MONASH University
Information Technology

# FIT5183 Mobile and Distributed Computing Systems 2016
# Calorie Counter Application
# Practical Assignment Phase 2

Task 1 – Invoking public web APIs (15%)

### *1.Bing APIs*

a)Firstly,I login bing developer website to get the Primary Account Key,as the following shows. Then according to the development, I set relative parameters in the URL, and use it to visit website and get the information by the form of JSON.Finally, I parse JSONObject to Web information. As for Image Search, I get the "MediaUrl" of the picture and use the third library Picasso to transfer url to the picture.

### *2.FatSecret APIs*

a)Firstly, I visit the FatSecret website to get the API Consumer Key and API shared Secret and add the FatSecret.class into my project.Then I execute search function to get useful information by the form of JSON. Finally I parse JSONObject to get correct values according to the results.

Task 2 Android Client of RESTful WS (6%)

### *1.http connection*

In the project, I use URLconnection to consume the restful service created in the Phase 1. The relative code is following.

```
public class ConnectWeb {
    public static String getContent(String urls){
        try{
            String urls1 = urls.replace(" ","%20");
            URL url = new URL(urls1);
            HttpURLConnection conn = (HttpURLConnection) url.openConnection();
            conn.setRequestMethod("GET");
            conn.setRequestProperty("Content-Type", "application/json");
            conn.setRequestProperty("Accept","application/json");
            InputStream in = new BufferedInputStream(conn.getInputStream());
            BufferedReader buffer = new BufferedReader(new InputStreamReader(in));
            StringBuffer sb = new StringBuffer();
            String line = null;
            while ((line = buffer.readLine())!=null){
                sb.append(line);
            }
            conn.disconnect();
            return sb.toString();
        }catch (Exception e){
            e.printStackTrace();
        }
        return null;
    }
}
```

### *2.AsynTask*

In ordet to promote fluency of UI, we need to put time-consumed operation such as database,Internet into AsynTask to perform background operations and punish results on the UI thread without having to manipulate threads and handlers. The following is one example.

```
private class GetInfo extends AsyncTask<String,Void,String>{
     @Override
     protected String doInBackground(String... url) {
         System.out.println(url[0]);
         return ConnectWeb.getContent(url[0]);
     }

     @Override
     protected void onPostExecute(String s) {
         super.onPostExecute(s);
         try {
             JSONObject result = new JSONObject(s);
             consume.setText(result.getString("consume"));
             burned.setText(result.getString("burned"));
             goalText.setText(result.getString("goal"));
             stepView.setText(result.getString("steps"));
             remainingText.setText(result.getString("remianing"));
             net.setText(result.getString("net"));
         } catch (JSONException e) {
             e.printStackTrace();
         }
     }
 }
```

## Task 3 Android SQLite Database (14%)

### *1.User table*

When user register in the application, System will create a table in sqlite to store the username,password and date of register.

```
  String CREATE_STATEMENT =
       "CREATE TABLE IF NOT EXISTS " + TABLE_NAME + "(" +
            USER_ID + " INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL, " +
            NAME + " TEXT NOT NULL, " +
            PASSWORD + " TEXT NOT NULL, " +
            DATE + " TEXT NOT NULL" +
            ")";

db.execSQL(UserLocal.CREATE_STATEMENT);
```

## 2.Password

The password would be encrypted by MD5.

```
public class PasswordMD5 {
    public static String generateCode(String str) throws
NoSuchAlgorithmException {
        MessageDigest md5 = MessageDigest.getInstance("MD5");
        byte[] srcBytes = str.getBytes();
        md5.update(srcBytes);
        byte[] resultBytes = md5.digest();
        String result = new String(resultBytes);
        return result;
    }
}
```

## 3.Step table

The step table stores user have took steps at different times. The structure is following.There is a 1-m relationship between User table and Step table.

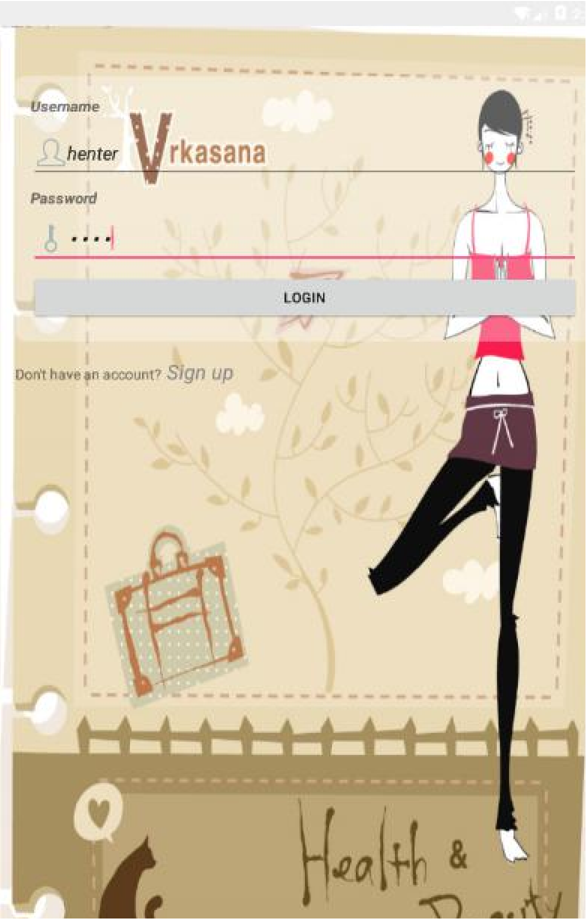
```
String CREATE_STATEMENT =
        "CREATE TABLE IF NOT EXISTS " + TABLE_NAME + "(" +
             RECORD_ID + " INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL, " +
             TIME + " TEXT NOT NULL, " +
             STEPS + " INTEGER NOT NULL, " +
             USER_ID+" INTEGER NOT NULL, "+
             "FOREIGN KEY("+USER_ID+") REFERENCES "+ UserLocal.TABLE_NAME+"("+
UserLocal.USER_ID+
             ")"
        +")";

db.execSQL(StepLocal.CREATE_STATEMENT);
```

