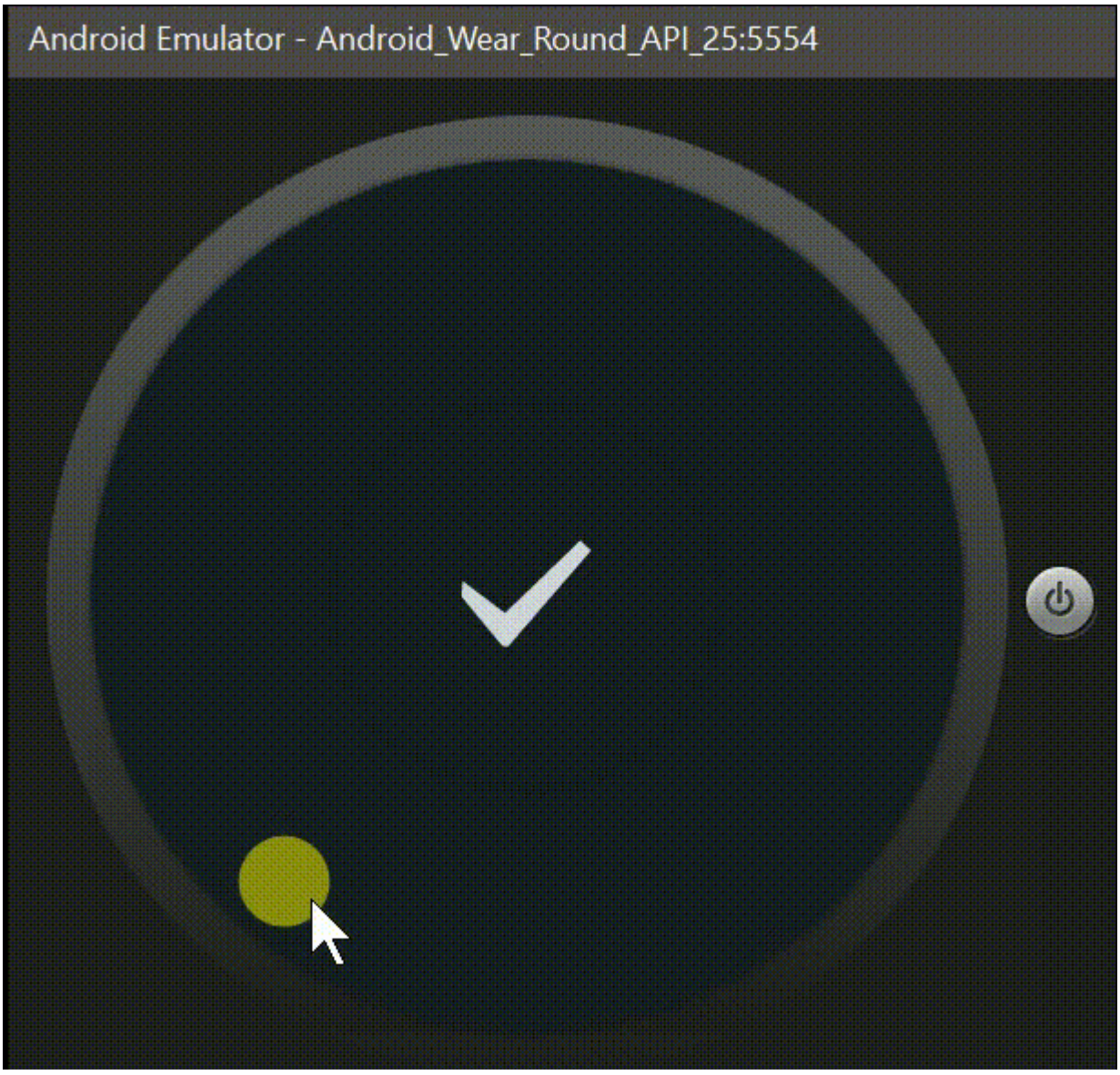

Android Emulator - Android_Wear_Round_API_25:5554
MARS Notification
MARS • Now
It's time to take ADVIL
100 MG ORAL TABLET
Click Yes to confirm!


