

Medicine Alert and Reminder System (MARS)



Team Number :16

Team Members:

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Table of Contents

	<u>Topic</u>	<u>Page no</u>
I	Introduction	3
II	Project Goal and Objectives	4
III	First Increment Report	5
IV	Implementation	11
V	API	13
VI	Testing	15
VII	Technology Used	16
VIII	Project Management	17
IX	References	19

I.Introduction

Staying healthy and getting your medications exactly when your body needs them is vital, but sometimes you just forget. Taking your medication should be as easy and automatic as possible, not yet another thing you need to add to your mental checklist.

Phizer.com website states that 4 out of 10 adults who consume more than 1 prescribed medicine, either miss schedule or forget to take medicine completely. We believe that a system which continuously monitors or reminds the user of medicine consumption along with the dosage and directions could significantly improve effect of the medicines and in-turn help user avoid indirect losses incurred due to the mistake of skipping / forgetting medicines.

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.

II. Project Goal and Objectives

GOAL:

To develop an application that schedules and alerts the user about the medicine to be taken.

OBJECTIVES:

We have following objectives for MARS system to be able to function as all-inclusive system to manage medicine schedules.

- Develop an android application which will be able to alert and record medicine consumption date, time and accordingly manage inventory.
- Develop an application which will schedule the medicines to be taken.
- Image-to-text API is used in order to take picture and detect medicine to convert it into text so that it can be used to retrieve information about the medicine.

SYSTEM FEATURES:

Following are the feature in our system:

- **Medicine reminder:** Add your medicines with the recommended time and App will remind you to take medicines on time. Never miss a single dose of medicines as prescribed.
- **Medicine refill reminder:** Reminds you to place refill order with your pharmacy before you run out of your daily prescribed medicines.
- **Medicine schedule manager:** 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.

Significance:

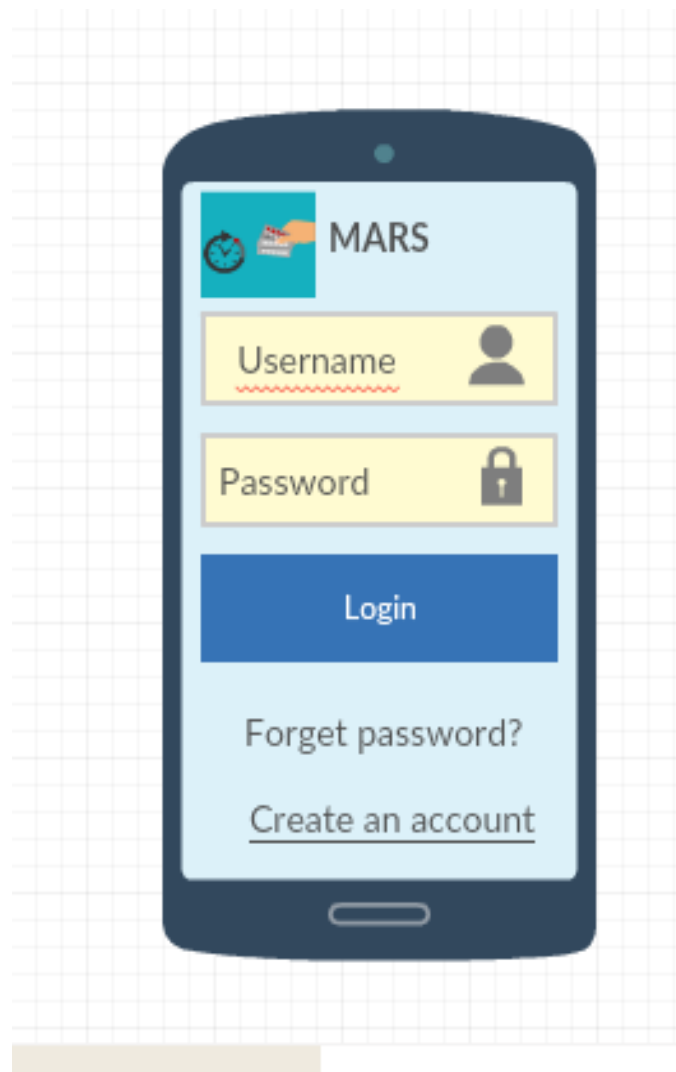
As per FDA.gov website, Centers for Disease Control and Prevention (CDC) estimates that non-adherence to taking medicines on time and at prescribed schedule could result in chronic disease treatment failure and in worst case it could lead to death of a person. MARS would really be helpful to avoid such circumstances which have lot of importance in user's life.

