BODIMA- Make Everything Easier
Mini Project Final Report

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1. INTRODUCTION

Mobile application development is set of process and procedures interested in writing software for small, wireless computing devices. Today Smart phones will progressively more Smartphone applications not just as of now business people, social and gamers.

BODIMA is an android app that use for boarders who is in same place. This app is very helpful for every roommates, travelers and also couples. Split household bills like electricity bills, water bills etc and daily expenses between roommates to make living together. Weather travelers are on a trip with friends BODIMA does the calculations. And also this app works for couples to keep their relationship fair and transparent.

BODIMA app is very simple , transparent and collaborative. BODIMA makes sorting out and split group expenses very easy and when organize all activities. All logged expenses are visible to the group and everyone can add their expense. And also this app helps to share lifestyle brings closer to friends.

This app will be basically designed using "Android Studio" software. Android studio is the official integrated development environment (IDE) software using JAVA language. In designing our app all the output layout designing should be done using of a XML language, and other actions those hope to do from features of android studio like that listviews, textboxes, buttons, adapters, intents, layout etc. And hope to maintain this app from new ideas.

2. LIBRARIES USED

`com.android.support:cardview-v7:26.1.0`

Card view library is making list as card view. Card view can use not only as list it can be customize as anywhere in the layout.

`com.google.firebase:firebase-database:11.8.0`

Google firebase library is using as backend of this java program. Firebase is using as online database for store data from the android studio.

Recycle View

Android Recycle view using for list view in layouts.

3. SYSTEM REQUIREMENTS

- OS Android Ice Cream Sandwich or Higher

- RAM 256MB

- 10MB Hard Space

- Working only vertical orientation
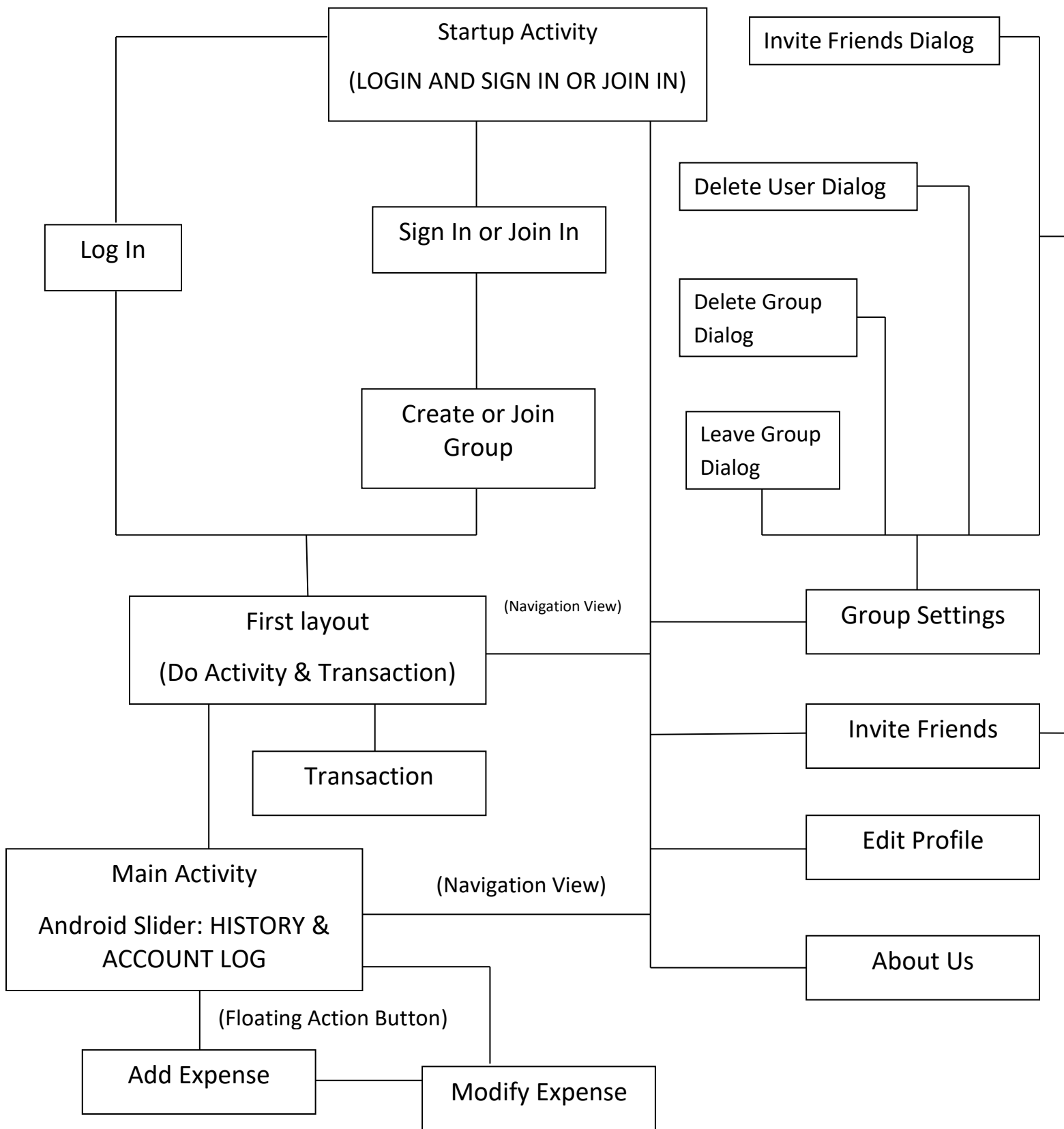
- Internet connection require