Task 4 Screens, Interface and Navigation (65%)

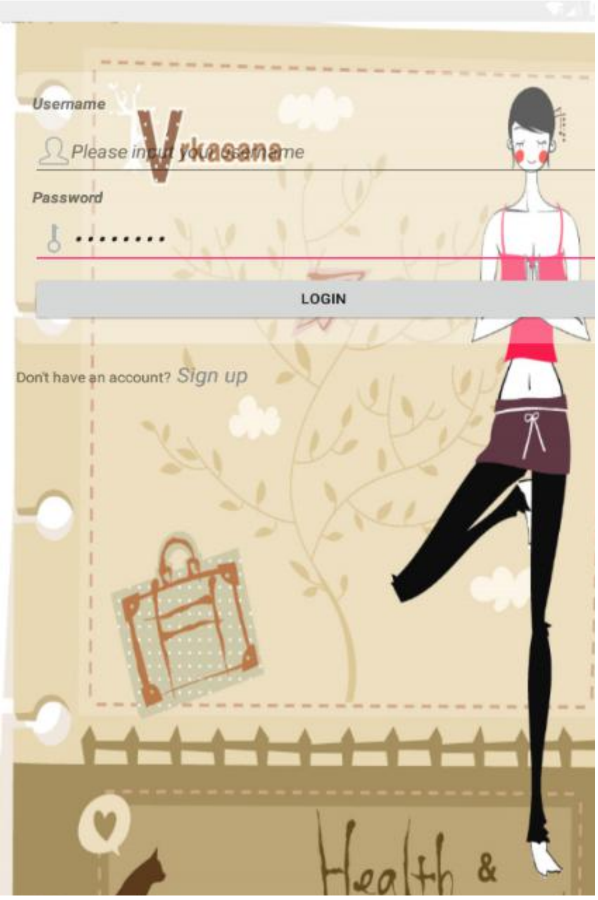
## 1.Login

The first screen is login Activity. User need to input correct username and password.If user don not input username or password, system would judge whether it is empty. If user input incorrect username or password,system would remain user to try again and input correct password and username.System get the username and password and use them as parameters to consume RESTful service to get result. If the result is not null,it means username and password are correct. And application moves to the next activity HomeActivity.The screen is following.



Username: henter

Password: ····

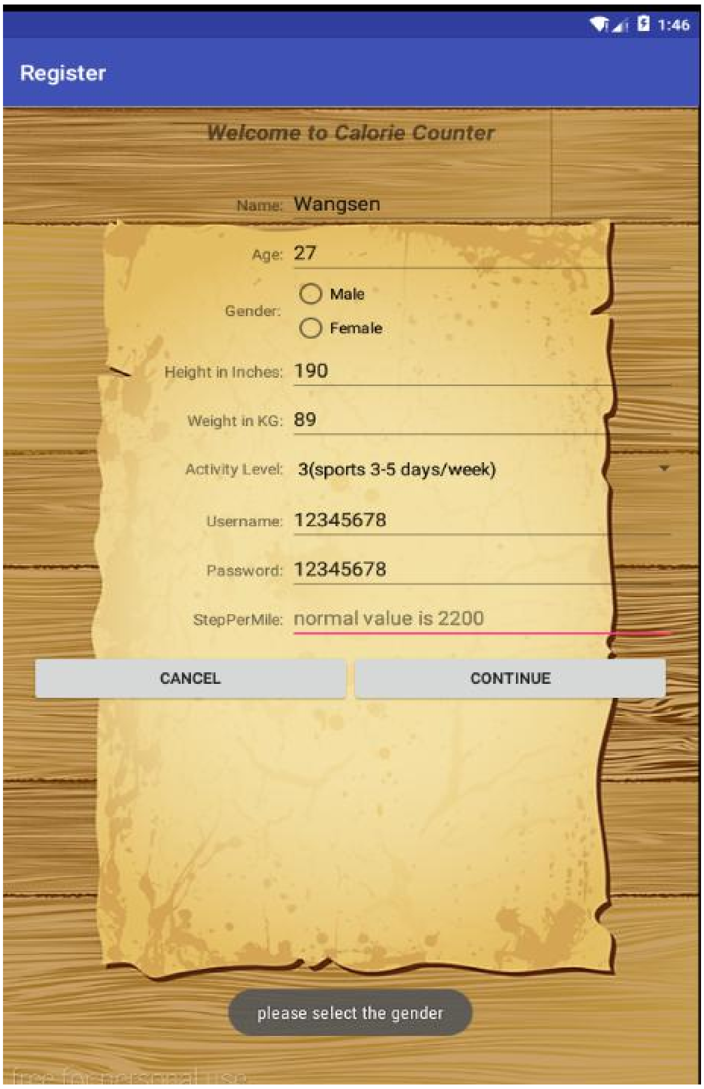


Username: Please input your username

Password: ·········

## *2.Register*

As for new users,the application provides a create account option to register. When user click the sign up link,the application would move to the next the activity to allow user to fill relative information.If user forget to fill several items,application will remain user.The application would use the username filled by user to consume RESTful service to test whether the username have been registered.If the information is suitable,the application would add a record in the user table in the service-side.