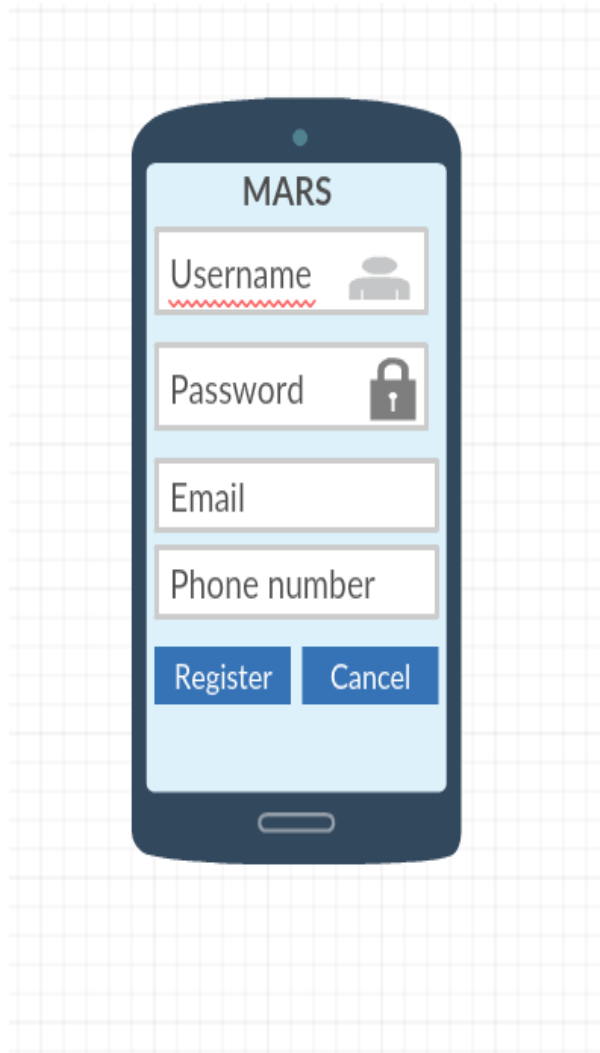
There are applications which remind people their medicine consumption times, **MARS** has multiple functions like Medicine reminder, Medicine refill reminder, Medicine schedule manager. All these functionalities make MARS system for medicine management.