Android Emulator - Android_Wear_Round_API_25:5554
MARS • Now
It's time to take ADVIL
100 MG ORAL TABLET
Click Yes to confirm!
YES


Android Emulator - Android_Wear_Round_API_25:5554


Android Emulator - Android_Wear_Round_API_25:5554
MARS Refill Notification
[QTY 0] It's time to refill medicine


Android Emulator - Android_Wear_Round_API_25:5554
MARS Refill
Notification
MARS • Now
[QTY 0] It's time to
refill medicine: ADVIL
100 MG ORAL TABLET


Android Emulator - Android_Wear_Round_API_25:5554

Existing Services/API

DailyMed API:

DailyMed provides high quality information about marketed drugs.This Web site provides health information providers and the public with a standard, comprehensive, up-to-date, look-up and download resource of medication content and labeling as found in medication package inserts. By using this API we can retrieve information related to a particular medicine.

URL: https://www.healthdata.gov/dataset/dailymed

AutoComplete API for medicine name:

This API is used to search medicine names from a common medicine repository.

Testing

Sr. No	Test Case	Description	Expected Output	Result
1.	Successful User Authentication	The user should login with username and password.	Successful Login	Pass
2.	Unsuccessful User Authentication	The user logs in with wrong username or password	Login unsuccessful with error- Invalid username or password	Pass
3.	Registration by new user	Admin accepts registration details from the user	Successful registration and transition to Login page	Pass
4.	Invalid Email ID	Invalid Email Id alert.	Error- Enter valid email address	Pass
5.	Inserting the data into AddActivity.	Details are stored in a separate file.	Data is saved and is redirected to MainActivity.	Pass
6.	Details stored in file are displayed on the MainActivity.	On click of the medicine icon displays all the details of the medicine entered in AddActivity.	On click redirects to UpdateActivity.	Pass
7.	Displays all the details stored previously in the AddActivity.	Medicine Information can be edited or the medicine can be	Updated details are again stored in the same file and if any medicine is	Pass

		deleted once it's course is done.	deleted then file related to that medicine is also deleted.	
8.	Medicine Alert notification creation.	Takes data from the file and alerts user/admin to take the pill.	On click of the 'YES' button sets the alarm off for that day.	Pass
9.	Medicine Refill Notification.	When a particular medicine is finished,then a Refill notification is created.	On click of the 'YES' button sets the alarm off for that day.	Pass
10.	Smart Watch Deployment.	The Medicine Alert and Refill Notifications are displayed on Smart Watch.	On click of the 'YES' button sets the alarm off for that day.	Pass

Technologies Used

Implementation of Mobile Apps- Technology Used:

- Java
- Android MVC architecture
- XML
- REST

Tools Used:

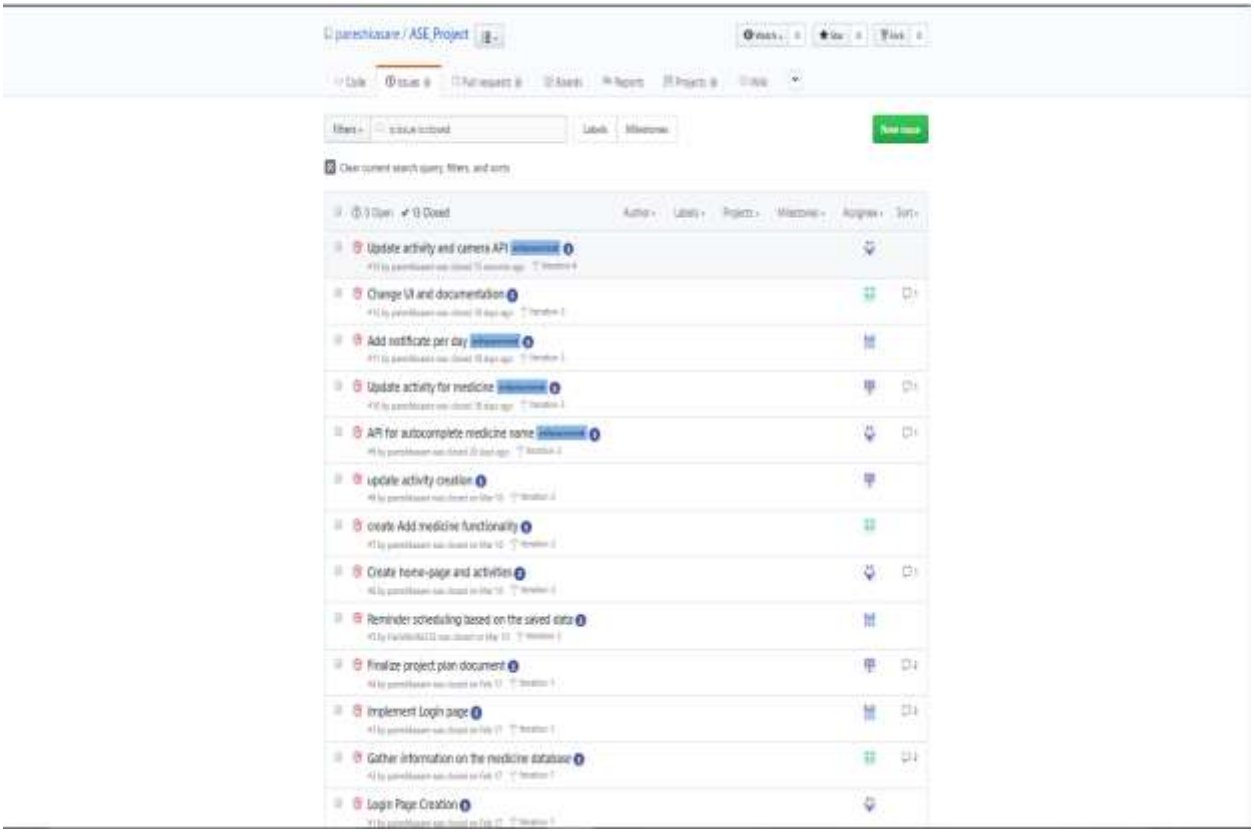
- www.Creately.com
- Android SDK

Project Management

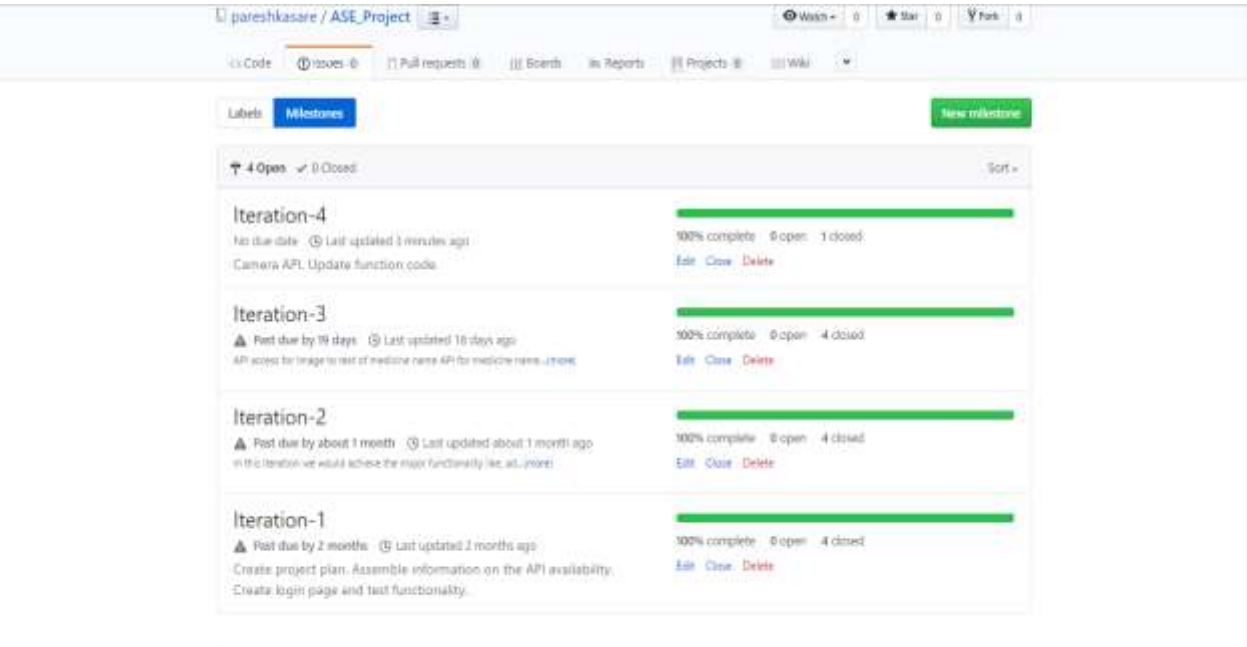
Work Completed:

- Design and Architecture of the Application
- Login and Registration.
- Gather Information on Medicine Database.
- Home Page Creation.
- Add Medicine Functionality.
- Update Medicine Information.
- API for AutoComplete medicine name enhancement.
- Notification Receiver and Read Notification Activities.
- Deploying the application on Smart Watch.
- Improving the User Interface of the application.