4. METHODOLOGY

Startup Activity (LOGIN AND SIGN IN OR JOIN IN)	Invite Friends Dialog
Log In	Delete User Dialog
Sign In or Join In	Delete Group Dialog
Create or Join Group	Leave Group Dialog

(Navigation View)

First layout (Do Activity & Transaction)

Transaction

Group Settings

Invite Friends

(Navigation View)

Main Activity Android Slider: HISTORY & ACCOUNT LOG

Edit Profile

About Us

(Floating Action Button)

Add Expense

Modify Expense

Figure 3.1 Intent Block Diagram

4.1 SOURCE FILES

4.1.1 ACTIVITY LIST

No	Activity	Layout Files
1	Login	activity_login.xml
2	Sign up	activity_signup.xml
3	Startup	activity_startup__view.xml
4	Add Expense	activity_add_expense.xml
5	Chat	activity_chat.xml
6	Create Group	activity_create_group.xml
7	Confirm Group	activity_confirmation_group.xml
8	First Layout	activity_first_layout.xml
9	Main	activity_main.xml
10	Modify Expense	activity_modify_expense.xml
11	Transaction	activity_transaction.xml
12	Edit Profile	activity_edit_profile.xml
13	Group settings	activity_group_settings.xml
14	Splash Screen	splash__screen.xml
15	Delete Group Dialog	dialog_delete_group.xml
16	About us	dialog__about_us.xml
17	Clear History Dialog	dialog__clear.xml
18	Group Id Dialog	dialog_identify_group.xml
19	Leave Group Dialog	dialog_leave_group.xml
20	Remove User Dialog	dialog_remove_user.xml

4.1.2 OTHER JAVA CLASSES

No	Java File
1	Expense.class
2	ExpenseAdapter.class
3	Message.class
4	MessageAdapter.class
5	User.class
6	UserAdapter.class
7	UserCheckboxAdapter.class
8	CategoriesEnum.class
9	TransactionEnum.class
10	BalanceFragment.class
11	ExpenseFragment.class
12	CalculateBalance.class
13	TokenGenerator.class

4.1.3 XML

No	XML
1	drawer_view.xml

4.1.4 VALUES

No	Value File
1	Colors.xml
2	Strings.xml
3	Styles.xml

4.1.5 OTHER RESOURCES

Drawable	19 resources (.xml) files
	10 images (.png) files
	1 image (.jpeg) file
Raw	_