1:46

Register

Welcome to Calorie Counter

Name: Wangsen

Age: 27

Gender: ○ Male ○ Female

Height in Inches: 190

Weight in KG: 89

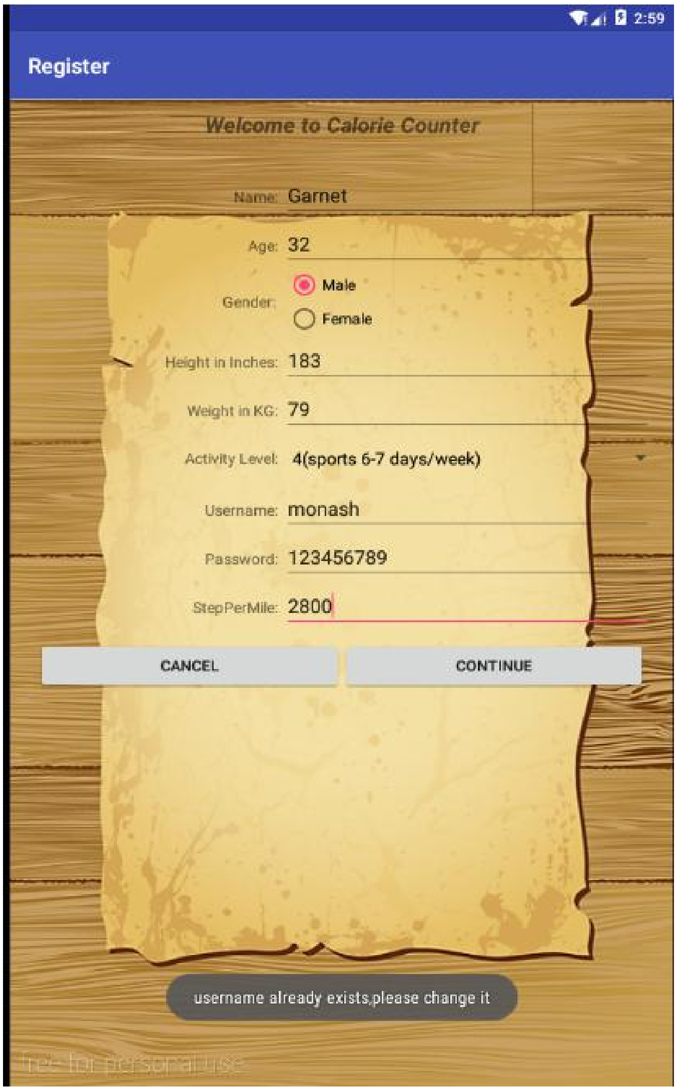
Activity Level: 3(sports 3-5 days/week)

Username: 12345678

Password: 12345678

StepPerMile: normal value is 2200

please select the gender



2:59

Register

Welcome to Calorie Counter

Name: Garnet

Age: 32

Gender: ● Male ○ Female

Height in Inches: 183

Weight in KG: 79

Activity Level: 4(sports 6-7 days/week)

Username: monash

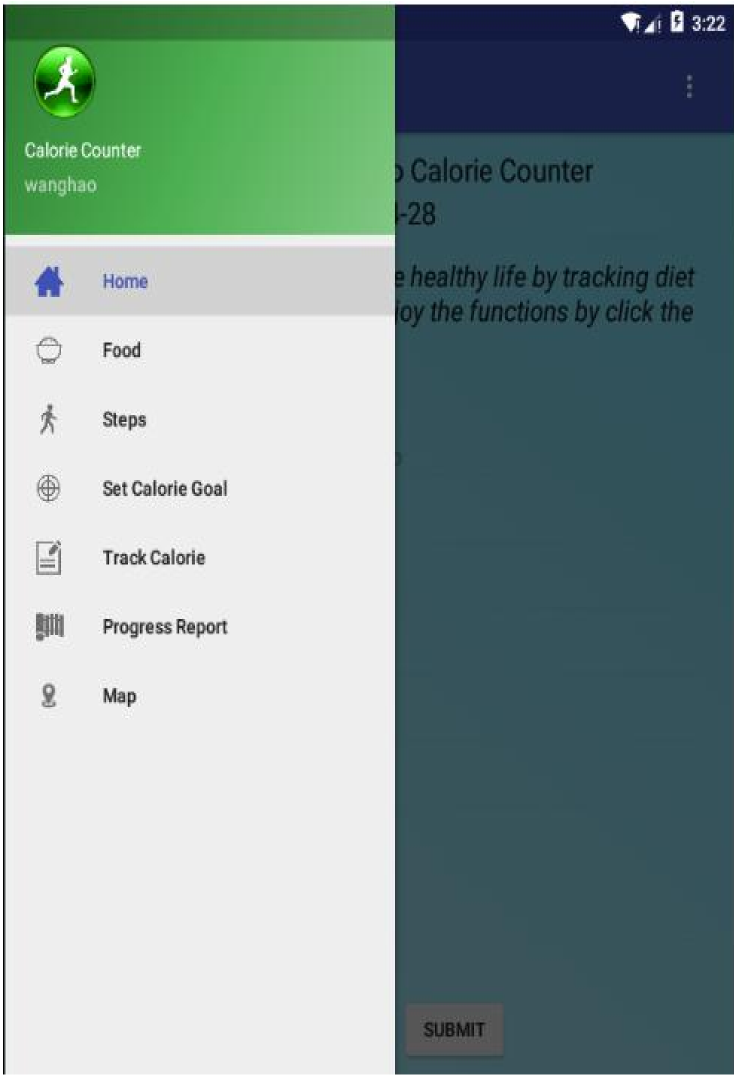
Password: 123456789

StepPerMile: 2800

username already exists,please change it

### *3.HomeActivity*

The HomeActivity allows navigation to other screens.The detailed information and screen are following.

