Development phase I requirements report

for

RING ME – A Mobile management application

Version 1.0

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1. SR1: Mode changer requirements

Mode changer features allows user to control ringer modes of the mobile phone. In Android we have three basic ringer modes namely Ringer, Vibration and Silent. This feature aims to develop the functionalities to read the SMS command and alter the ringer modes. This also includes the development of application home screen and alter the ringer volume. Feature hierarchy of Mode changer features is shown in figure 3.2.

1.1. FR1.1: Feature to read the SMS command and change phone mode to ringer mode

Ringer mode is any mobile phone alerts the user with sound by which user will come to know about his incoming phone calls or notifications. This feature is to change the mode of his phone to Ringer as a response to the command received in the SMS. User will be able to select this function 'Ring' and configure a SMS command under it. This command will be stored in our database. This command will be used by the application to identify and respond accordingly by change the mode of the phone to ringer.

1.2. FR1.2: Feature to read the SMS command and change phone mode to vibration mode

Vibration mode does not alert the user with any sound but vibrates the phone for all incoming phone calls and notifications. This feature is to change the mode of his phone to Vibrate as a response to the command received in the SMS. User will be able to select this function 'Vibration' and configure a SMS command against it. This command will be stored in our database. This command will be used by the application to identify and respond accordingly by change the mode of the phone to vibration.

1.3. FR1.3: Feature to read the SMS command and change phone mode to silent mode

Silent mode in a mobile phone is like DND (Do Not Disturb) mode in which user is not alerted by any sound or vibration for incoming phone calls and notifications. This feature is to change the mode of his phone to Silent as a response to the command received in the SMS. User will be able to select this function 'Silent' and configure a SMS command against it. This command will be stored in our database. This command will be used by the application to identify and respond accordingly by change the mode of the phone to silent.

1.4. FR1.5: Application Home screen

This is Home GUI screen will allow user to create new SMS commands for Ring me application. User will be displayed with all the featured supported by Ring me. User will be displayed with all the commands configured by him in this Home screen page.

1.5 Updated requirements

We have moved the *'FR1.4: Feature to read the SMS command and alter the ringer volume (Section 3.1.4)'* to development phase II and swapped *'FR2.4: Feature to edit SMS commands (Section 3.2.4)'* as edit requirement should be integrated for all the requirements so that user can add and edit SMS commands. Hence this requirement is needed to be prioritized. This is the reason why we have swapped *FR1.4 (Section 3.1.4)* with *FR2.4 (Section 3.2.4)*

The development phases have been re-planned accordingly as below.

Development Phase I: (Deadline – 10/24/2018)

In this phase we concentrate on the main functionality which we decided to prioritize. Mode changer features are like base features which needs to be supported from the first. Hence, we have decided to complete Mode changer features (Section 3.1) first. This phase would be intended to develop Mode changer features in full stack. The functional requirements which are implemented here are:

• FR1.1: Feature to read the SMS command and change phone mode to ringer mode (Section 3.1.1)
• FR1.2: Feature to read the SMS command and change phone mode to vibrate mode (Section 3.1.2)
• FR1.3: Feature to read the SMS command and change phone mode to silent mode (Section 3.1.3)
• FR2.4: Feature to edit SMS commands (Section 3.2.4)
• FR1.5: Application Home screen (Section 3.1.5)

Development Phase II: (Deadline – 11/07/2018)

In this phase we target to finish user authentication features as security is primary concern of any application. So, we shall complete User authentication features (Section 3.2) like User register, Login and edit personal data. The functional requirements in this phase are:

• FR2.1: User registration (Section 3.2.1)
• FR2.2: User login (Section 3.2.2)
• FR2.3: Feature to edit user details (Section 3.2.3)
• FR1.4: Feature to read the SMS command and alter the ringer volume (Section 3.1.4)

After this phase, user must register/login to use Ring me application.