4.2 ACTIVITIES AND CLASSES IN DETAILS

SPLASH SCREEN ACTIVITY

	Activity name: Splash Screen **Package:** com.chanaka.bodima **Layout file:** splash__screen.xml **Imported classes:** android.content.Intent android.os.Handler android.support.v7.app.AppCompatActivity android.os.Bundle
Description: Splash Screen of the application	

STARTUP VIEW
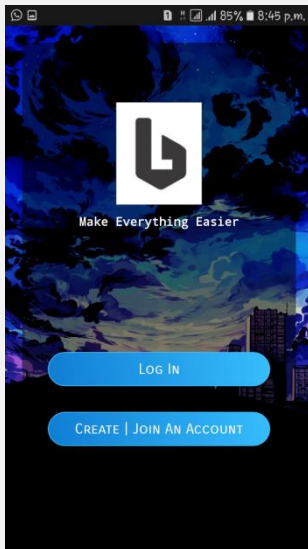
	Activity name: Startup View
	Package: com.chanaka.bodima.auth
	Layout file: Startup_View.xml
	Imported classes:
	android.content.Intent;
	android.os.Bundle;
	android.support.v7.app.AppCompatActivity;
	android.view.View;
	android.widget.Button;

Description:
Startup View of the application if already has an account use email address to login if not, create a new account.

**LOGIN ACTIVITY & SIGNUP OR JOIN ACTIVITY**
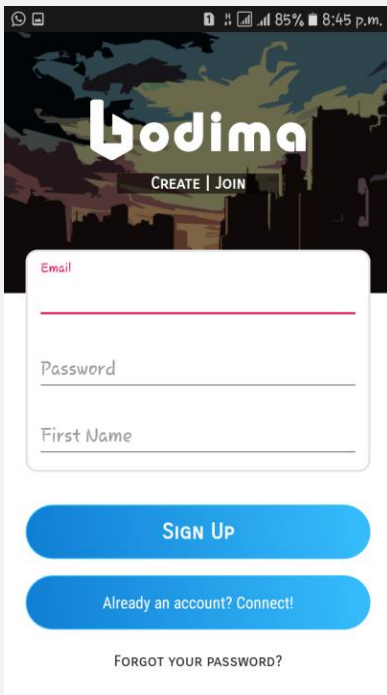
	Activity name: Login Activity, Signup or Join Activity
	Package: com.chanaka.bodima.auth
	Layout file: activity_login.xml, activity_signup.xml
	Imported classes:
	android.content.Intent;
	android.os.Bundle;
	android.support.annotation.NonNull;
	android.support.v7.app.AppCompatActivity;
	android.text.TextUtils;
	android.view.View;
	android.widget.Button;
	android.widget.EditText;
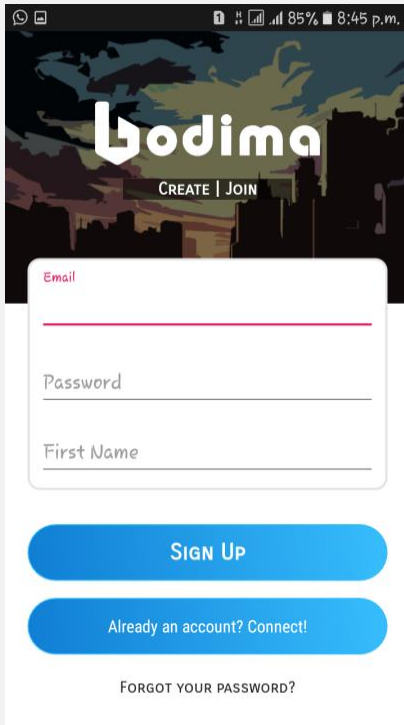
|	
	android.widget.ProgressBar; android.widget.Toast; com.chanaka.bodima.CreateGroupActivity; com.chanaka.bodima.FirstLayout; com.google.android.gms.tasks.OnCompleteListener; com.google.android.gms.tasks.Task; com.google.firebase.auth.AuthResult; com.google.firebase.auth.FirebaseAuth; com.google.firebase.database.DataSnapshot; com.google.firebase.database.DatabaseError; com.google.firebase.database.DatabaseReference; com.google.firebase.database.FirebaseDatabase; com.google.firebase.database.ValueEventListener; com.chanaka.bodima.MainActivity; com.chanaka.bodima.R;

Description:
Login Activity and Create Account or Join an existing group of Application.
Members can create an account using email and after create an account members can log with using that email address.