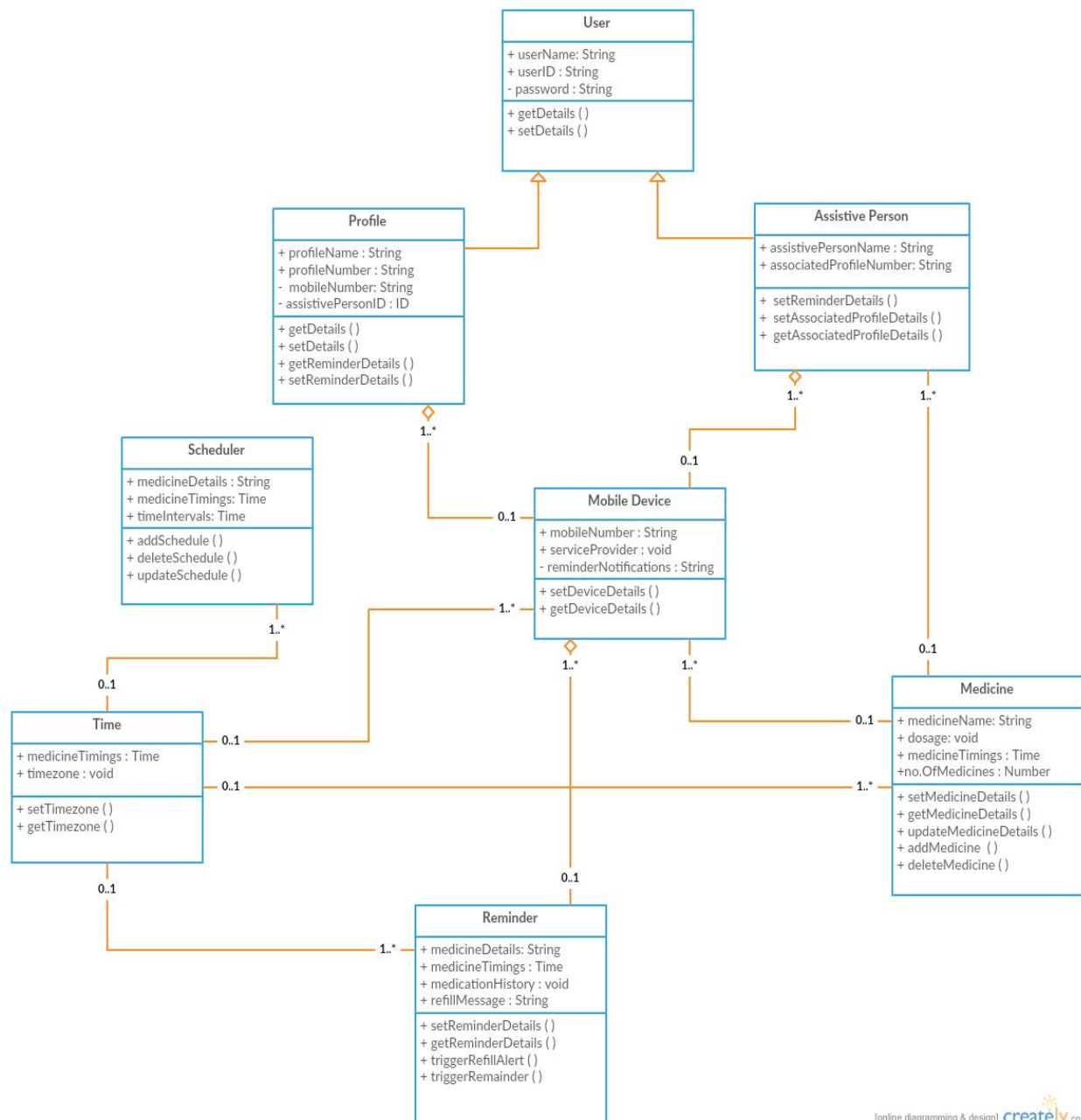
III. First Increment Report

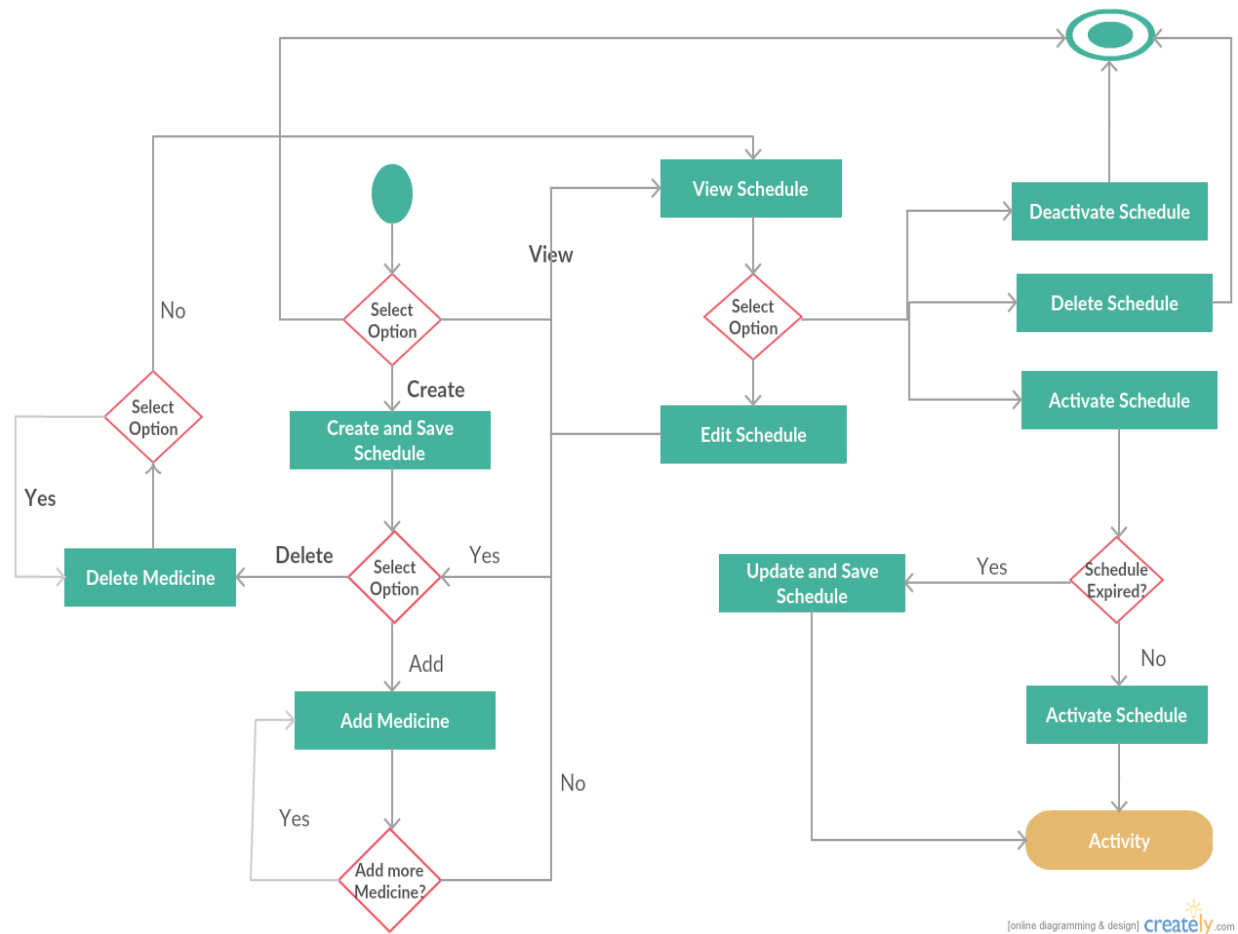