2. UML Design

2.1 Class Diagram

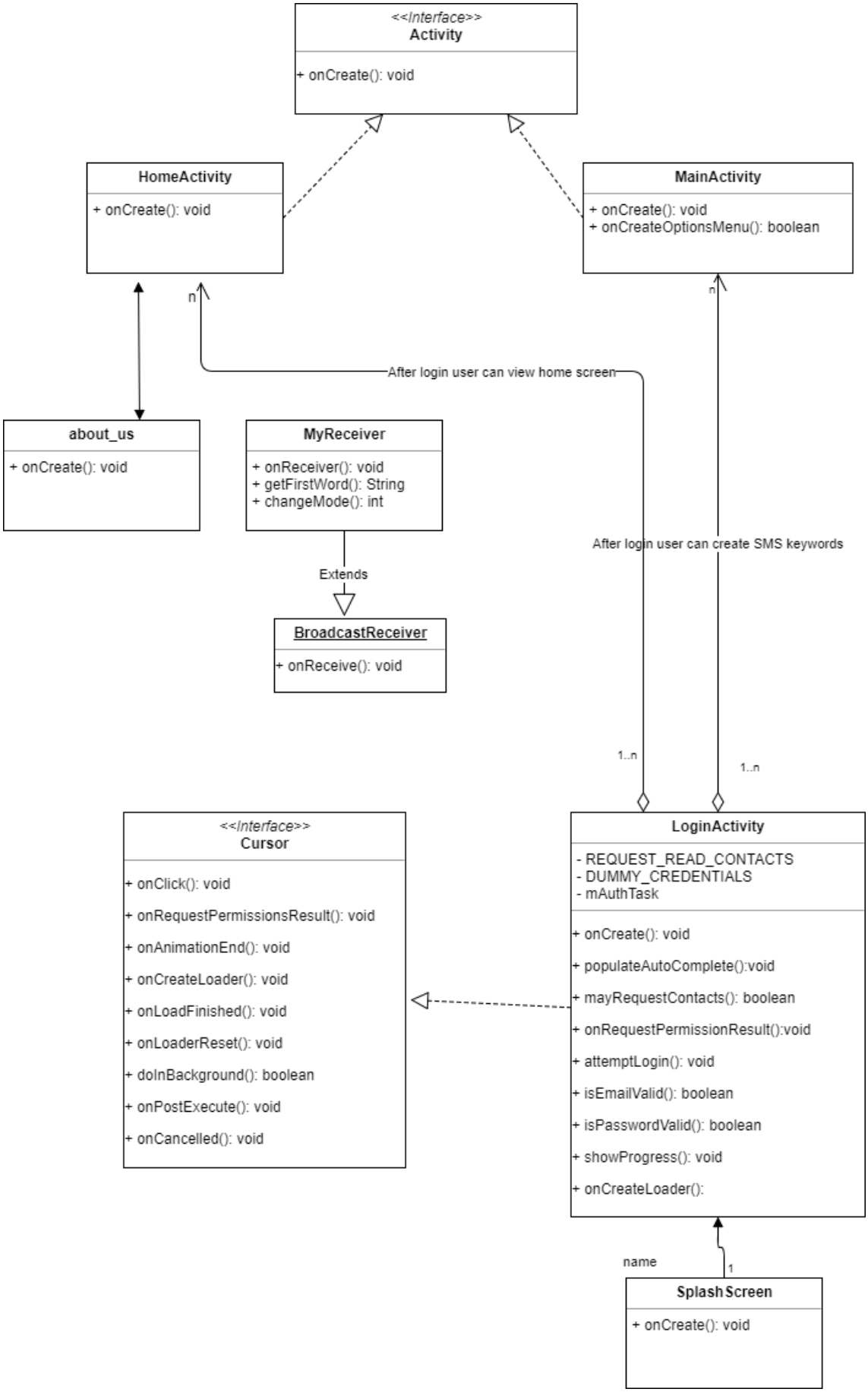