FIRST LAYOUT
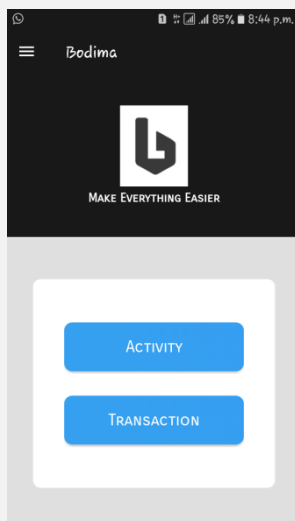
	Activity name: First layout **Package:** com.chanaka.bodima **Layout file:** Startup_View.xml **Imported classes:** Same imported classes as Login and Signup Activities.

Description:	
First Layout of the application. Intent for Activity and Transaction activities.	

HISTORY AND ACCOUNT LOG
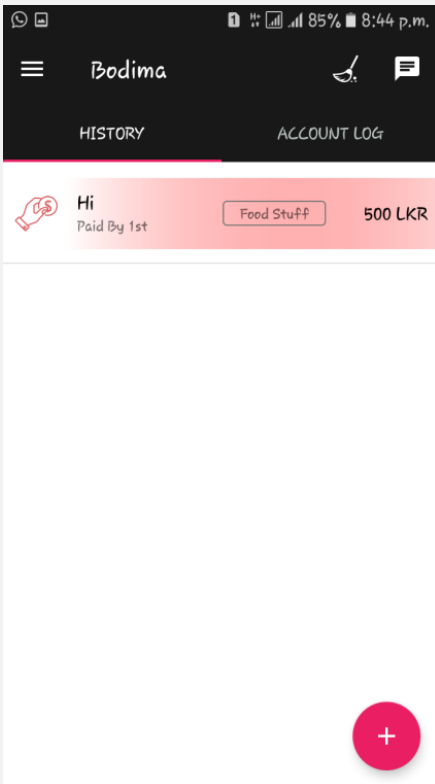
Activity name: Main Activity

Package: com.chanaka.bodima

Layout file: activity_main.xml

Imported classes:

android.content.Intent;

android.os.Bundle;

android.support.design.widget.FloatingActionButton;

android.support.design.widget.NavigationView;

android.support.design.widget.TabLayout;

android.support.v4.app.Fragment;

android.support.v4.app.FragmentManager;

android.support.v4.app.FragmentPagerAdapter;

android.support.v4.view.GravityCompat;

android.support.v4.view.ViewPager;

android.support.v4.widget.DrawerLayout;

android.support.v7.app.ActionBar;

android.support.v7.app.AppCompatActivity;

android.support.v7.widget.Toolbar;

android.view.MenuItem;

android.view.View;

android.widget.ImageButton;

|	
	android.widget.ProgressBar; android.widget.TextView; android.widget.Toast; com.chanaka.bodima.auth.Startup_View; com.chanaka.bodima.dialogs.DialogClear; com.chanaka.bodima.dialogs.Dialog_About_us; com.chanaka.bodima.dialogs.IdentifyGroupDialog; com.chanaka.bodima.fragments.ExpenseFragment; com.chanaka.bodima.fragments.BalanceFragment; com.google.firebase.auth.FirebaseAuth; com.google.firebase.database.DataSnapshot; com.google.firebase.database.DatabaseError; com.google.firebase.database.DatabaseReference; com.google.firebase.database.FirebaseDatabase; com.google.firebase.database.ValueEventListener; java.util.ArrayList; java.util.List;

Description:

Main activity of the application. Used android slider for History and Account Log. Expenses are shown in the History and every member's account balance shown in Account Log. Floating actions button intent to Add new Expense activity. After do some particular expense or transaction it will appear on the History and automatically update the Account Log. Money owed someone is highlighted with green with (+) sign, money owed to someone highlighted red with (-) sign

ADD EXPENSE ACTIVITY, TRANSACTION ACTIVITY & MODIFY EXPENSE ACTIVITY
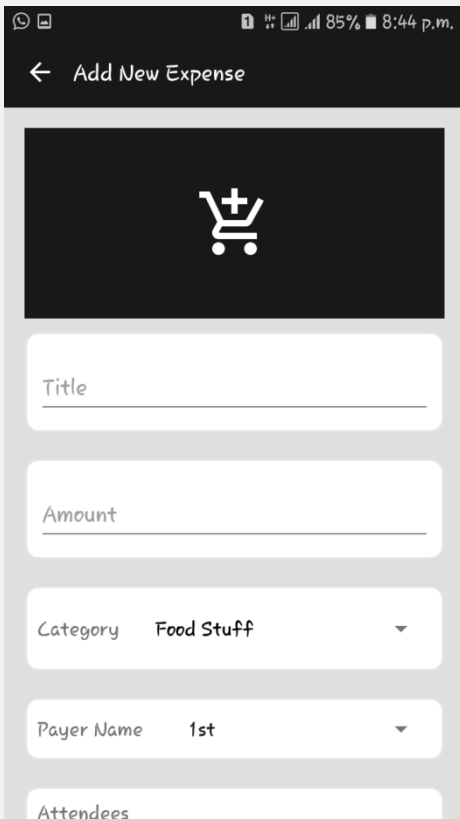
Activity name: Add Expense Activity & Modify Expense Activity
Transaction Activity

Package: com.chanaka.bodima

Layout file: activity_add_expense.xml

activity_modify_expense.xml

activity_transaction.xml

Imported classes:

android.app.NotificationManager;

android.app.PendingIntent;

android.content.Context;

android.content.Intent;

android.support.v4.app.NotificationCompat;

android.support.v7.app.AppCompatActivity;

android.os.Bundle;

android.text.TextUtils;

android.view.View;
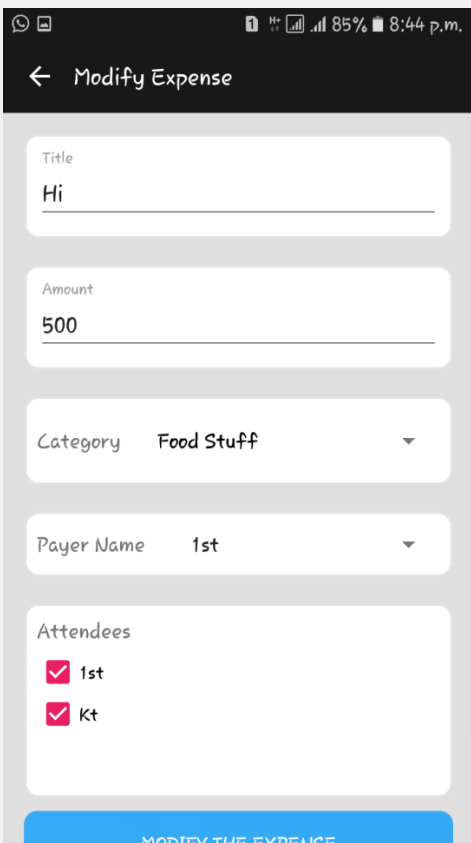
android.view.ViewGroup;

android.widget.AdapterView;

