CSUDH HEALTH APP

Darshit Shah, Satish Divvi

Software Design Specification Document

Version: 1.2 Date: 12/06/2017

Created by:	Satish Divvi, Darshit Shah	Date: 10/12/2017
Reviewed by:	Satish Divvi, Darshit Shah	Date: 10/14/2017
Updated by:	Satish Divvi	Date: 12/06/2017
Approved by:	Darshit Shah	Date: 12/07/2017

Contents

1. Introduction

1.1 Purpose

Main objective of this document is to provide details of scope of the project, design, components, functions of each component, constraints, splitting up of different modules and their functions, and architecture.

1.2 Scope

CSUDH Health app is intended to notify users that a user is in emergency and needs assistance with specific blood type. With basic details like blood type and location, and with one click, application will send notification to respective users whose blood type will be useful to the needy.

Application can be used by anyone who is member of CSUDH family. Simple application but very much useful, especially in case of emergency when specific blood type is needed and not available in nearest blood bank.

1.3 Definitions, acronyms, and abbreviations

Term	Definition
API	The Application Programming Interface is a set of routines, protocols and tools for building software application.
Database	Collection of all the information monitored by the system
GUI	Graphical User Interface
Software Requirements Specification	A document that completely describes all the functions of a proposed system and the constraints under which it must operate. For example, this document
Stakeholder	Any person with an interest in the project who is not a developer
User	An individual using application

2. Overview

2.1 Product Perspective

This document has various division like architecture, modules, constraints or minimum requirement to keep the application fully functional, user interface, specific color for the screen, font size, font color, layout etc.

System architecture: This section describes various modules among which whole application has been divided, how will it be developed, what are the components will be used, how integration of different modules will be done, how will be the user interface, background color, font color and size, and outer finish of the application.

Modules: Home page, registration, log-in, blood requirement, send notification and reply to the notification component, history of individual user, and module which includes total number of users with respective blood type.

2.1.1 Design Method

N/A

2.1.2 User Interfaces

CSUDH Health app will interact with its users in two ways. The main way to interact with this system is through its Graphical User Interface (GUI). Users will be provided with all the necessary facilities to operate the system through this interface.

Another way of interaction is through notifications. Apart from the requested user every other designated person will receive notification of the request. Since the system is specifically designed for android mobile devices, the notification interface is standardized and variations do not have to be accounted for.

2.1.3 Hardware Interfaces

The main hardware interface will be an android-capable device, such as android smartphone or an android tablet.

2.1.4 Software Interfaces

To obtain the necessary functionality, users are required to have a minimum Android version 4.4, “KitKat”. The target Android version for this system is 7.1, “Nougat”; however, anything from version 4.4 and up will be supported.

2.1.5 Memory Constraints

There are no specific memory constraints. Any device capable of running the specified software interfaces as mentioned in section "2.1.4" will be able to use this application.

2.1.6 Operations

To align to the primary purpose of the application, CSUDH Health App will be operated in a very simple way. After successful registration, whenever user needs blood, just one click, few details, and notification will be sent with firebase cloud base services. On click of the notification, application will show the details entered by the requested user

2.1.7 Site Adaptation Requirements

There are no site adaptation requirements apart from installing "CSUDH Health App" on the android device.

2.2 Product Functions

The following is a high-level overview of "CSUDH Health App" functionalities available to its users:

1. System shall provide a way for a new user to register with a valid CSUDH email address, password, first name, last name, and blood type.
2. System shall authenticate an attempt to login. If authentication fails, user shall be instructed to reattempt login.
3. System shall provide an option to the user to logout, at which point that user shall be taken to the login screen.
4. A user may send notification by selecting required blood type and details of where is it required.
5. Notification shall be sent to other users whose blood type is matched with the required blood type or compatible for the required blood type.
6. Notification shall be available off-line i.e. without internet connectivity.
7. Notification shall be floating on the android device which will mandate user to check at least once regarding the trigger notification.
8. A user may view details of past sent notifications along with details.
9. Application will keep records of all users' requests.
10. The system shall provide an option to edit personal details like first name, last name, blood type, etc.
11. The system shall provide an option to clear the user's notifications screen.