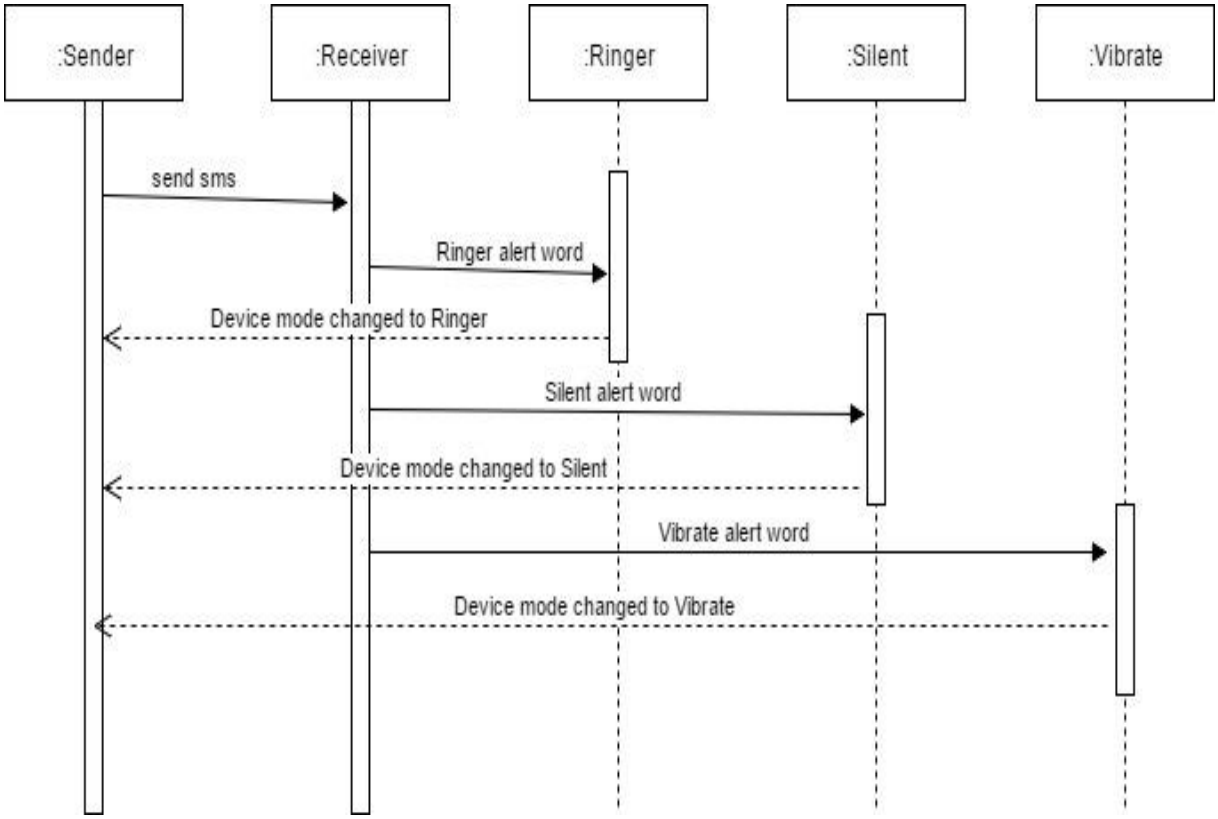
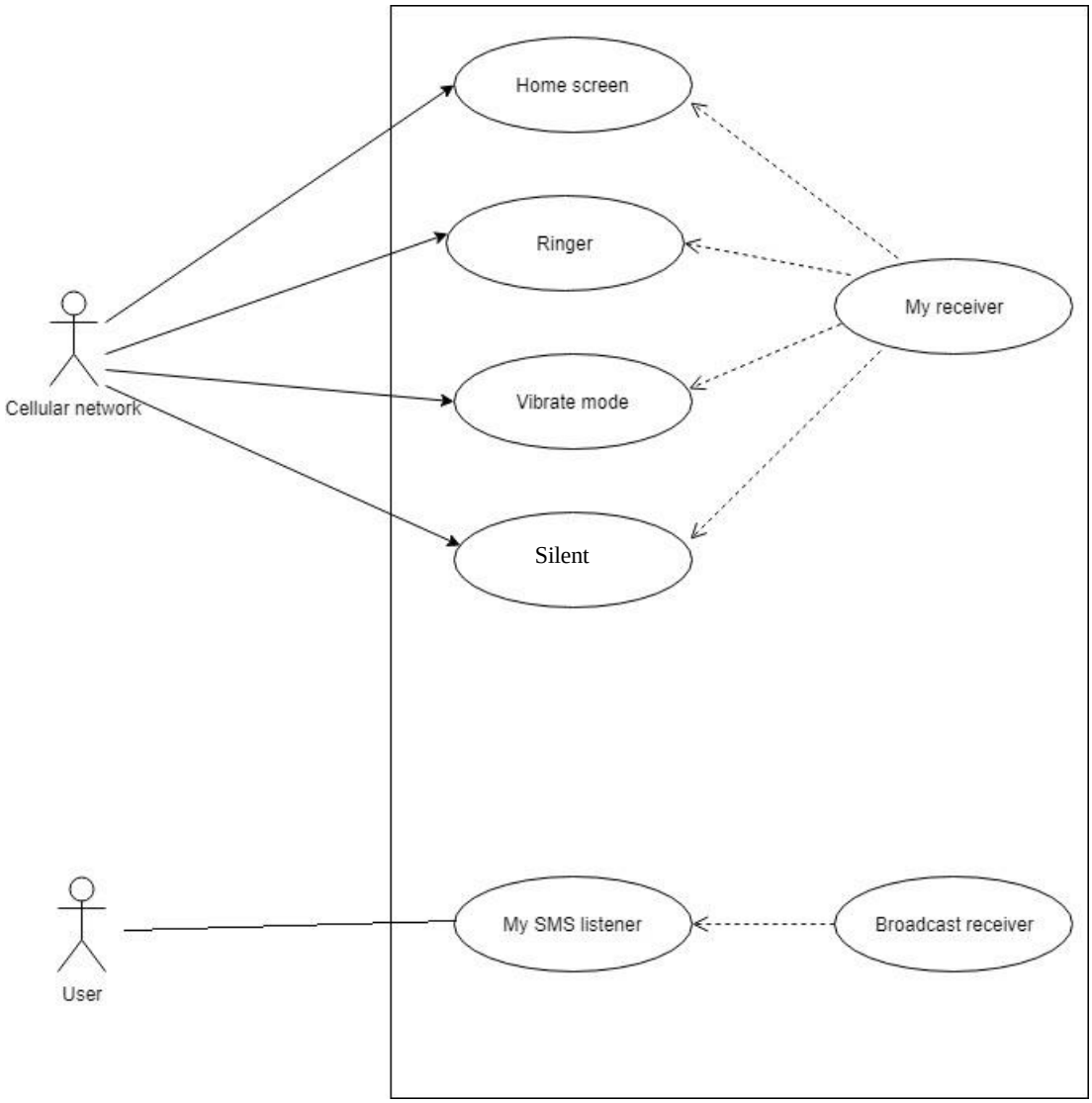