android.widget.ArrayAdapter;
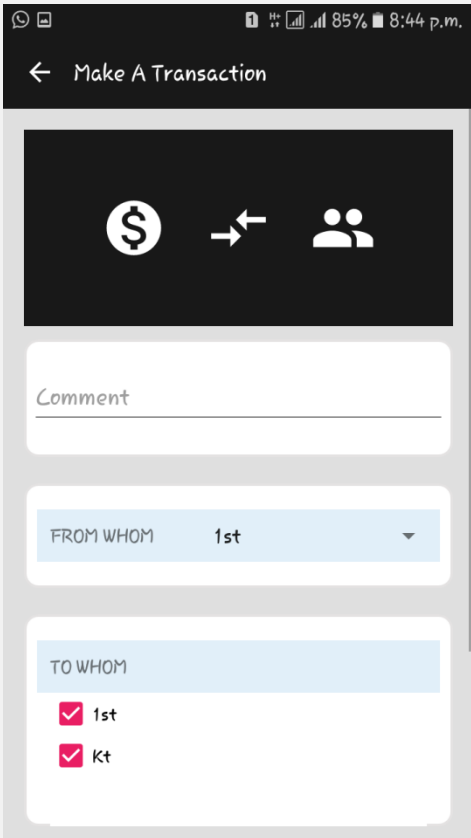
android.widget.Button;

android.widget.CheckBox;

android.widget.EditText;

android.widget.ImageButton;

android.widget.ListView;

|	
	android.widget.ProgressBar; android.widget.Spinner; android.widget.Toast; android.widget.AdapterView.OnItemSelectedListener; com.chanaka.bodima.adapters.Expense; com.google.firebase.auth.FirebaseAuth; com.google.firebase.database.DataSnapshot; com.google.firebase.database.DatabaseError; com.google.firebase.database.DatabaseReference; com.google.firebase.database.FirebaseDatabase; com.google.firebase.database.ValueEventListener; com.chanaka.bodima.adapters.UserCheckboxAdapter; com.chanaka.bodima.enums.CategoriesEnum; com.chanaka.bodima.adapters.User; java.util.ArrayList; java.util.HashMap; java.util.Map; java.util.concurrent.TimeUnit;

Description:

In Add Expense Activity, members can add their expense and also split expenses among the members. After add an expense members can edit their expense in Modify Expense Activity.

Members can transfer credit among others instead of exchange money.

GROUP CHAT ACTIVITY
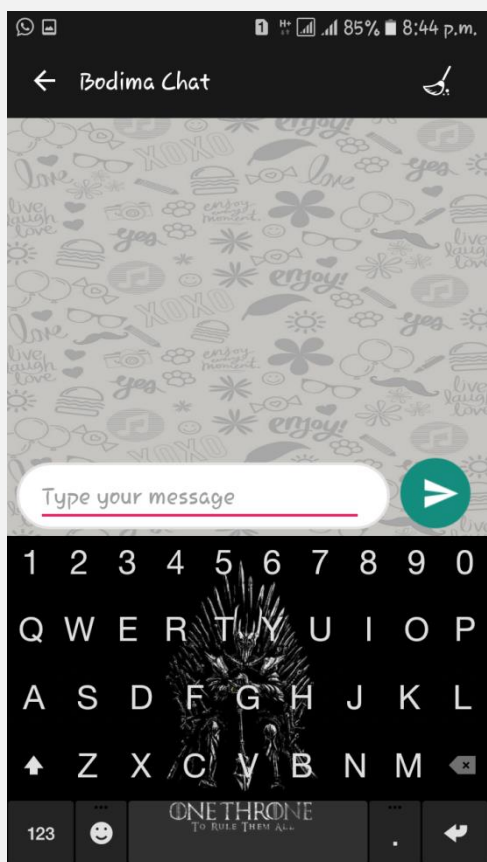
Activity name: Chat activity