2.3 User Characteristics

N/A

2.4 Constraints

N/A

2.5 Assumption and Dependencies

N/A

2.6 Apportioning of Requirements

N/A

3. Design Considerations

3.1 Operating Environment

N/A

3.2 Fault Tolerant Design

N/A

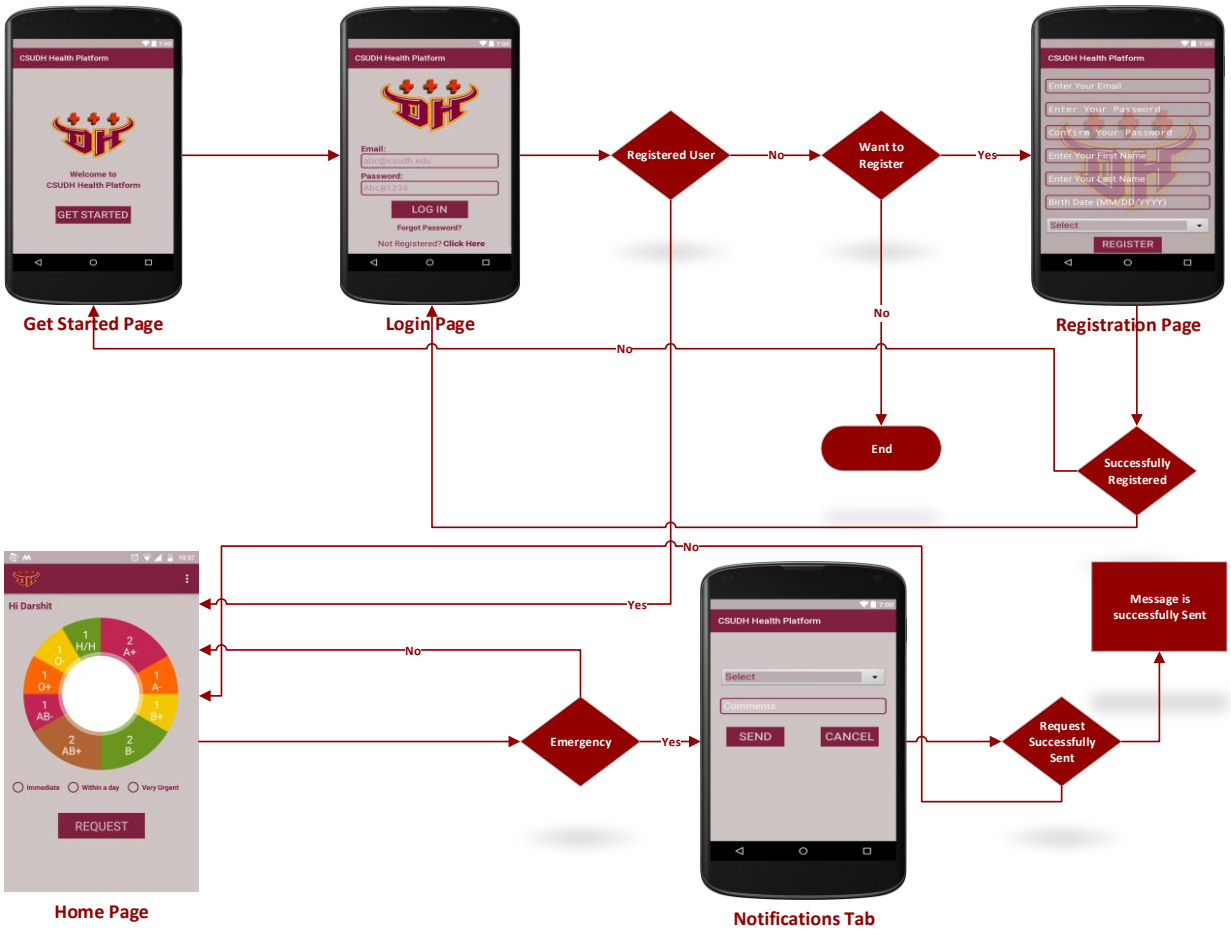
3.3 Design Conventions

N/A

3.4 Architectural Design

N/A

3.5 Structure and relationships:



3.6 User Interface

Components	Definition
Home page	Logo, title and purpose of the application
Registration	User registration details will be captured
Log-in	Authenticated user can log-in with e-mail and password
Blood type requirement	To interact with the user who requires specific blood type
Send notifications and reply to the notification	To send the notification to respective users and reply to the user with specific details
History of specific user	To show till date history of sent notification, replied to the notification to the logged-in user
Total number of users	To show total number of users of the application with blood type

3.6.1 Home Page

Home page contains logo, title of the app and what this application is for. We will use the mentioned colors for font, back ground and specific size for the font to sync it with CSUDH web application. As we want to make this app as enormous part of the CSUDH.

3.6.2 Registration

Registration module includes all basic and required information of the user like first name, last name, blood type, email address, password, and date of birth. For the storage and access of the data firebase provides real time database which comes handy in use, so it will be used.

3.6.3 Log-In

Log-in module will take care of authentication, encryption, decryption, only allow authorized person to use the app. For the authentication process, firebase services will be used which can be integrated with android studio on which whole application is going to be developed.

3.6.4 Blood Type Requirement

Blood type requirement interact with user with simple interface. User should provide blood type, and blood is required by what time and by clicking a button, notification will be sent to respective users. Along with blood type, and time duration, if user wants to provide addition details like address or mobile number, text area will be provided to the user.

3.6.5 Send Notifications and Reply to The Notification

Send notification and reply to the notification gives facility to send notification to other users while to receiving user it provides facility to communicate with the needy in one click and one text area. Firebase cloud messaging service will be used to deal with notification module.

3.6.6 History of Individual User

To display history of the logged-in user with details like number of times sent notification for the blood type, and replied to the specific notification received with date and time.

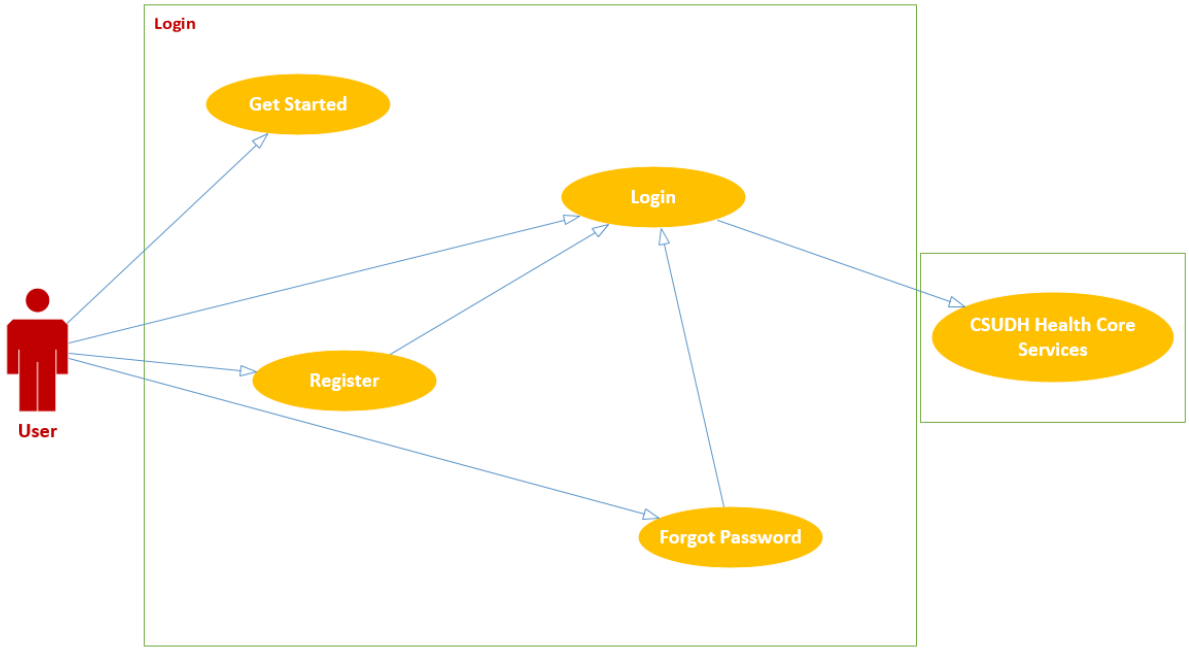
3.6.7 Total number of Users

This module will include the functionality of displaying number of users with blood type with real time update so that it will be helpful to the needful user to find number of users with blood type in the application.