Figure2.1. Class diagram for phase-I requirements

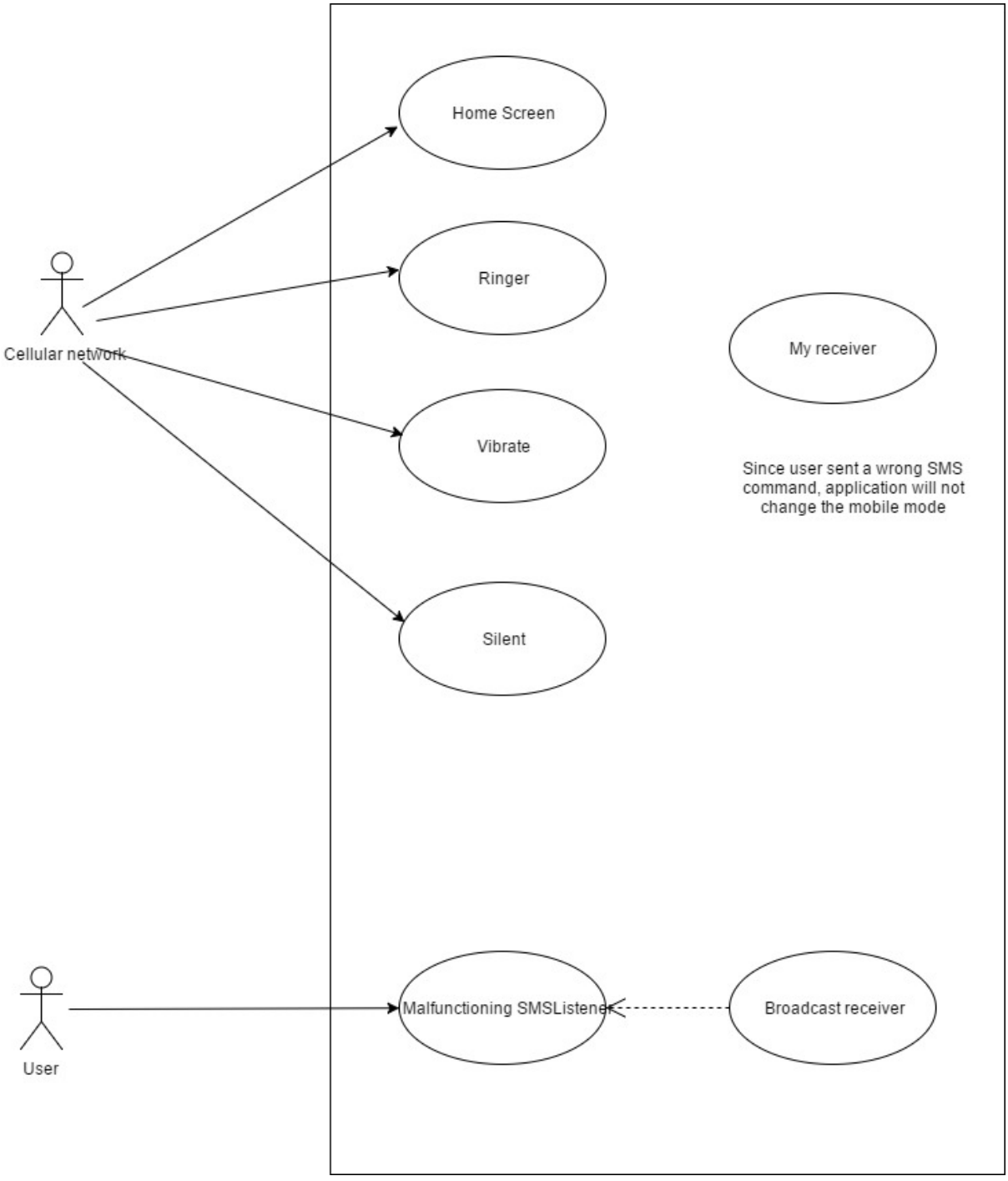
2.2 Sequence Diagram



2.3 Use Case Diagram



5.1. Use Case Diagram Error case



3. Test Cases

https://github.com/Sai11262246/ModeChanger/tree/master/Test%20cases

3.1 Functional Test cases for FR1.1_Feature to read the SMS command and change phone mode to ringer mode

Test CaseID	Test Title	Test Description	Test Priority	Pre-condition	Test Steps	Expected Result	Actual Result	Name of test person	Round1	Round2
FR1.1_TC1	SMS sending and reading test	Application should be able to read the SMS and process acordingly	High	1. Phone should be power on 2. Phone should be able to recevie SMS 3. Another phone should be able to sent SMS	1. Send a SMS 'test' from another phone.	Phone should receive the SMS stating 'test' sent from another mobile	Phone received an SMS with 'test' as text	Vikas	Pass	
FR1.1_TC2	Changing mode to RINGER	Application should change mode of phone to RINGER mode after reading SMS configured with user	High	1. Phone should be power on 2. Phone should be able to recevie SMS 3. Another phone should be able to sent SMS 4. User should be allow permissions requested by RING ME	1. Create an SMS command/keyword named 'ring' for RINGER mode 2. Send a SMS with context as 'ring' from another phone.	Phone should receive the SMS stating 'ring' sent from another mobile and phone mode should be changed to RINGER	Phone received an SMS with 'ring' as text and mode is changed to RINGER	Vikas	Fail	Pass
FR1.1_TC3	Changing mode to RINGER	Sent an wrong SMS like 'hello' and check if phone is changing it mode to RINGER	Medium	1. Phone should be power on 2. Phone should be able to recevie SMS 3. Another phone should be able to sent SMS 4. User should be allow permissions requested by RING ME	1. Send a wrong SMS with context as 'hello' from another phone.	Phone should receive the SMS stating 'ring' sent from another mobile and phone mode should be changed to RINGER	Phone received an SMS with 'hello' as text and application should not do any operation, i.e., should not change mode to RINGER	Vikas	Pass	