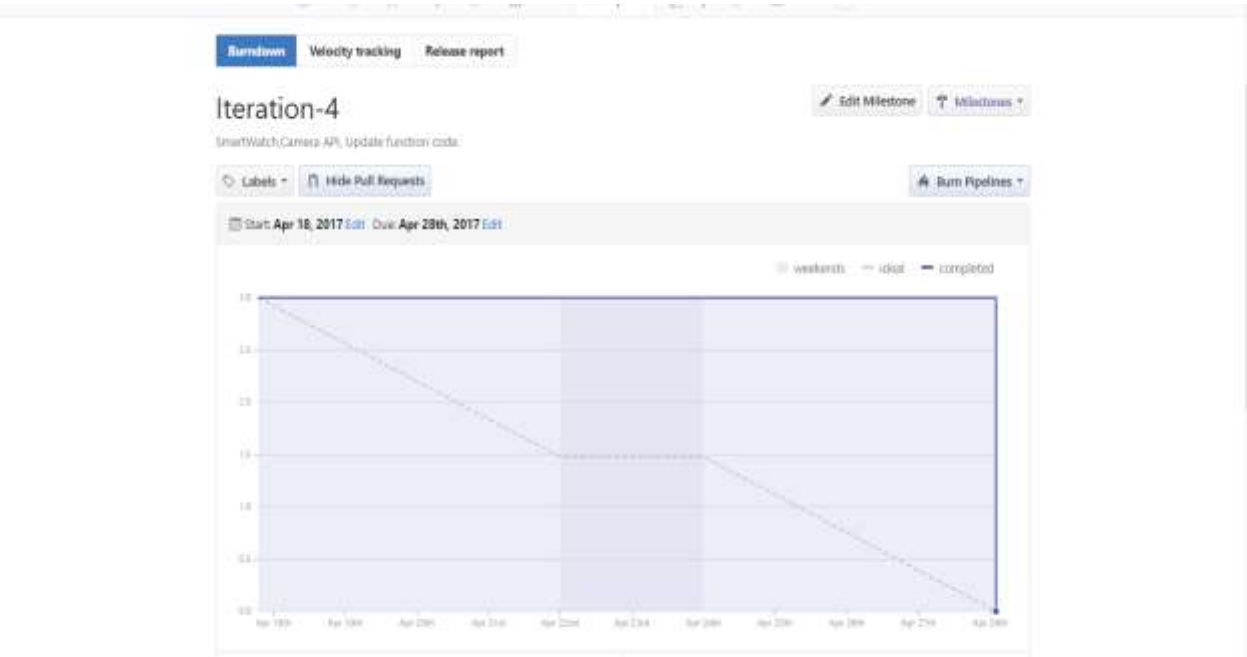
Issues:


pareshkasare / ASE_Project
Update activity and camera API
Change UI and documentation
Add notificate per day
Update activity for medicine
API for autocomplete medicine name
update activity creation
create Add medicine functionality
Create home-page and activities
Reminder scheduling based on the saved data
Finalize project plan document
Implement Login page
Gather information on the medicine database
Login Page Creation

Milestones:


pareshkasare / ASE_Project
Code
Issues
Pull requests
Boards
Reports
Projects
Wiki
Labels
Milestones
New milestone
4 Open
0 Closed
Sort
Iteration-4
Camera API. Update function code
100% complete 0 open 1 closed
Edit Close Delete
Iteration-3
Past due by 19 days
Last updated 18 days ago
100% complete 0 open 4 closed
Edit Close Delete
Iteration-2
Past due by about 1 month
Last updated about 1 month ago
100% complete 0 open 4 closed
Edit Close Delete
Iteration-1
Past due by 2 months
Last updated 2 months ago
Create project plan. Assemble information on the API availability.
Create login page and test functionality.
100% complete 0 open 4 closed
Edit Close Delete

Burndown Chart:



Contributions:

Paresh Sudin Kasare	Harish Kolla	Sreeya Reddy Daripalli	Ravali Nalla
Login and Registration Page Creation	Wireframes and UML	Gather medicine information and API's and UML	Project Plan Documentation
Create Main page and all activities	Reminder Scheduling based on saved data	Add medicine functionality	Update Activity creation
API for Autocomplete medicine name , Alarm creation, Broadcast Notification services creation.	Worked on Notification Activity	UI and Documentation	Worked on Update Activity
Update Activity, Alarm Management and Smart Watch extension with action buttons.	Documentation and Test Cases	Entire GUI for Application	Documentation and Test Cases

Bibliography

http://www.fda.gov/Drugs/ResourcesForYou/SpecialFeatures/ucm485545.htm

http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm164616.htm

http://www.pfizer.com/health/senior_health/taking_medicines

https://cloud.google.com/vision/

https://www.programmableweb.com/api/walgreens-pharmacy-prescription-refill

https://www.healthdata.gov/dataset/dailymed