Package: com.chanaka.bodima

Layout file: activity_chat.xml

Imported classes:
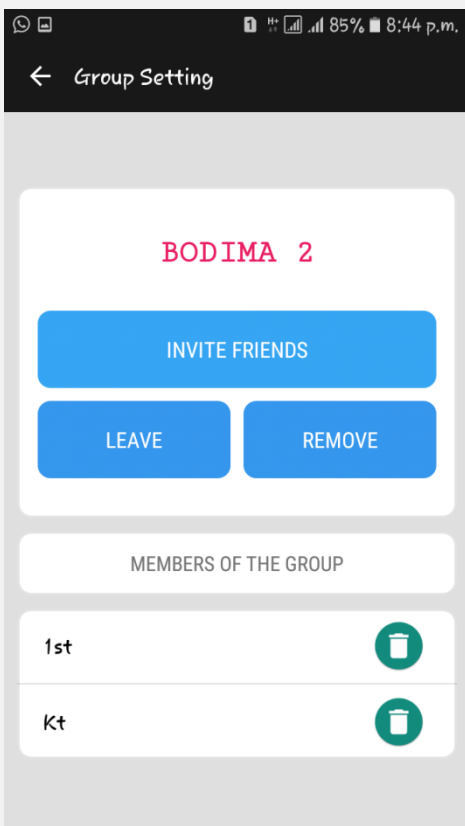
import android.app.Activity;

import android.content.Context;

import android.content.DialogInterface;

import android.content.Intent;

import android.os.Bundle;

import android.support.v7.app.AlertDialog;

import android.support.v7.app.AppCompatActivity;

import android.text.TextUtils;

import android.view.View;

import android.widget.ArrayAdapter;

import android.widget.Button;

import android.widget.EditText;

import android.widget.ImageButton;

import android.widget.ListView;

import android.widget.ProgressBar;

import android.widget.Toast;

import com.chanaka.bodima.adapters.Message;

import com.chanaka.bodima.adapters.MessageAdapter;

import com.google.firebase.auth.FirebaseAuth;

import com.google.firebase.database.ChildEventListener;

	import com.google.firebase.database.DataSnapshot; import com.google.firebase.database.DatabaseError; import com.google.firebase.database.DatabaseReference; import com.google.firebase.database.FirebaseDatabase; import com.google.firebase.database.ValueEventListener; import java.util.ArrayList; import java.util.HashMap; import java.util.Map; import java.util.concurrent.TimeUnit;

Description:
If anyone have any doubts or anything else with members it can ask from Group Chat Activity

GROUP SETTINGS ACTIVITY

	Activity name: Group Settings **Package:** com.chanaka.bodima **Layout file:** activity_group_settings.xml **Imported classes:** import android.content.Intent; import android.support.v7.app.AppCompatActivity; import android.os.Bundle; import android.view.View; import android.widget.AdapterView; import android.widget.ArrayAdapter; import android.widget.Button; import android.widget.ImageButton; import android.widget.ListView; import android.widget.ProgressBar; import android.widget.TextView;

	import com.chanaka.bodima.dialogs.IdentifyGroupDialog;
	import com.google.firebase.auth.FirebaseAuth;
	import com.google.firebase.database.ChildEventListener;
	import com.google.firebase.database.DataSnapshot;
	import com.google.firebase.database.DatabaseError;
	import com.google.firebase.database.DatabaseReference;
	import com.google.firebase.database.FirebaseDatabase;
	import com.google.firebase.database.ValueEventListener;
	import com.chanaka.bodima.dialogs.LeaveGroupDialog;
	import com.chanaka.bodima.dialogs.DeleteGroupDialog;
	import com.chanaka.bodima.adapters.User;
	import com.chanaka.bodima.adapters.UserAdapter;
	import com.chanaka.bodima.dialogs.RemoveUserDialog;
	import java.util.ArrayList;

Description:
Any member can leave from the group and remove the group permanently or remove any user from the group.

EDIT PROFILE ACTIVITY

	Activity name: Edit Profile
	Package: com.chanaka.bodima
	Layout file: activity_edit_profile.xml
	Imported classes:
	import android.content.Intent;
	import android.support.annotation.NonNull;
	import android.support.v7.app.AppCompatActivity;
	import android.os.Bundle;