3.2 Functional Test Cases for FR1.2_Feature to read the SMS command and change phone mode to vibrate mode

Test CaseID	Test Title	Test Description	Test Priority	Pre-condition	Test Steps	Expected Result	Actual Result	Name of test person	Round1	Round2
FR1.3_TC1	SMS sending and reading test	Application should be able to read the SMS and process acordingly	High	1. Phone should be power on 2. Phone should be able to recevie SMS 3. Another phone should be able to sent SMS	1. Send a SMS 'test' from another phone.	Phone should receive the SMS stating 'test' sent from another mobile	Phone received an SMS with 'test' as text	Revanth	Pass	
FR1.3_TC2	Changing mode to VIBRATE	Application should change mode of phone to VIBRATE mode after reading SMS configured with user	High	1. Phone should be power on 2. Phone should be able to recevie SMS 3. Another phone should be able to sent SMS 4. User should be allow permissions requested by RING ME	1. Create an SMS command/keyword named 'vibrate' for VIBRATE mode 2. Send a SMS with context as 'silent' from another phone.	Phone should receive the SMS stating 'vibrate' sent from another mobile and phone mode should be changed to VIBRATE	Phone received an SMS with 'vibrate' as text and mode is changed to VIBRATE	Revanth	Pass	
FR1.3_TC3	Changing mode to VIBRATE	Sent an wrong SMS like 'okay' and check if phone is changing it mode to VIBRATE	Medium	1. Phone should be power on 2. Phone should be able to recevie SMS 3. Another phone should be able to sent SMS 4. User should be allow permissions requested by RING ME	1. Send a wrong SMS with context as 'okay' from another phone.	Phone should receive the SMS stating 'vibrate' sent from another mobile and phone mode should be changed to VIBRATE	Phone received an SMS with 'okay' as text and application should not do any operation, i.e., should not change mode to VIBRATE	Revanth	Fail	Pass

3.3 Functional Test cases for FR1.3_Feature to read the SMS command and change phone mode to silent mode

Test CaseID	Test Title	Test Description	Test Priority	Pre-condition	Test Steps	Expected Result	Actual Result	Name of test person	Round1	Round2
FR1.3_TC1	SMS sending and reading test	Application should be able to read the SMS and process acordingly	High	1. Phone should be power on 2. Phone should be able to recevie SMS 3. Another phone should be able to sent SMS	1. Send a SMS 'test' from another phone.	Phone should receive the SMS stating 'test' sent from another mobile	Phone received an SMS with 'test' as text	Revanth	Pass	
FR1.3_TC2	Changing mode to VIBRATE	Application should change mode of phone to VIBRATE mode after reading SMS configured with user	High	1. Phone should be power on 2. Phone should be able to recevie SMS 3. Another phone should be able to sent SMS 4. User should be allow permissions requested by RING ME	1. Create an SMS command/keyword named 'vibrate' for VIBRATE mode 2. Send a SMS with context as 'silent' from another phone.	Phone should receive the SMS stating 'vibrate' sent from another mobile and phone mode should be changed to VIBRATE	Phone received an SMS with 'vibrate' as text and mode is changed to VIBRATE	Revanth	Pass	
FR1.3_TC3	Changing mode to VIBRATE	Sent an wrong SMS like 'okay' and check if phone is changing it mode to VIBRATE	Medium	1. Phone should be power on 2. Phone should be able to recevie SMS 3. Another phone should be able to sent SMS 4. User should be allow permissions requested by RING ME	1. Send a wrong SMS with context as 'okay' from another phone.	Phone should receive the SMS stating 'vibrate' sent from another mobile and phone mode should be changed to VIBRATE	Phone received an SMS with 'okay' as text and application should not do any operation, i.e., should not change mode to VIBRATE	Revanth	Fail	Pass

3.4 Functional Test Cases for FR2.4_Feature to edit SMS commands

Test CaseID	Test Title	Test Description	Test Priority	Pre-condition	Test Steps	Expected Result	Actual Result	Name of test person	Round1
FR2.4_TC1	Test of editing RINGER mode field	After accessing Mode changer button in the GUI user should be to edit the field and store new keyword under RINGER field	High	1. App should be running 2. User should be able to access home screen with mode changer features button	1. User should click mode changer button from home screen. 2. User should select the text field under Ringer mode from GUI to edit the keyword.	Application should be able to save the Ringer keyword edited by the user. This keyowrd should be shown even after closing and reopening the app, until user changes it.	RING ME saved the keyword with toast message showing SAVED. The same keyword is showed when reopend the app.	Sai teja	Pass
FR2.4_TC2	Test of editing SILENT mode field	After accessing Mode changer button in the GUI user should be to edit the field and store new keyword under SILENT field	High	1. App should be running 2. User should be able to access home screen with mode changer features button	1. User should click mode changer button from home screen. 2. User should select the text field under silent mode from GUI to edit the keyword.	Application should be able to save the Silent keyword edited by the user. This keyowrd should be shown even after closing and reopening the app, until user changes it.	RING ME saved the keyword with toast message showing SAVED. The same keyword is showed when reopend the app.	Sai teja	Pass
FR2.4_TC3	Test of editing VIBRATE mode field	After accessing Mode changer button in the GUI user should be to edit the field and store new keyword under VIBRATE field	High	1. App should be running 2. User should be able to access home screen with mode changer features button	1. User should click mode changer button from home screen. 2. User should select the text field under vibrate mode from GUI to edit the keyword.	Application should be able to save the Vibrate keyword edited by the user. This keyowrd should be shown even after closing and reopening the app, until user changes it.	RING ME saved the keyword with toast message showing SAVED. The same keyword is showed when reopend the app.	Sai teja	Pass
FR2.4_TC4	Edit keywords should be provided with SAVE button	After editing keywords associated with each mode, application should save the keywords to memory only after user clicks SAVE button	Medium	1. App should be running 2. User should be able to access home screen with mode changer features button	1. User should click mode changer button from home screen. 2. User should select the text field under vibrate mode from GUI to edit the keyword. 3. User should click save button	Application should save keywords when user click SAVE.	RING ME saved the keyword with toast message showing SAVED after user clicked SAVE.	Sai teja	Pass
FR2.4_TC5	Edit keywords shouldnot be saved if user hits BACK button	After editing keywords associated with each mode, application should not save the keywords to memory only after user clicks BACK button	Medium	1. App should be running 2. User should be able to access home screen with mode changer features button	1. User should click mode changer button from home screen. 2. User should select the text field under vibrate mode from GUI to edit the keyword. 3. User should click back button	Application should not save keywords when user click BACK. App should show old keywords saved in memory	RING ME showed old keyowrds created by the user.	Sai teja	Pass