Detailed Design Features

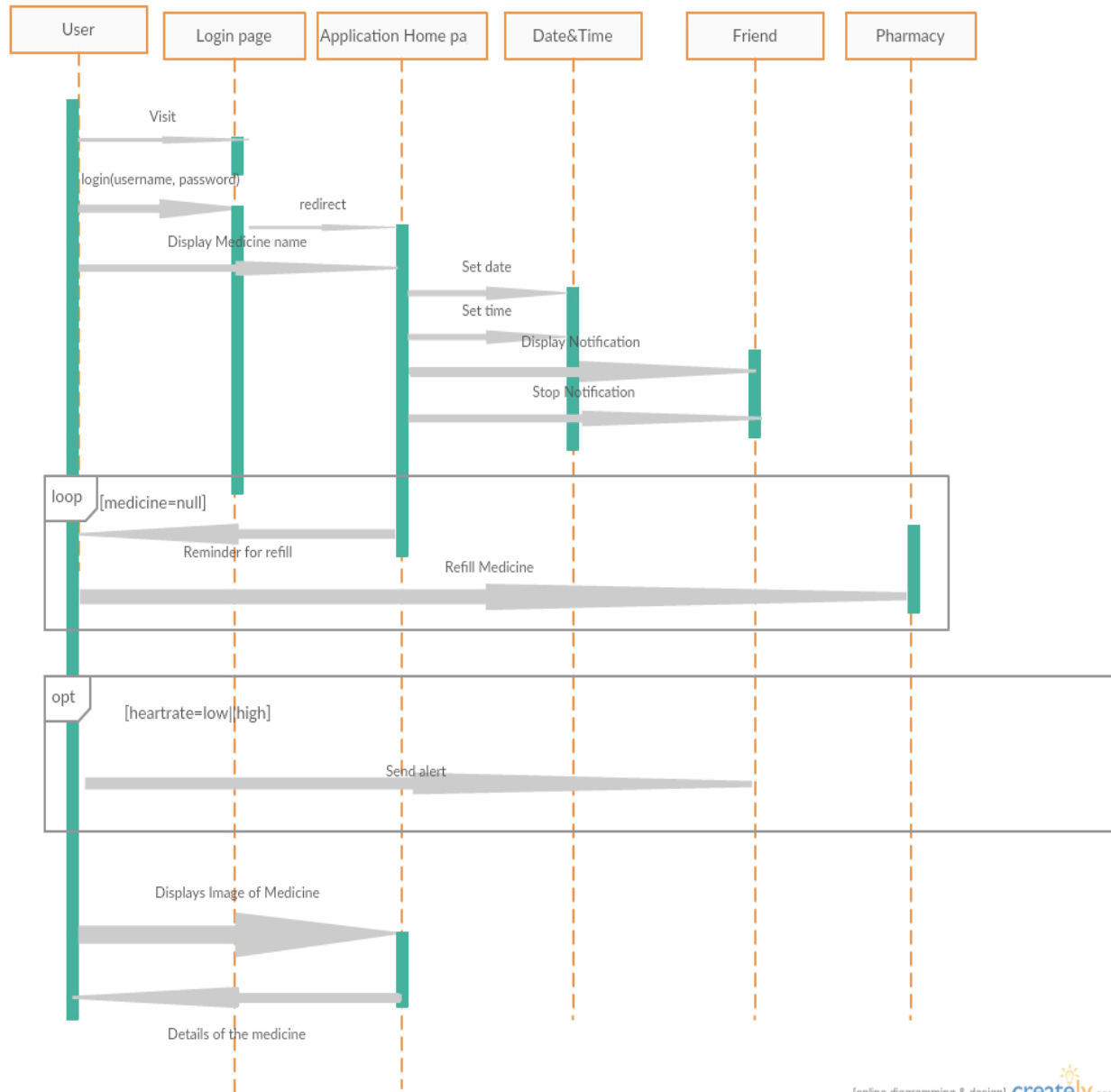
Login Wireframe:

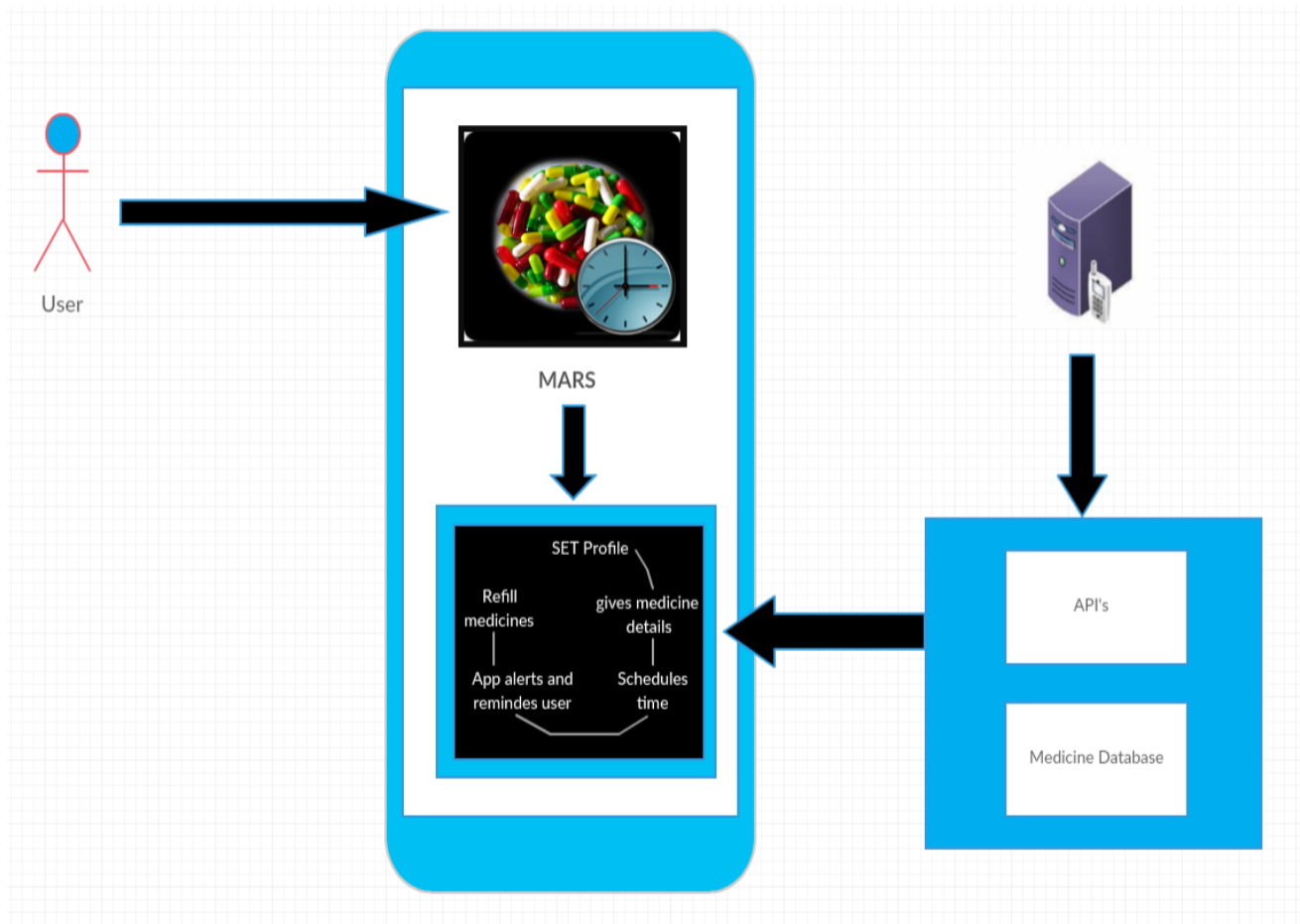


Register Wireframe:

Class Diagram:

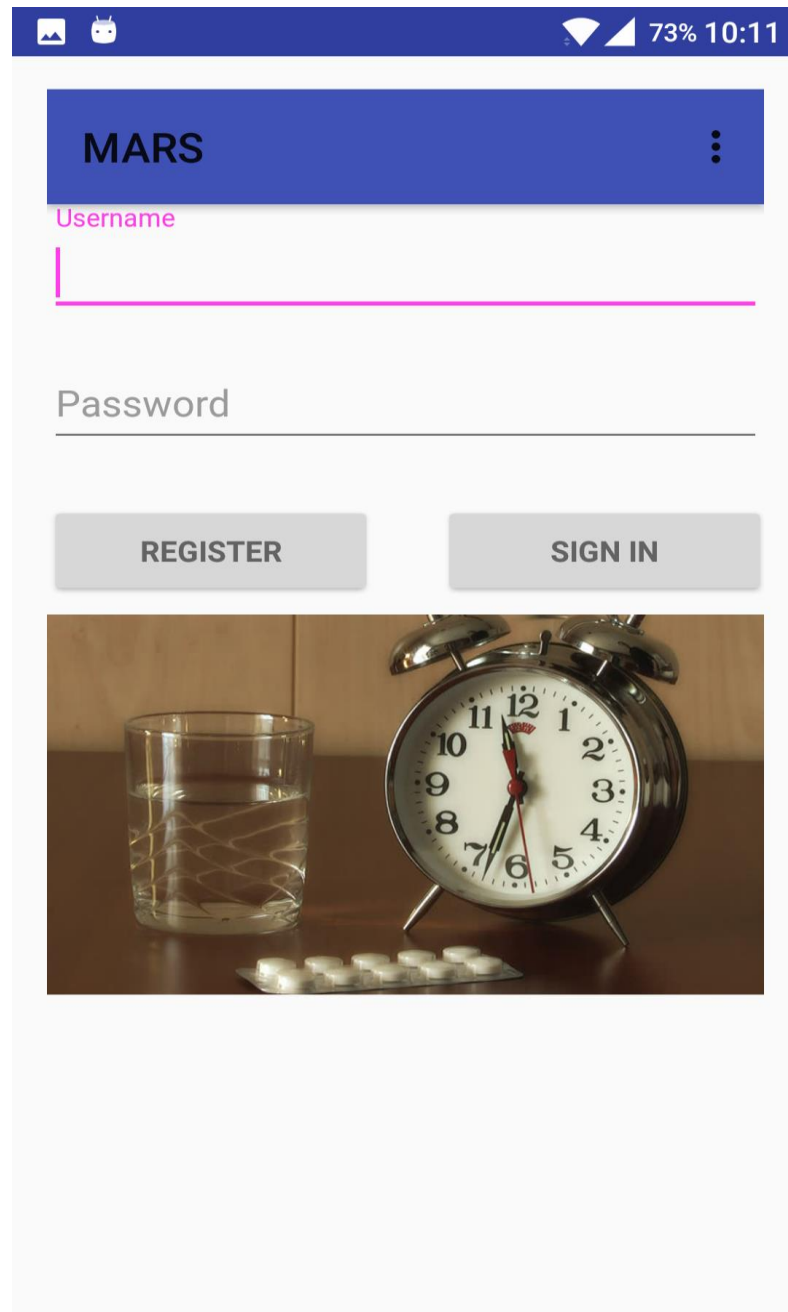
Activity Diagram:

Sequence Diagram:

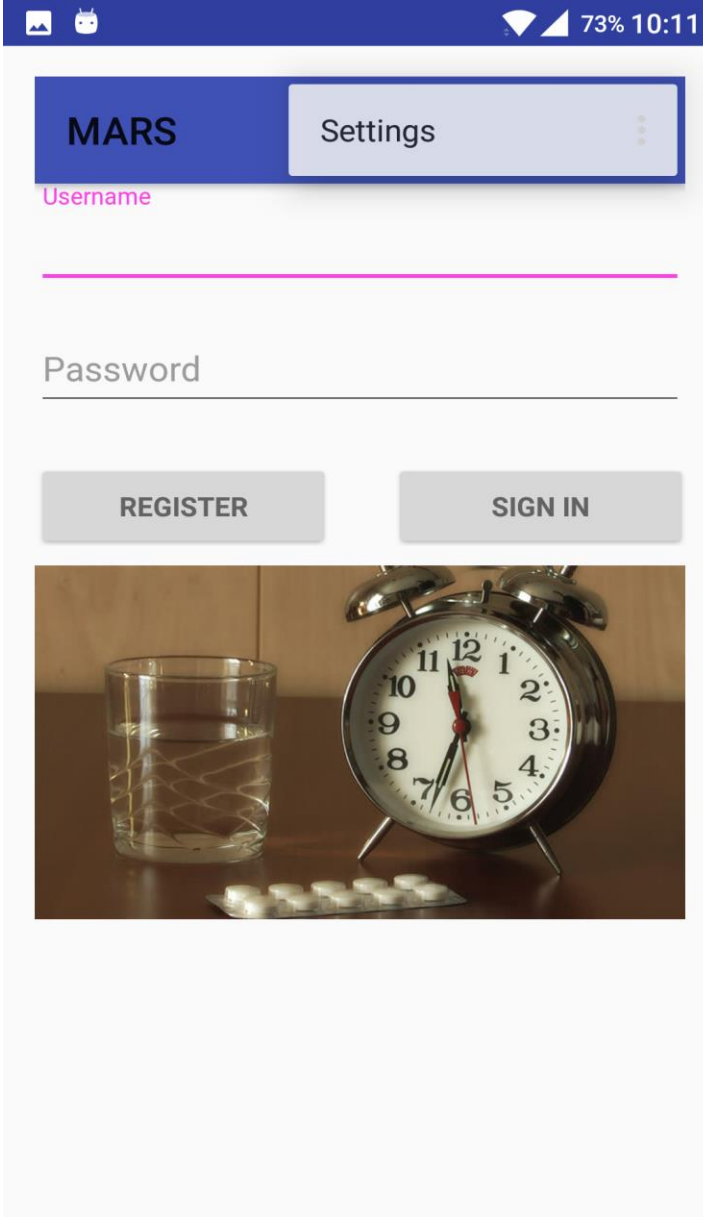
Architecture Diagram:

V. Implementation

Login Screen in Android:

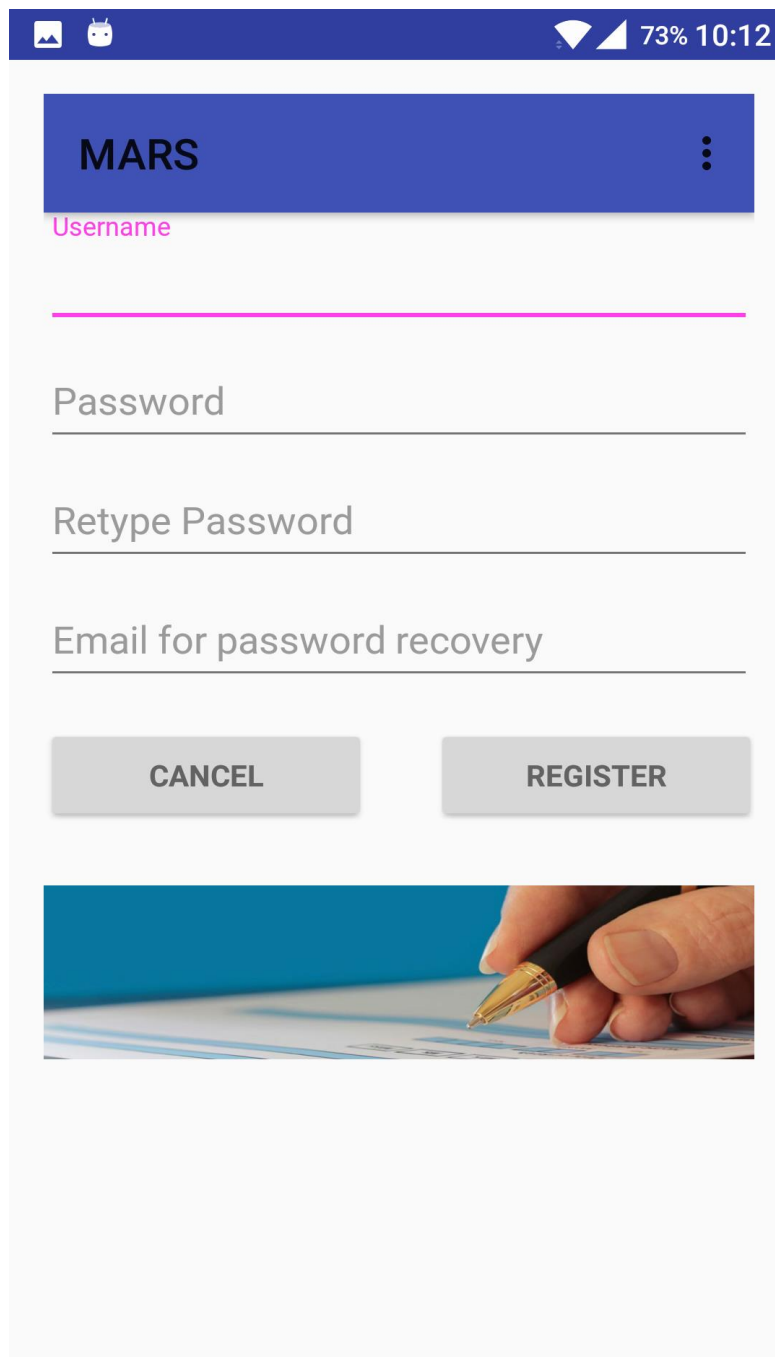


Login Screen with Settings:



The screenshot shows a mobile application interface for a login screen. At the top, there is a dark blue header bar with the text "MARS" in white. To the right of the header is a "Settings" button with a three-dot menu icon. Below the header, there are two input fields: "Username" (with a pink underline) and "Password" (with a grey underline). Below these fields are two buttons: "REGISTER" and "SIGN IN". At the bottom of the screen, there is a photograph of a glass of water, a silver alarm clock, and a blister pack of white pills.

Registration Screen in Android:



The image shows a registration screen for an Android application. At the top, there is a blue header bar with the text "MARS" and a three-dot menu icon. Below the header, there are four input fields: "Username" (with a pink underline), "Password" (with a grey underline), "Retype Password" (with a grey underline), and "Email for password recovery" (with a grey underline). Below the input fields, there are two buttons: "CANCEL" and "REGISTER". At the bottom of the screen, there is a banner image showing a hand holding a pen and writing on a document.

V.API's To Be Used

IMAGE-TO-TEXT:

Cloud Vision API

Google Cloud Vision API enables developers to understand the content of an image by encapsulating powerful machine learning models in an easy to use REST API. It quickly classifies images into thousands of categories, detects individual objects and faces within images, and finds and reads printed words contained within images. You can build metadata on your image catalog, moderate offensive content, or enable new marketing scenarios through image sentiment analysis. Analyze images uploaded in the request or integrate with your image storage on Google Cloud Storage.

Extract Text

Optical Character Recognition (OCR) enables you to **detect text** within your images, along with **automatic language identification**. Vision API supports a broad set of languages.

URL: <https://cloud.google.com/vision/>

MEDICINE REFILL:

Walgreens Pharmacy Prescription Refill API

The Walgreens Pharmacy Prescription API allows users of third-party mobile applications to quickly order refills of prescriptions originally filled at one of the 8,000+ Walgreens pharmacies. Mobile app users can order refills in seconds, as well as select the option to opt-in to receive a text alert when their prescription order is ready for pick up. The health care focused Pharmacy Prescription API is designed to increase prescription compliance and aid in personal health management through automated refill alerts and a streamlining of the refill process. By offering easy prescription refills through this health management API, Walgreens hopes to further increase health care adherence by reaching a wider audience through third party health care apps. So, by using API we can refill the medicines in the medicine box from time-to-time.

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

MEDICINE INFORMATION RETRIEVAL**DailyMed API:**

DailyMed provides high quality information about marketed drugs. This information includes FDA labels. 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>

VI. 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

VII.Technologies Used

Implementation of Mobile Apps- Technology Used:

- HTML
- CSS
- Javascript
- Java

Tools Used:

- www.Creately.com
- Android SDK

VIII. Project Management

Assigned issues:

The screenshot shows the GitHub interface for the repository 'pareshkasare / ASE_Project'. The 'Issues' tab is selected, displaying a list of 4 open issues. The issues are:

- Finalize project plan document** (Issue #4): Opened 4 days ago by pareshkasare, assigned to pareshkasare, labeled 'Iteration-1' and 'Review/QA'. 2 comments.
- Implement Login page** (Issue #3): Opened 4 days ago by pareshkasare, assigned to pareshkasare, labeled 'Iteration-1' and 'Done'. 2 comments.
- Gather information on the medicine database** (Issue #2): Opened 4 days ago by pareshkasare, assigned to pareshkasare, labeled 'Iteration-1' and 'Done'. 2 comments.
- Login Page Creation** (Issue #1): Opened 4 days ago by pareshkasare, assigned to pareshkasare, labeled 'Iteration-1' and 'In Progress'. 0 comments.

At the bottom of the page, there is a footer with copyright information: © 2017 GitHub, Inc. and links to Terms, Privacy, Security, Status, Help, Contact GitHub, API, Training, Shop, Blog, and About.