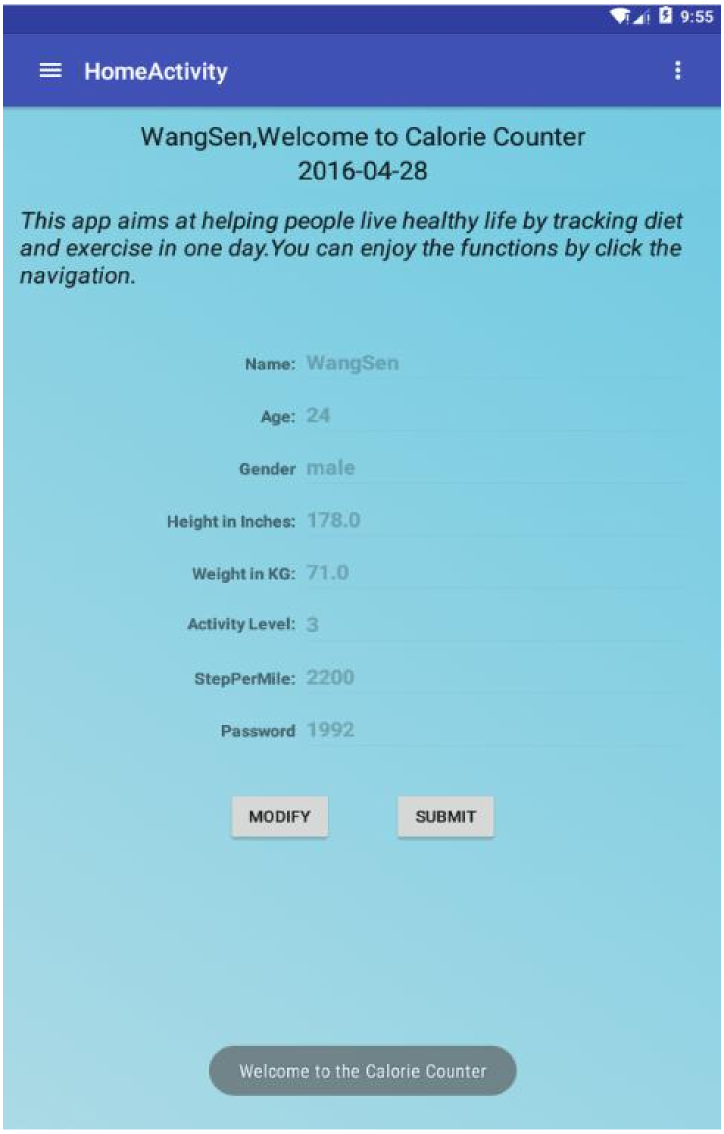


This displays user name and the logo of the application

By clicking the item, the application would move to next fragment.

### *4.MainFragment*

The mainfragment displays welcome the user by their name and shows the date and brief description of the application.And it also provides the user total information and allow user to click the “modify” button to revise relative information.

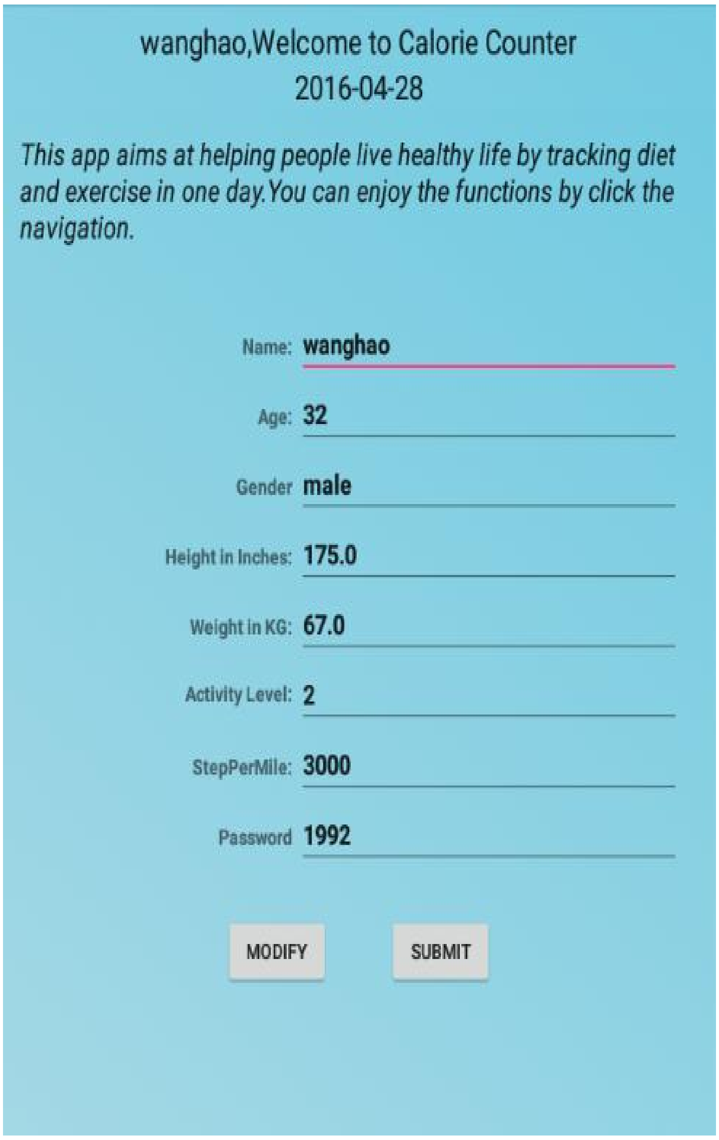


WangSen,Welcome to Calorie Counter
2016-04-28

*This app aims at helping people live healthy life by tracking diet and exercise in one day.You can enjoy the functions by click the navigation.*

| | |
|---|---|
| Name: | WangSen |
| Age: | 24 |
| Gender | male |
| Height in Inches: | 178.0 |
| Weight in KG: | 71.0 |
| Activity Level: | 3 |
| StepPerMile: | 2200 |
| Password | 1992 |