3.5 Functional Test Cases for FR1.5_Application Home screen

Test CaseID	Test Title	Test Description	Test Priority	Pre-condition	Test Steps	Expected Result	Actual Result	Name of test person	Round1	Round2
FR1.5_TC1	Display Menu	Application should display 'Mode Changer Features' option and 'About Us'	High	1. Phone should be power on 2. App must be running	1. Open the app.	Should display splash screen and then go to Home page	Displaying Splash screen and goes to Home screen	Sai Krishna	Fail	Pass
FR1.5_TC2	Display 'About Us'	Application should display content 'About Us'	High	1. Phone should be power on 2. App must be running	1. Click on 'About Us' on Home screen menu	Shoul display description about 'About Us'	Displaying description about 'About Us'	Sai Krishna	Pass	
FR1.5_TC3	Accessing the 'Mode Changer' menu	Accessing features like Ring,Vibrate,Silent	High	1. Phone should be power on 2. App must be running	1. Click on various features from Ring, Vibrate, Silent.	Should display saved keywords from the DB.	Displaying keywords for corresponding option.	Sai Krishna	Fail	Pass
FR1.5_TC4	Navigate to Home screen	Navigate from Mode Changer menu to Home Screen	High	1. Phone should be power on 2. App must be running	1.Click on the 'Back' button.	Should go back from Menu page to Home Screen page	Navigating from Menu to Home screen	Sai Krishna		

3.6 Unit test cases for classes

- **Home_ActivityTest: Junit code for Home_Activity.java class**

```
package com.vivartha.modechanger;

import android.content.Intent;
import android.os.Bundle;
import android.support.design.widget.FloatingActionButton;
import android.support.design.widget.Snackbar;
import android.support.v7.app.AppCompatActivity;
import android.support.v7.widget.Toolbar;
import android.view.View;
import android.widget.Button;
import org.junit.Test;

public class Home_ActivityTest{

    @Test
    public void testOnCreate()
    {
        Home_Activity act = new Home_Activity();
        Bundle savedInstanceState = new Bundle();
        act.onCreate(savedInstanceState);
    }
}
```

- **LoginActivityTest: Junit code for LoginActivity.java class**

```
package com.vivartha.modechanger;

import android.animation.Animator;
import android.animation.AnimatorListenerAdapter;
import android.annotation.TargetApi;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.database.sqlite.SQLiteCursor;
import android.database.sqlite.SQLiteCursorDriver;
import android.support.annotation.NonNull;
import android.support.design.widget.Snackbar;
import android.support.v7.app.AppCompatActivity;
import android.app.LoaderManager.LoaderCallbacks;

import android.content.CursorLoader;
import android.content.Loader;
import android.database.Cursor;
import android.net.Uri;
import android.os.AsyncTask;

import android.os.Build;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.text.TextUtils;
import android.view.KeyEvent;
import android.view.View;
import android.view.View.OnClickListener;
import android.view.inputmethod.EditorInfo;
import android.widget.ArrayAdapter;
import android.widget.AutoCompleteTextView;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

import java.util.ArrayList;
import java.util.List;
import org.junit.Test;

import static android.Manifest.permission.READ_CONTACTS;

/**
 * A login screen that offers login via email/password.
 */
public class LoginActivityTest {

    @Test
    public void testOnCreate()
    {
        LoginActivity act = new LoginActivity();
        Bundle savedInstanceState = new Bundle();
```

```
        act.onCreate(savedInstanceState);
    }

     @Test
    public void testOnRequestPermissionsResult()
    {
        int requestCode = 1;
        String[] permissions = {"1","0","1"};
        int[] grantResults = new int[]{1,2,3};
        //grantResults = {1,2,3};
        LoginActivity act = new LoginActivity();
        act.onRequestPermissionsResult(requestCode,
permissions, grantResults);
    }

    @Test
    public void testAttemptLogin()
    {
        LoginActivity act = new LoginActivity();
        //act.attemptLogin();
    }

    @Test
    public void testOnCreateLoader()
    {
        LoginActivity act = new LoginActivity();
        Bundle bundle = new Bundle();
        act.onCreateLoader(1,bundle);
    }

     @Test
     public void testOnLoadFinished()
    {
        Loader<Cursor> cursorLoader=new Loader<Cursor>(null);
          Cursor cursor = new SQLiteCursor(null, null, null);
          //    // public SQLiteCursor (SQLiteCursorDriver
driver, String editTable, SQLiteQuery query)
        LoginActivity act = new LoginActivity();
        act.onLoadFinished(cursorLoader, cursor);

    }

}
```