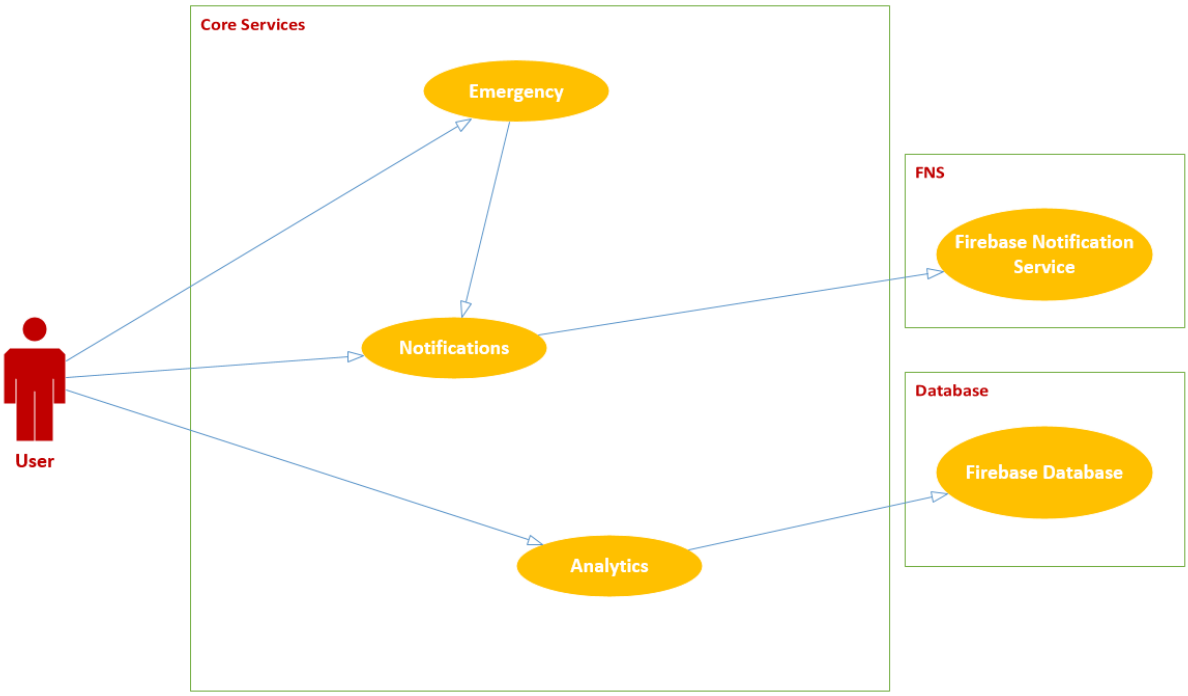
4. Figures

4.1 Use Cases

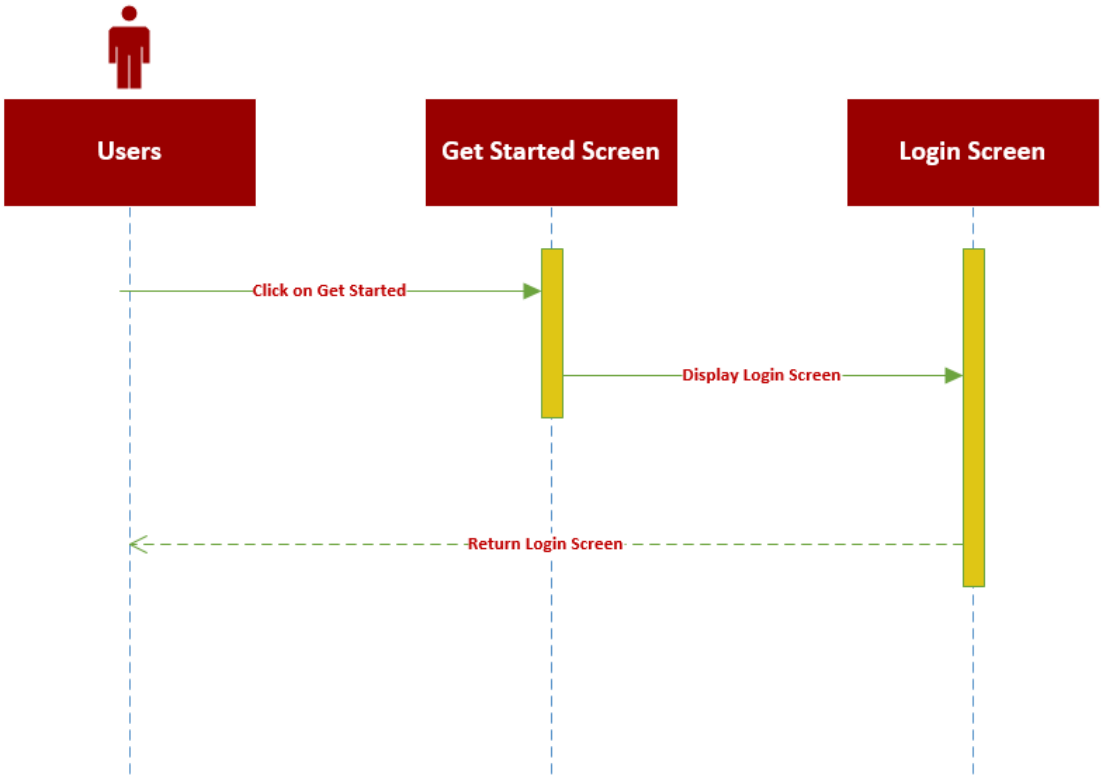
4.1.1 Login



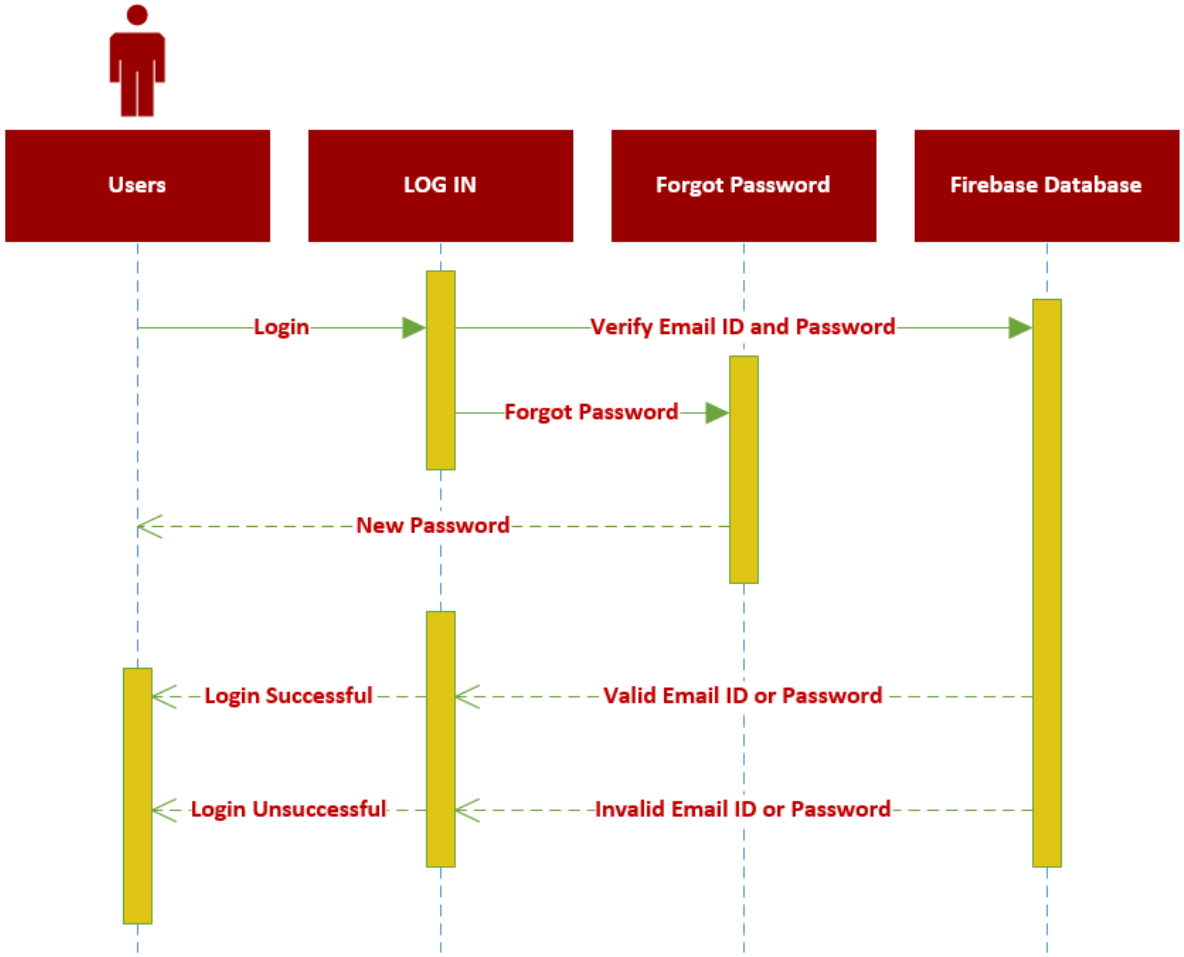
4.1.2 CSUDH Core Services



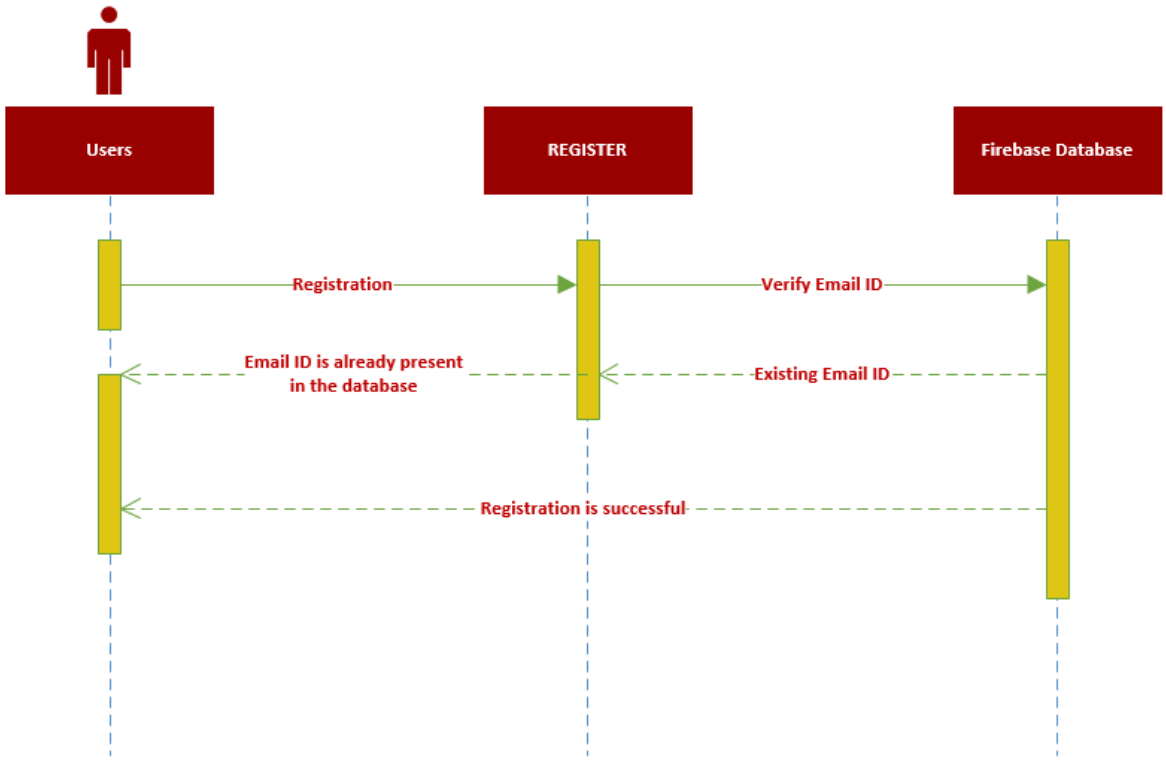
4.2 Get Started Sequence



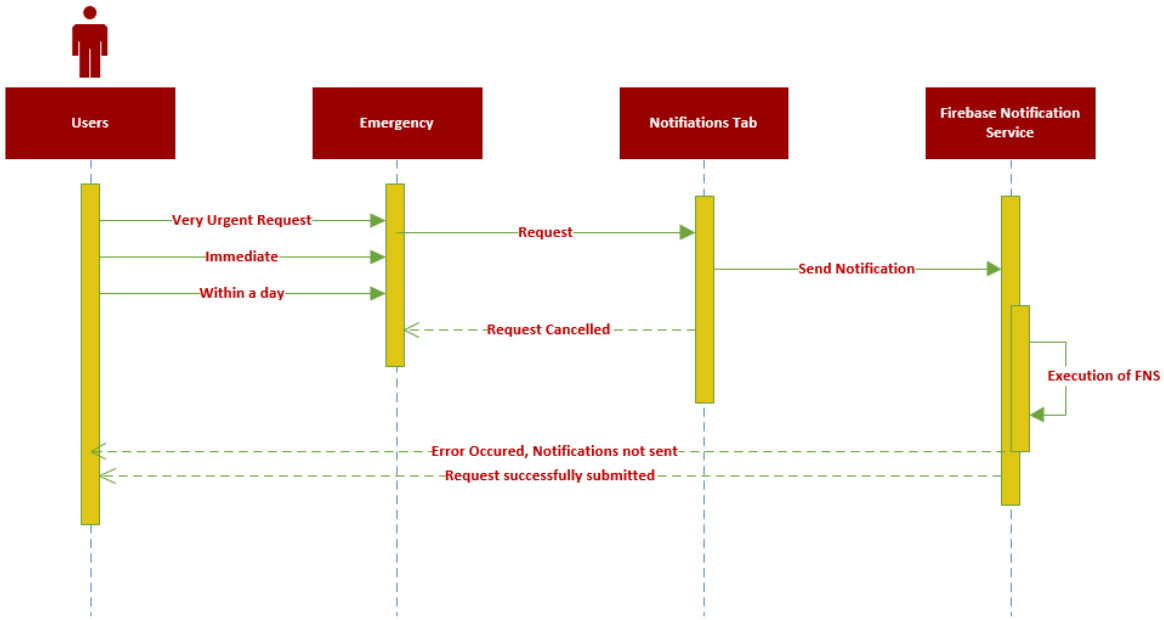
4.3 Login Sequence



4.4 *Registration Sequence*

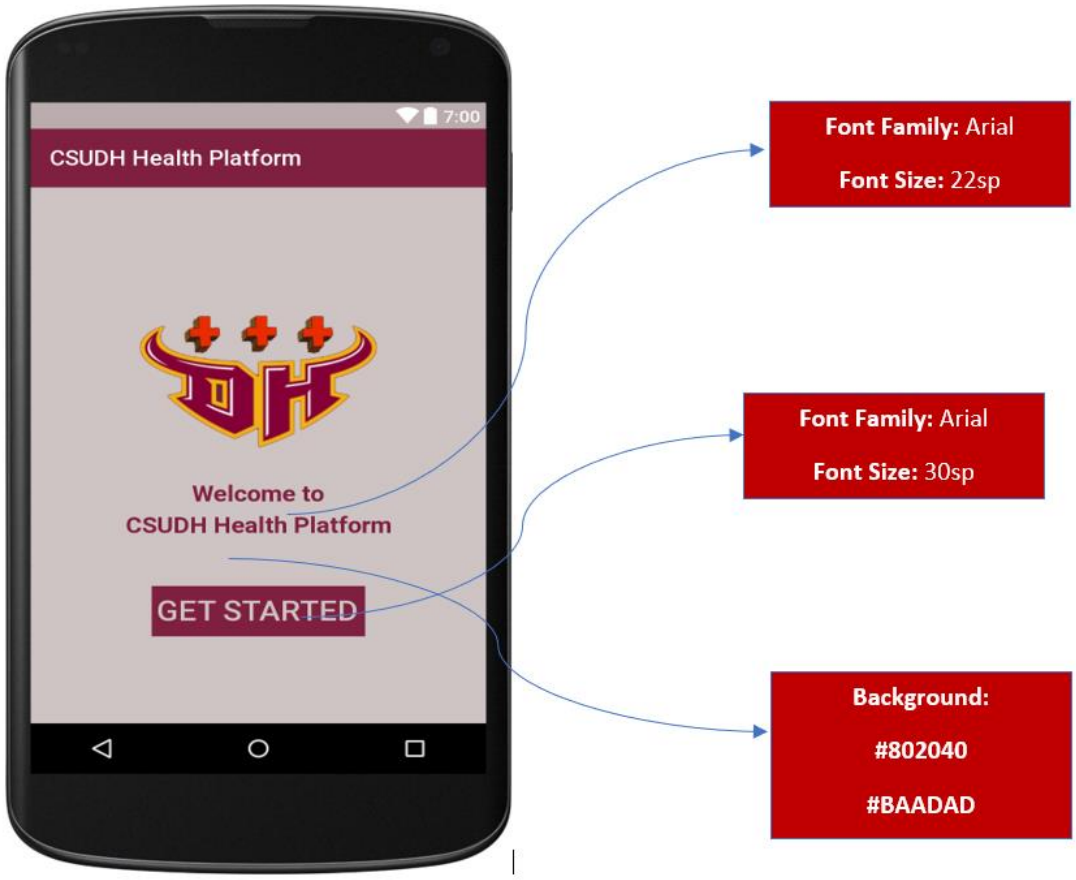


4.5 Emergency and Notification Service Sequence

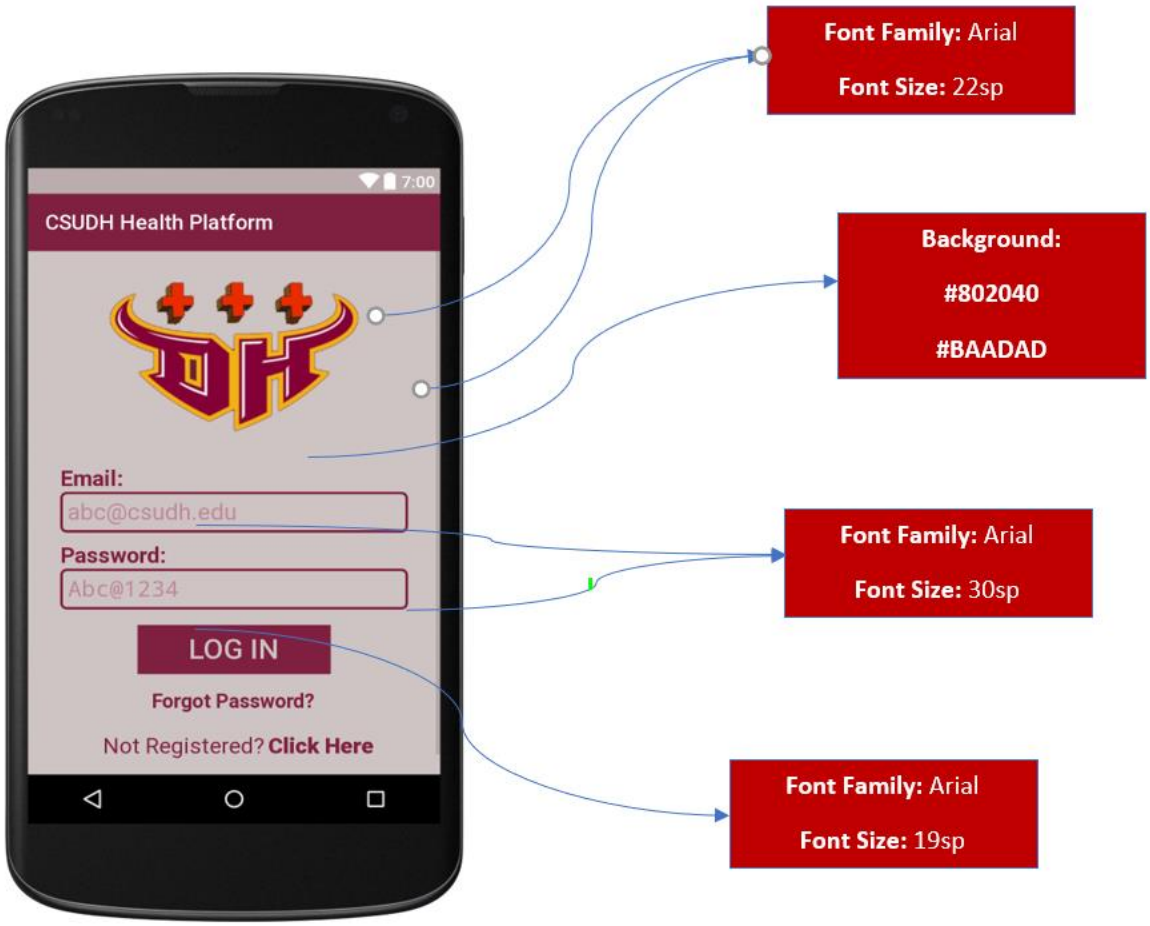


4.6 Style