Welcome to the Calorie Counter



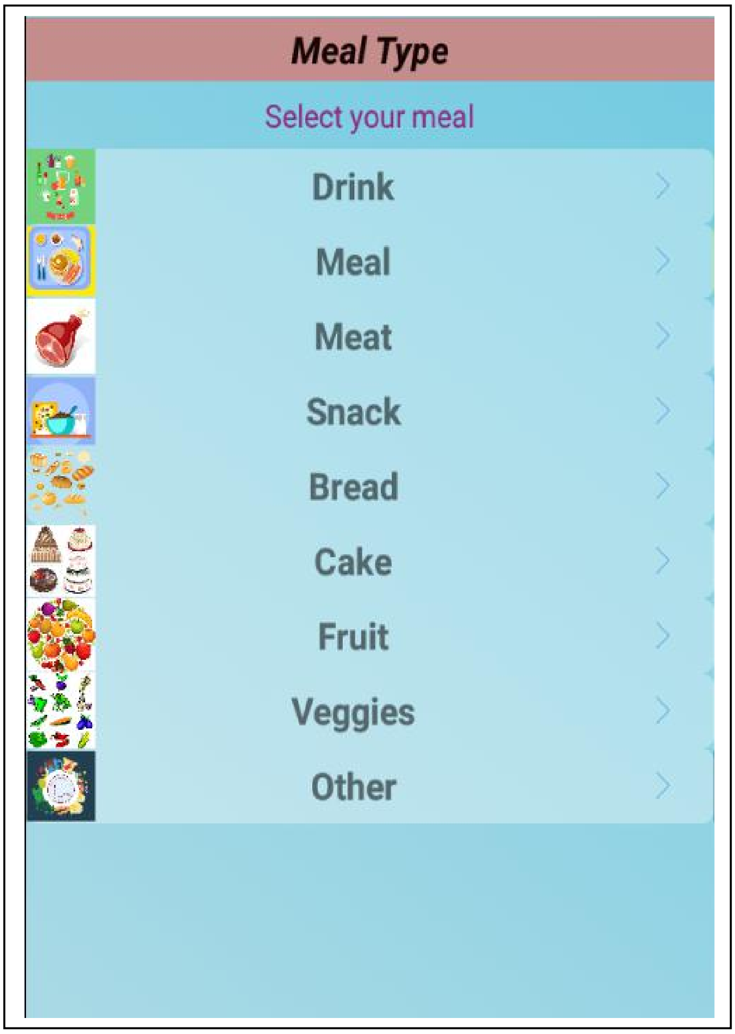
wanghao,Welcome to Calorie Counter
2016-04-28

*This app aims at helping people live healthy life by tracking diet and exercise in one day.You can enjoy the functions by click the navigation.*

| | |
|---|---|
| Name: | wanghao |
| Age: | 32 |
| Gender | male |
| Height in Inches: | 175.0 |
| Weight in KG: | 67.0 |
| Activity Level: | 2 |
| StepPerMile: | 3000 |
| Password | 1992 |

## *5.FoodFragment*

The Fragment displays eight categories,and user can click different food categories to get relative foods list from food table in the service-site. Every food item would be put into listView.