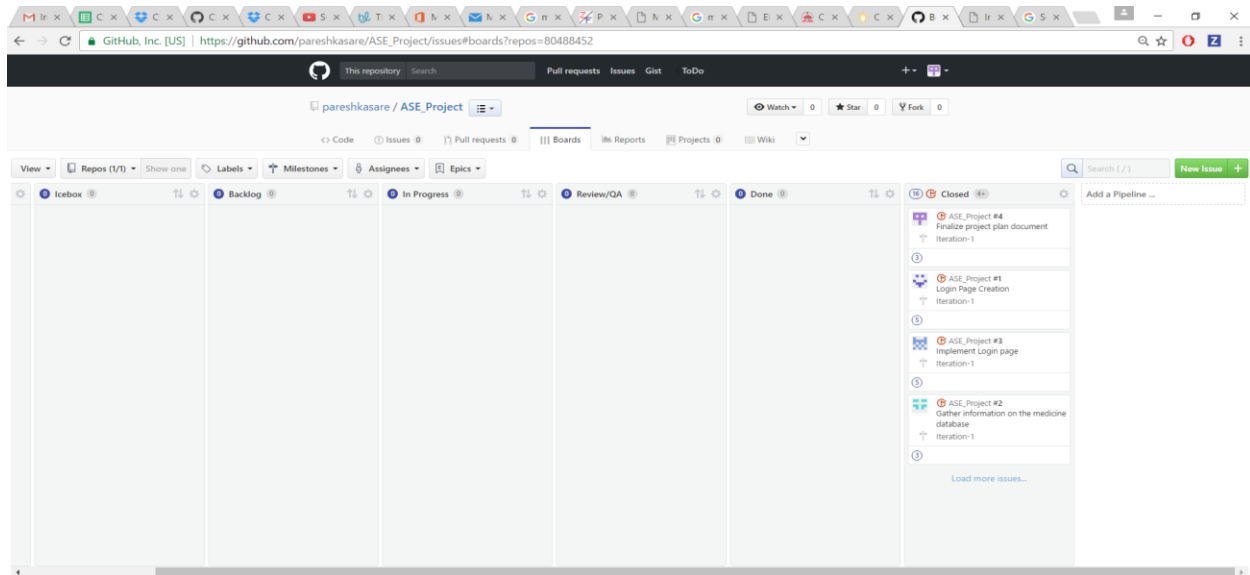
Issues:

The screenshot shows the GitHub Boards view for the repository 'pareshkasare / ASE_Project'. The 'Boards' tab is selected, displaying a Kanban board with the following columns:

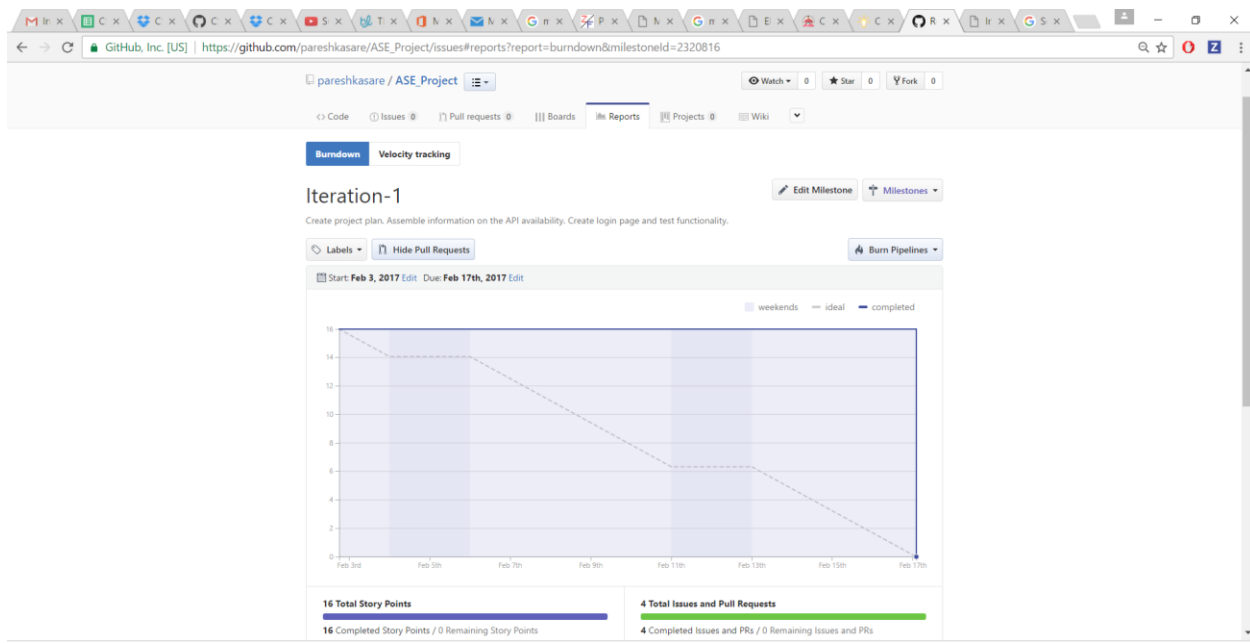
- New Issues**: 0 issues.
- Icebox**: 0 issues.
- Backlog**: 0 issues.
- In Progress**: 2 issues.
 - ASE_Project #1: Login Page Creation (Iteration-1)
 - ASE_Project #4: Finalize project plan document (Iteration-1)
- Review/QA**: 1 issue.
 - ASE_Project #3: Implement Login page (Iteration-1)
- Done**: 2 issues.
 - ASE_Project #2: Gather information on the medicine database (Iteration-1)
 - ASE_Project #1: Login Page Creation (Iteration-1)

The board also includes a search bar and a 'New Issue' button in the top right corner.

Closed Issues:



Burndown Chart:



IX. References

<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>