4.6.1 Get Started Page Fonts Figure

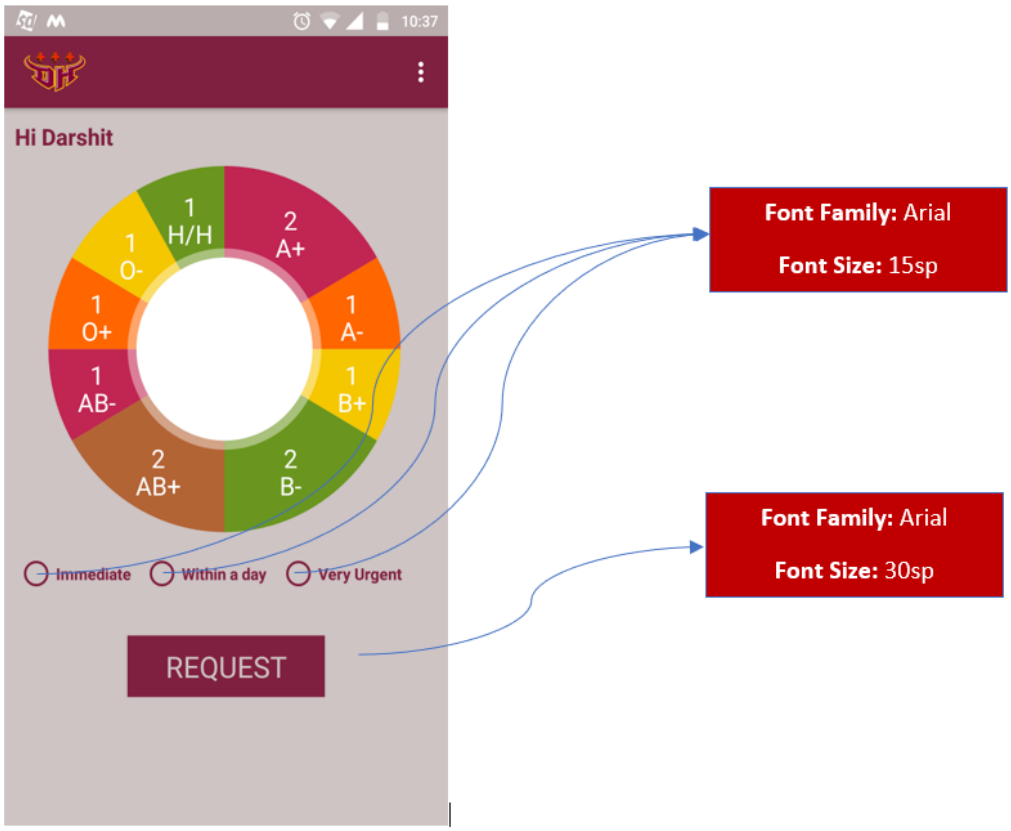


4.6.2 Login Page Fonts Figure

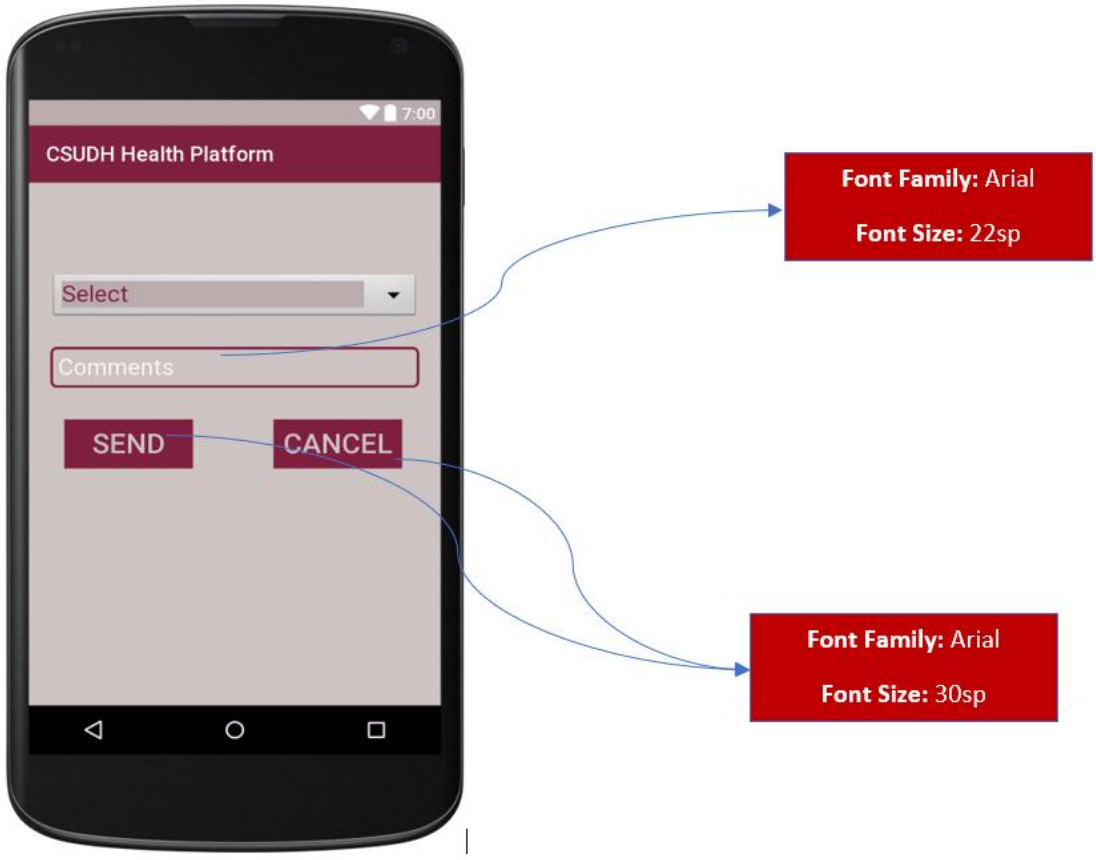


4.6.3 Registration Page Fonts Figure

4.6.4 Home Page Fonts Figure

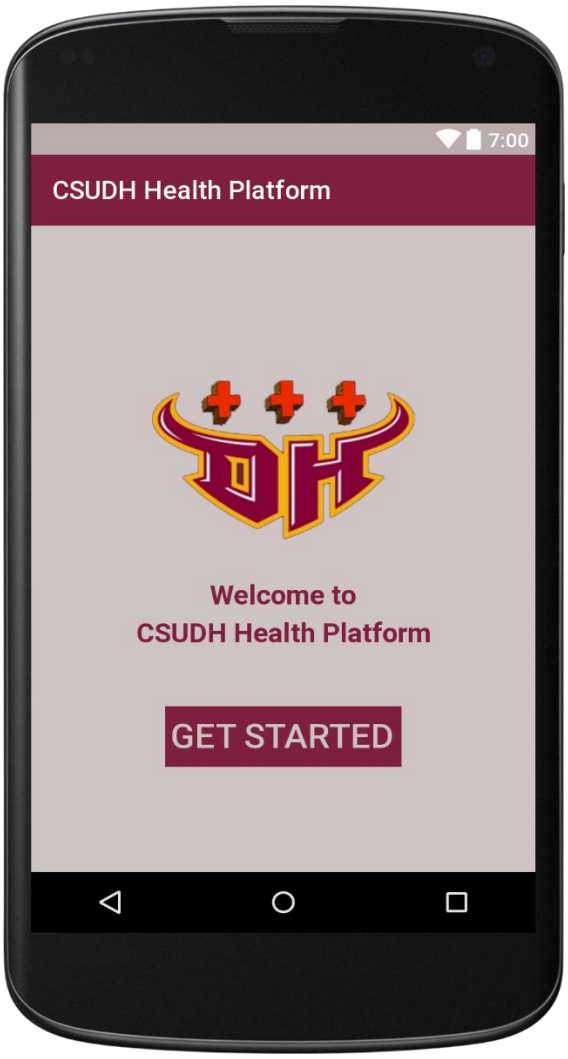


4.6.5 Notifications Tab:

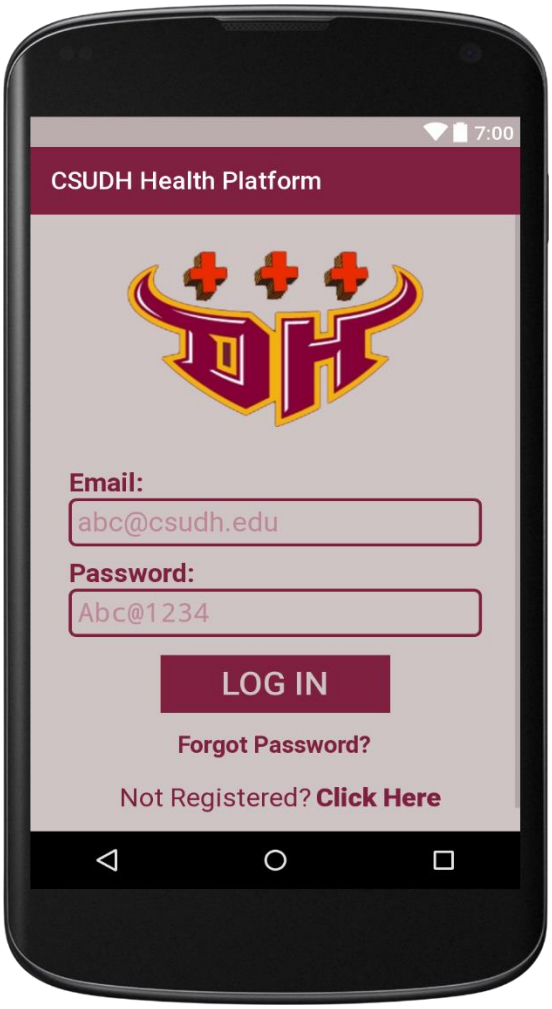


4.7 Interface

4.7.1 Get Started Screen

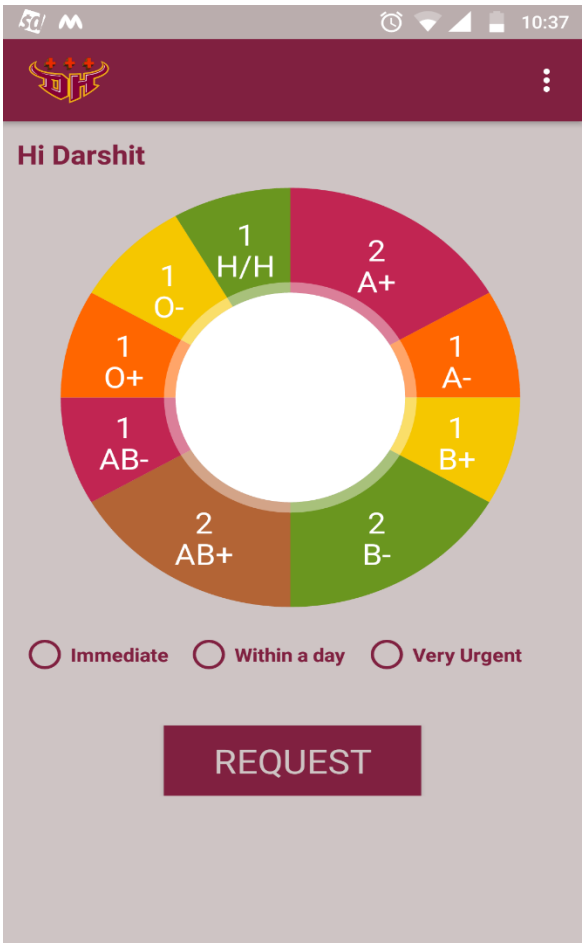


4.7.2 Login Screen



4.7.3 Registration Screen

4.7.4 Home Page



4.7.5 Notifications Tab