Meal Type

Select your meal

Drink

Meal

Meat

Snack

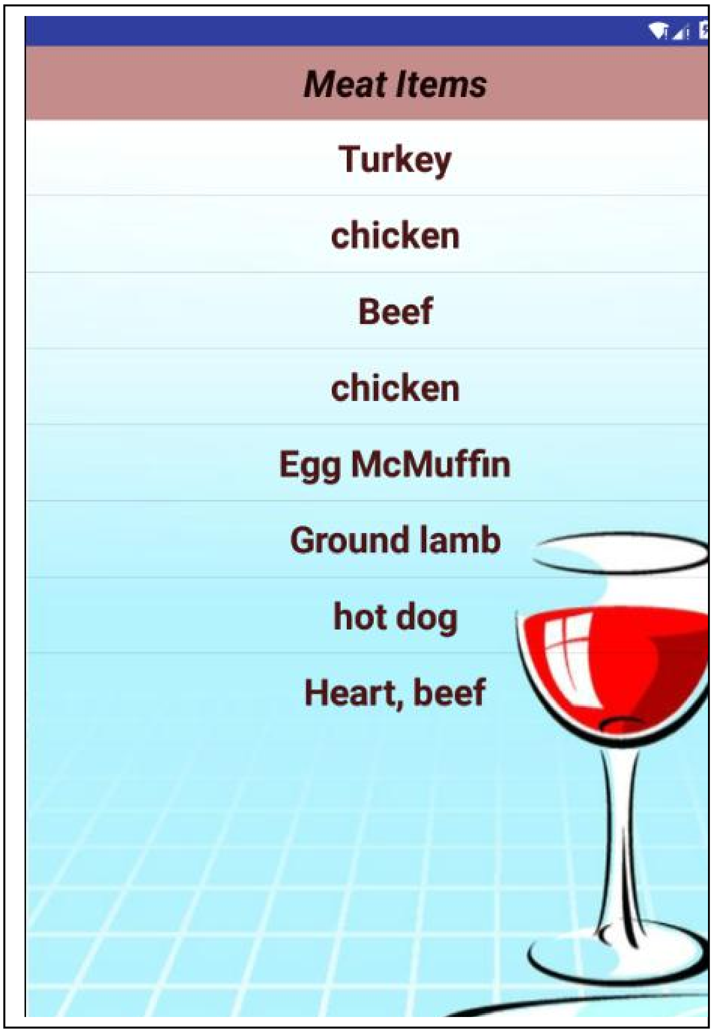
Bread

Cake

Fruit

Veggies

Other



Meat Items

Turkey

chicken

Beef

chicken

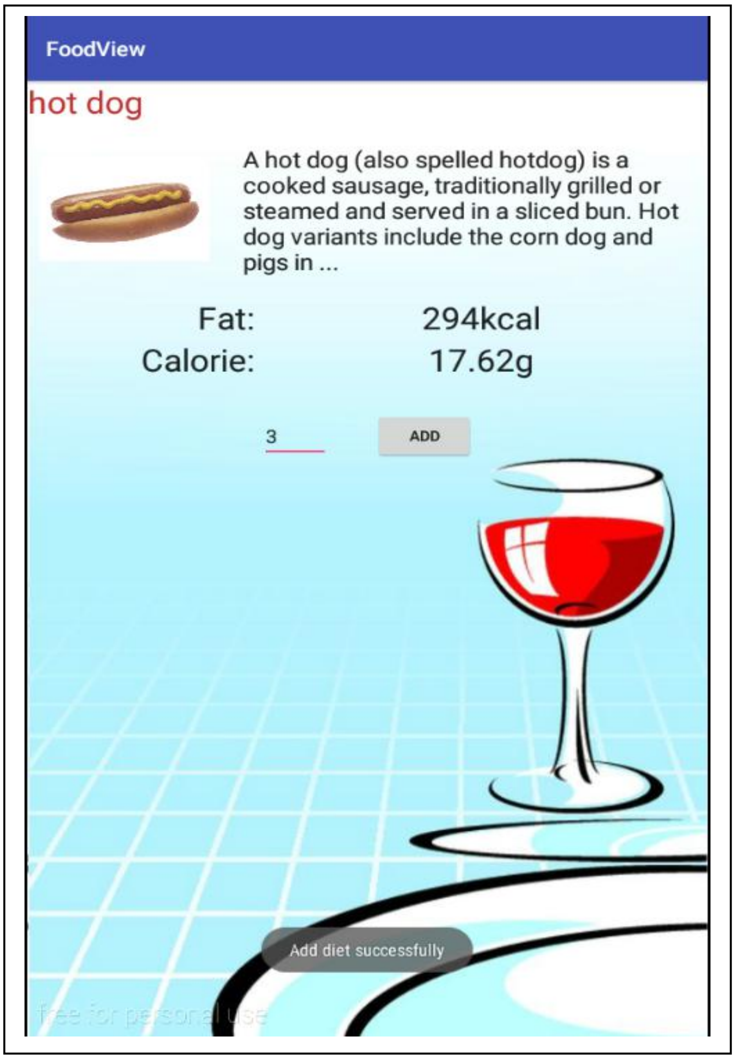
Egg McMuffin

Ground lamb

hot dog

Heart, beef

When user click the food item, the application move to the foodView Activity to get detailed information. The picture of food is got by Bing Image Search and the description is from Bing Web search. By the Fatsecret API, I get the data about fat and calorie.User can fill the num and click the add button to decide what to eat today and add a record to consume table in the service-side.

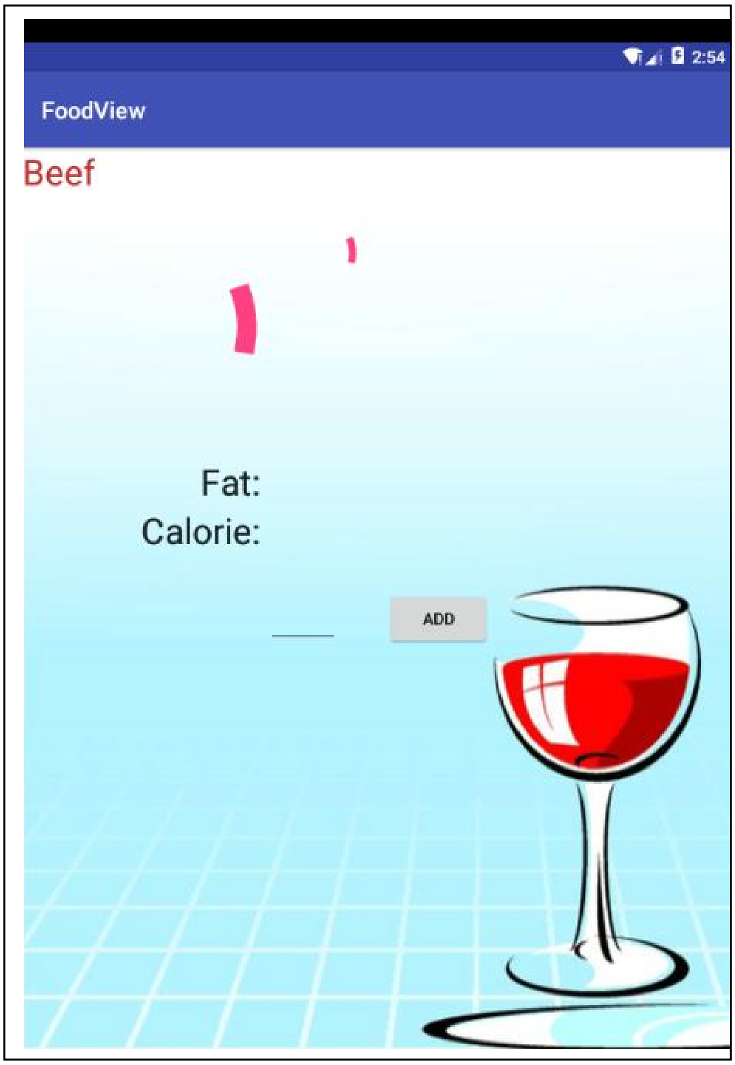


FoodView

hot dog

A hot dog (also spelled hotdog) is a cooked sausage, traditionally grilled or steamed and served in a sliced bun. Hot dog variants include the corn dog and pigs in ...