- **MainActivityTest: Junit code for MainActivity.java class**

```
package com.vivartha.modechanger;

import android.app.Activity;
import android.content.Intent;
```

```
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.ContextMenu;
import android.view.Menu;
import android.view.SubMenu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

import org.junit.Test;

public class MainActivityTest {

    @Test
    public void testOnCreate()
    {
        MainActivity act = new MainActivity();
        Bundle savedInstanceState = new Bundle();
        act.onCreate(savedInstanceState);
    }

    @Test
    public void testOnCreateOptionsMenu()
    {
        MainActivity act = new MainActivity();
        //Menu menu = PowerMockito.mock(Menu.class);
        Menu menu = null;
        boolean result = act.onCreateOptionsMenu(menu);
    }

}
```

- **MyReceiverTest: Junit code for MyReceiver.java class**

```
package com.vivartha.modechanger;

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.ContextWrapper;
import android.content.Intent;
import android.content.SharedPreferences;
import android.media.AudioManager;
import android.os.Bundle;
import android.telephony.SmsMessage;
import android.widget.Toast;

import org.junit.Test;
```

```
public class MyReceiverTest{

    @Test
    public void testOnReceive()
    {
        MyReceiver obj = new MyReceiver();
        Context context = new ContextWrapper(null);
        Intent intent = new Intent();
//      obj.onReceive(context, intent);
    }

}
```

- **Splash_ScreenTest: Junit code for Splash_Screen.java class**

```
package com.vivartha.modechanger;

import android.content.Intent;
import android.os.Bundle;
import android.app.Activity;

import org.junit.Test;

public class Splash_ScreenTest {

    @Test
    public void testOnCreate()
    {
        Splash_Screen obj = new Splash_Screen();
        Bundle savedInstanceState = new Bundle();
        obj.onCreate(savedInstanceState);
    }

}


--- nn

package com.vivartha.modechanger;

import android.os.Bundle;
import android.app.Activity;
import org.junit.Test;
import static org.junit.Assert.*;
import org.junit.runner.RunWith;

public class about_usTest{

    @Test
```

```
    public void testOnCreate()
    {
        about_us obj = new about_us();
        Bundle savedInstanceState = new Bundle();
        obj.onCreate(savedInstanceState);

    }
}
```

4. Contribution

4.1 Requirements

Contribution	Developer name
FR1.1_Ringer mode requirement	Vikas Chirumamilla
FR1.5_Application home screen	Sai Krishna Kolli
FR1.3_Silent mode requirement	Revanth Malreddy
FR1.2_Vibrate mode requirement	Siri Gogineni
FR2.4_Edit SMS commands requirement	Sai Teja Reddy Malle

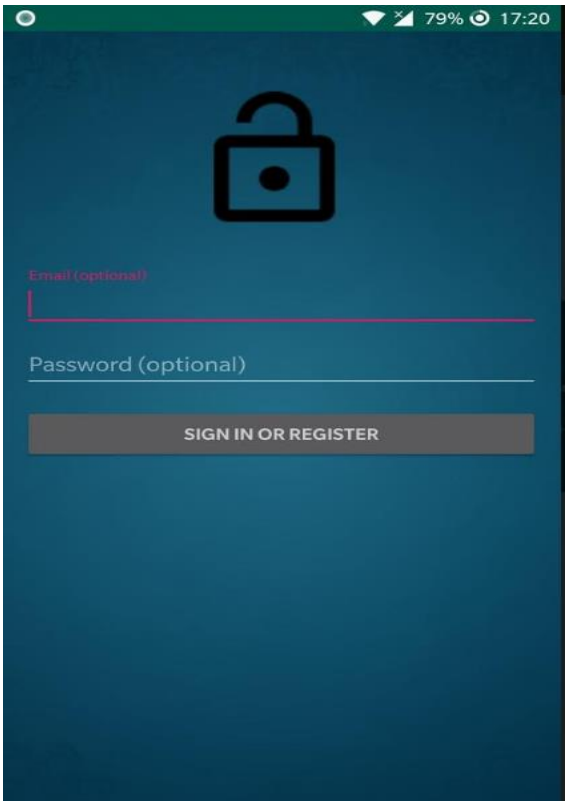
4.2 Components/Classes

Name	Component/Classes
Vikas Chirumamilla	Home_activity.java, activity_home_.xml, Home_ActivityTest.java
Sai Krishna Kolli	Android base framework setup, SpalshScreen.java, activity_splash_screen.xml, ActivityLogin.java, LoginActivityTest.java
Revanth Malreddy	MainActivity.java, activity_main.xml, MainActivityTest.java
Siri Gogineni	MyReceiver.java, activity_login.xml, MyReceiverTest.java
Sai Teja Malle	about_us.java, activity_about_us.xml, about_usTest.java

5. User Manual

- This is how the splash screen of our mobile management Android application is going to look like. As soon as we click on this application, the following screen open first.