5. References

Firebase. (September 18, 2017). ***Firebase Cloud Messaging.***[Online].
Available: https://firebase.google.com/docs/cloud-messaging/

Firebase. (2017). ***Firebase Realtime Database.***[Online].
Available: https://firebase.google.com/docs/database/

Firebase. (2017). ***Cloud Functions for Firebase.***[Online].
Available: https://firebase.google.com/docs/functions/

MPAndroidChart

6. Reuse and relationships to other products

Application will use firebase services along with android studio to incorporate all requirements mentioned above.

Android studio: Open source, easy to learn, flexibility to develop various android applications, real-time look-n-feel of application, easy to integrate different APIs.

Firebase services: Free up to 50 users or 100 MB data, easy to integrate with android studios, provides many services which covers all the required services for this application like messaging services, real-time data update, sync offline data to online as soon as finds connectivity, cloud storage, and deployment environment.

This section should include the following subsections as appropriate:

- We are using open source freeware software and APIs. APIs are capable enough to handle different services, and we will not have to develop them from the scratch which will save much efforts.
- At this moment we have given limited but important features to the application. But we have road map items which includes good to have features which will make the app even more useful.
- We planned to use SQLite database for the application. But while comparing it with firebase services, we found many features of firebase services which were missing in SQLite database. For example, to sync offline data with online we must build the API from the scratch. Also, it does not provide messaging service to send notification to the users which is available in firebase.

7. Design decisions and tradeoffs

N/A

8. Pseudocode for components

N/A

9. Appendices (if any)

N/A