Fat: 294kcal
Calorie: 17.62g



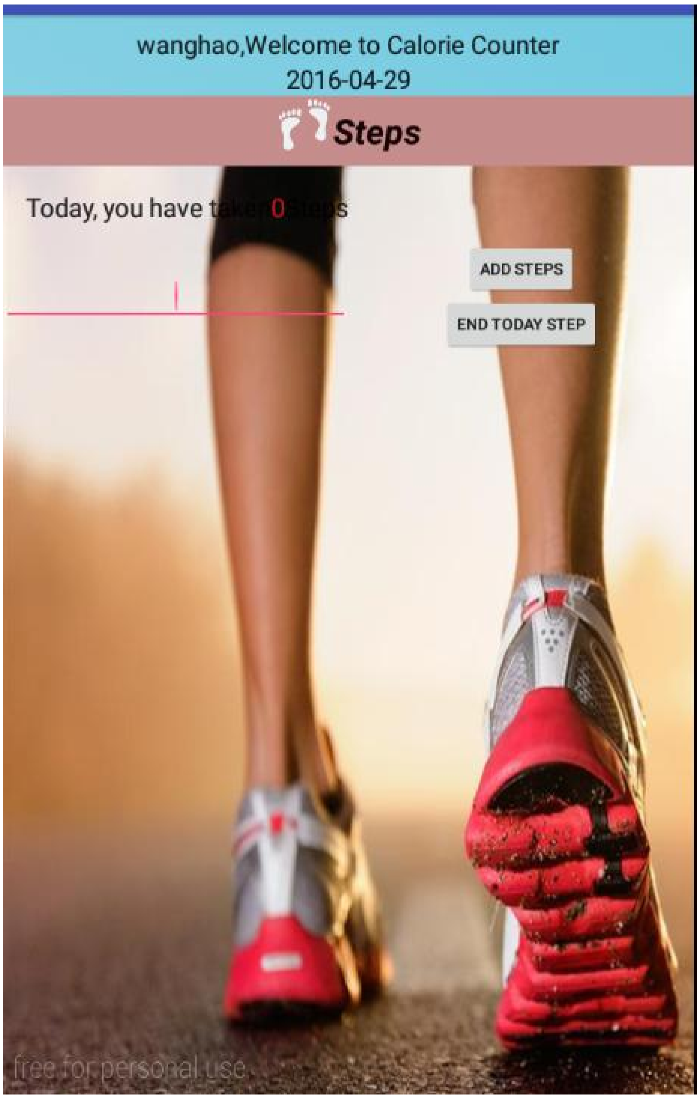
FoodView

Beef

Fat:
Calorie:

### *6.StepFragment*

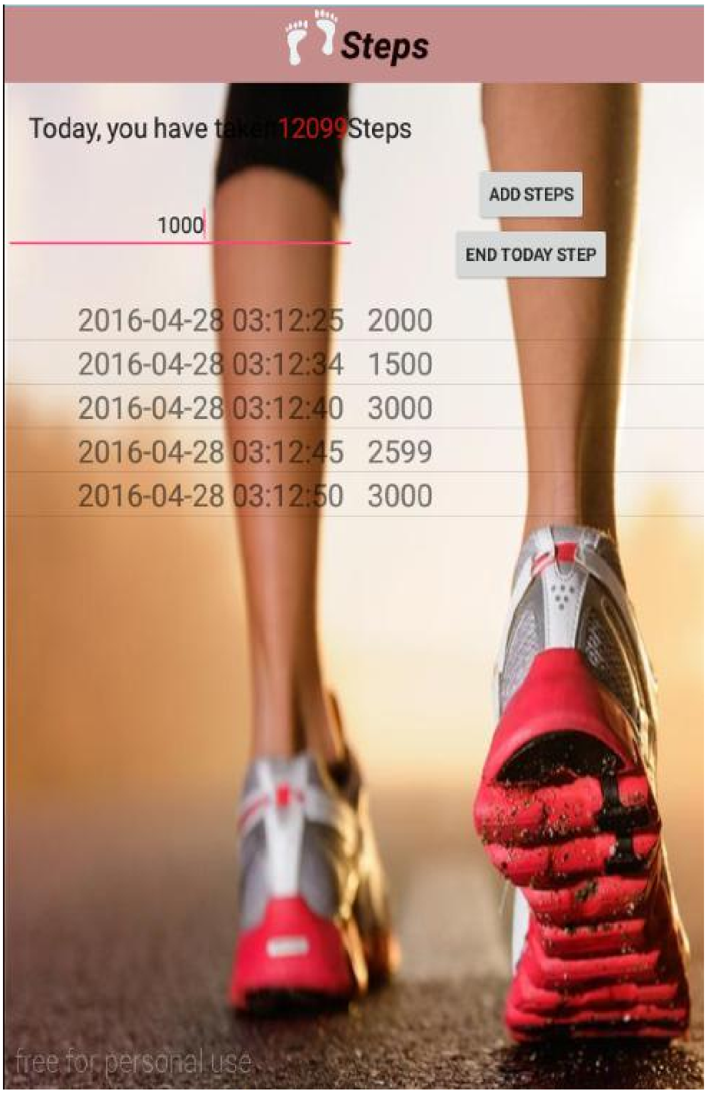
In the screen, user can enter the steps and application would store in the local database and it also display all records in different times in the listview. And in the top of screen, it records total steps in the textview.User can update the total steps to report table in service-side by clicking end today step button.