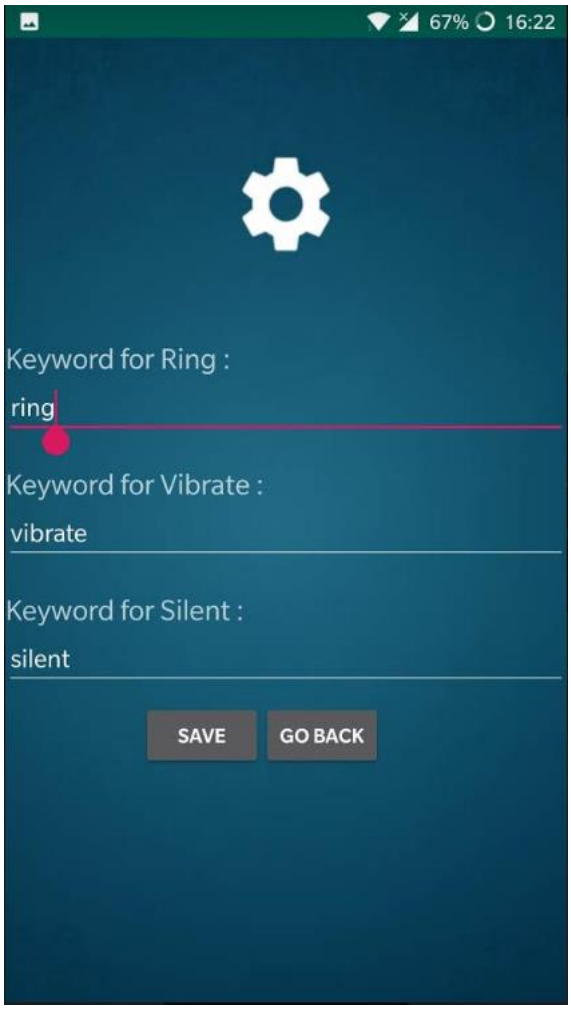
- For, security reasons, it is important that every user should create an account in this application. Since, we have done only the Development Phase- 1, we have not yet authenticated the sign-in and register options. You can see this in the screenshot below. We have provided optional option for this phase.
- As soon as we select the sign in option, our application takes you to another screen and starts working.



- It takes you to the home screen, where we have provided you with two options: Mode changer

  How it works

- When you select Mode changer option, it takes you to a screen where you have the option to edit the keyword which you want to use for ring, vibrate and silent. In this Development Phase- 1, we have only developed the code for these options. In the later development phases, we will have more requirements filled in.
- You can edit the keyword which you would like to use and click on save.
- There is another option go back. When you select it, it takes you back to the home page.



- In the home page, you have an option which says how it works. When you select this option, a page appears which will give detailed information about how this android application works. This helps the new users on how to use it.

6. Installation instructions

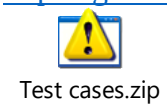
1. Enabling APK Installations
    - Open your Android's Settings. Use two fingers to swipe down from the top of the screen, then tap the "Settings" Image titled Android7settings.png gear icon in the top-right corner of the resulting drop-down menu.
    - Scroll down and tap Apps and notifications. Doing so opens the Apps and Notifications menu.
    - If you have an Android running Nougat (Android 7.0), skip to the last step in this part instead.
    - Tap Install unknown apps. It should be in the middle of the menu. This option may instead say Install other apps. On some Androids, you may first have to tap Special access.

2. Installing RING ME from .apk file
    - Download .apk file into your Android mobile which meets the system

requirements.

- Open your Android's file manager app, select your default storage location, tap the Downloads folder, and tap the APK file that you downloaded. You can then tap SETTINGS when prompted and enable installations from unknown sources for your file manager app.
- Tap INSTALL. This option is in the bottom-right corner of the screen. Doing so will prompt the APK file to begin installing; once it completes, you'll see an OPEN option appear in the bottom-right corner of the screen. This will open RING ME application.

3. Testing the application
    - Please find the user manual under section 5 of this document which helps to find out the more details of the application features.
    - You can make use of section 1 to get knowledge on the requirements scope.
    - Functional test cases have been updated to GitHub. https://github.com/Sai11262246/ModeChanger/tree/master/Test%20cases



    - Unit testing has been uploaded to https://github.com/Sai11262246/ModeChanger/tree/master/SourceCode/app/src/test/java/com/vivartha/modechanger
    - Run each of the Junit cases in Android studio after importing the code to Android studio from GitHub. https://github.com/Sai11262246/ModeChanger/tree/master/SourceCode

7. Peer review session feedback

We have received 2 feedback points from our peer team.

1. Table of contents are not up to 3rd level:

    We have first included table of contents for 3rd level headings. Later in peer review received feedback to include up to 3rd level which will be easier for people to navigate.
2. Requirements not clear:

    FR3.3.3, FR3.3.5 are not clearly mentioned. Also asked to check the feasibility of developing these requirements at Android system level.