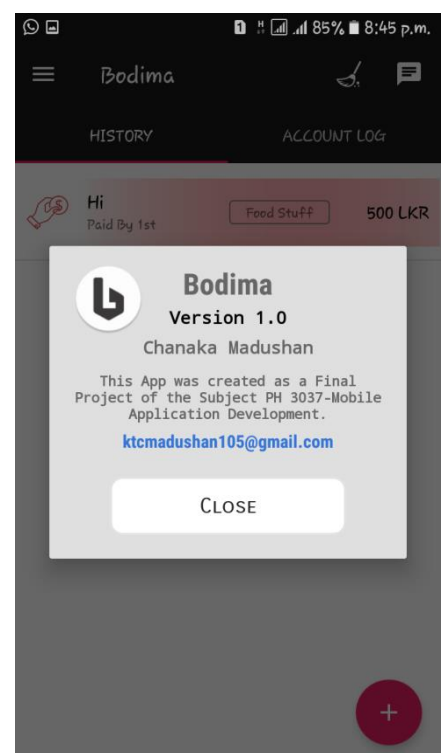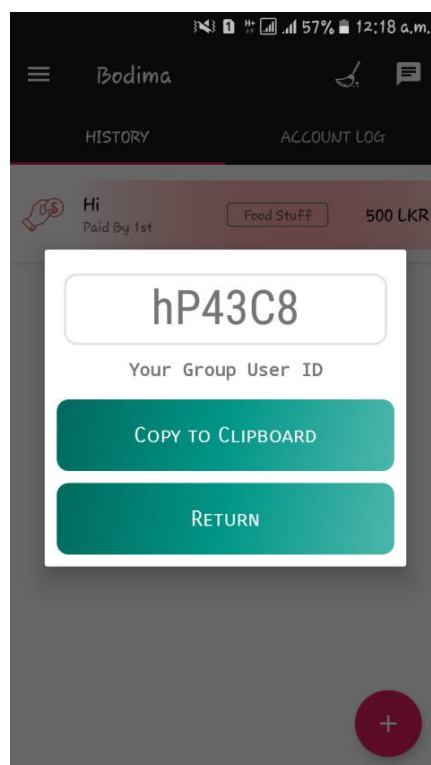|	
	import android.text.TextUtils; import android.view.View; import android.widget.Button; import android.widget.EditText; import android.widget.ImageButton; import android.widget.ProgressBar; import android.widget.Toast; import com.google.android.gms.tasks.OnCompleteListener; import com.google.android.gms.tasks.Task; import com.google.firebase.auth.AuthCredential; import com.google.firebase.auth.EmailAuthProvider; import com.google.firebase.auth.FirebaseAuth; import com.google.firebase.auth.FirebaseUser; import com.google.firebase.database.FirebaseDatabase;

Description:

After Create an account members can edit their profile by changing the password. For change profile require Current password, New password and Confirm new password.

DIALOGS

Package: package com.chanaka.bodima.dialogs;

Imported classes:

import android.app.Activity;

import android.app.Dialog;

import android.os.Bundle;

import android.view.View;

import android.view.Window;

import android.widget.Button;

import com.chanaka.bodima.R;

5. TIMELINE

TASK	WEEK OF						
	1	2	3	4	5	6	7
Project Proposal	▓						
UML Design		▓					
GUI Design		▓	▓	▓			
System Development			▓	▓	▓	▓	
Running and Debugging				▓	▓	▓	
Completion and Implementation						▓	▓

6. DISCUSSION

- ➢ BODIMA makes sorting out and dividing your group expenses very easy when you organize activities.

- ➢ Gone are the days of the old excel file, an easier and effective solution exists to breakdown the cost, share expense. BODIMA does the accounting and balance the cost for the group.

- ➢ It lets you breakdown the budget of a group and track expenses during a trip or any occasion with friends. It can be used couples, between colleagues, roommates & flat mates. It is a simple yet powerful tool to figure out who owes what to whom and balance spending: I owe you; you owe me (IOU). Members can transfer credit form one member to another instead of exchange money.

- ➢ Create your group expenses on your mobile during your group activity. Send everyone USER ID to join an existing group.

- ➢ After create an account members of the group can use BODIMA group chat to share their daily activities, expenses details etc.

CONCLUSION

This proposed project has done with the android studio for traditional boarders. But this app is more suitable for more than 2 persons and boarders who have more complicated expenses. This project is planning to implement and improve with more functionalities in future by analyzing the background of the boarders feedbacks.