wanghao,Welcome to Calorie Counter
2016-04-29

Steps

Today, you have taken 0 Steps



Steps

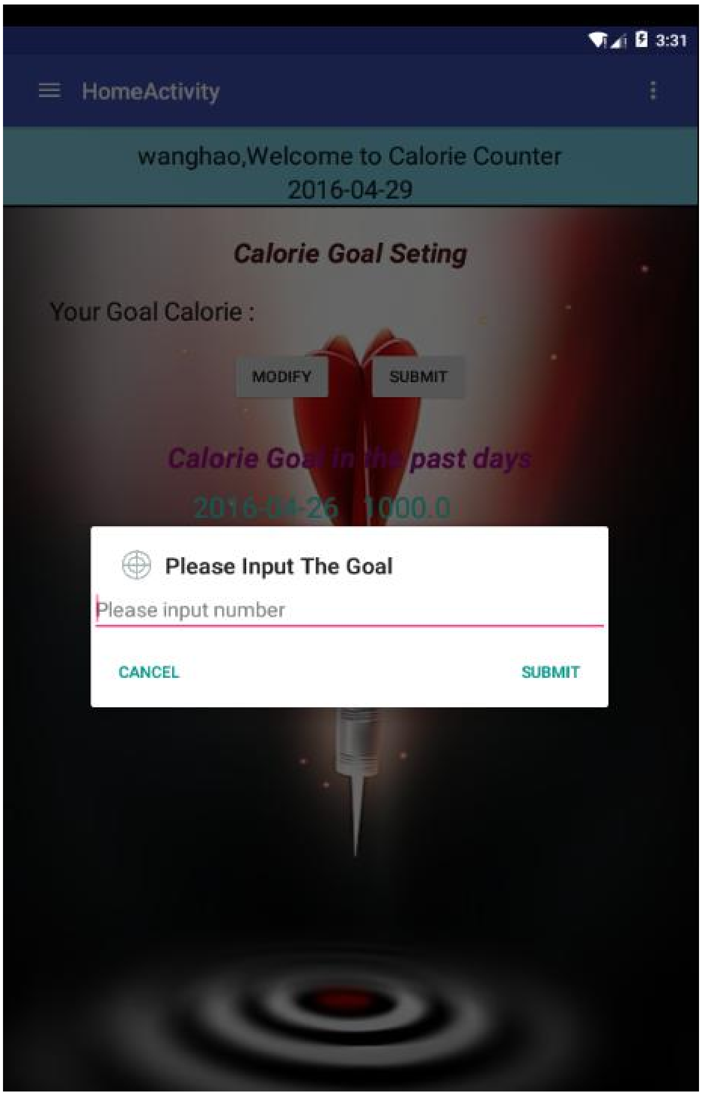
Today, you have taken 12099Steps

1000

```
2016-04-28 03:12:25   2000
2016-04-28 03:12:34   1500
2016-04-28 03:12:40   3000
2016-04-28 03:12:45   2599
2016-04-28 03:12:50   3000
```

### *7.SetCalorieGoalFragment*

When user enter the fragment, it would show the dialog to let user set calorie goal if user do not set. User can modify the goal by clicking the modify button and click the submit button to update the report table in the server-side.And it also list the last week goal to help user set calorie goal.



3:31

wanghao,Welcome to Calorie Counter
2016-04-29

Calorie Goal Seting

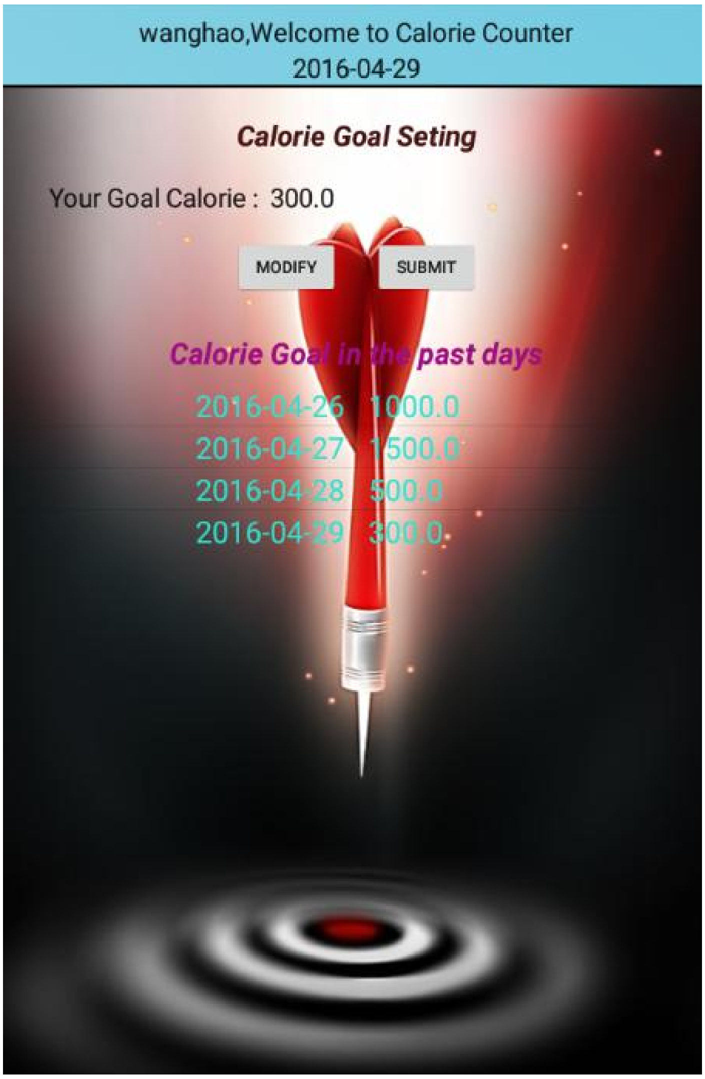
Your Goal Calorie :

Calorie Goal in the past days

2016-04-26 1000.0

Please Input The Goal

Please input number



wanghao,Welcome to Calorie Counter
2016-04-29

Calorie Goal Seting

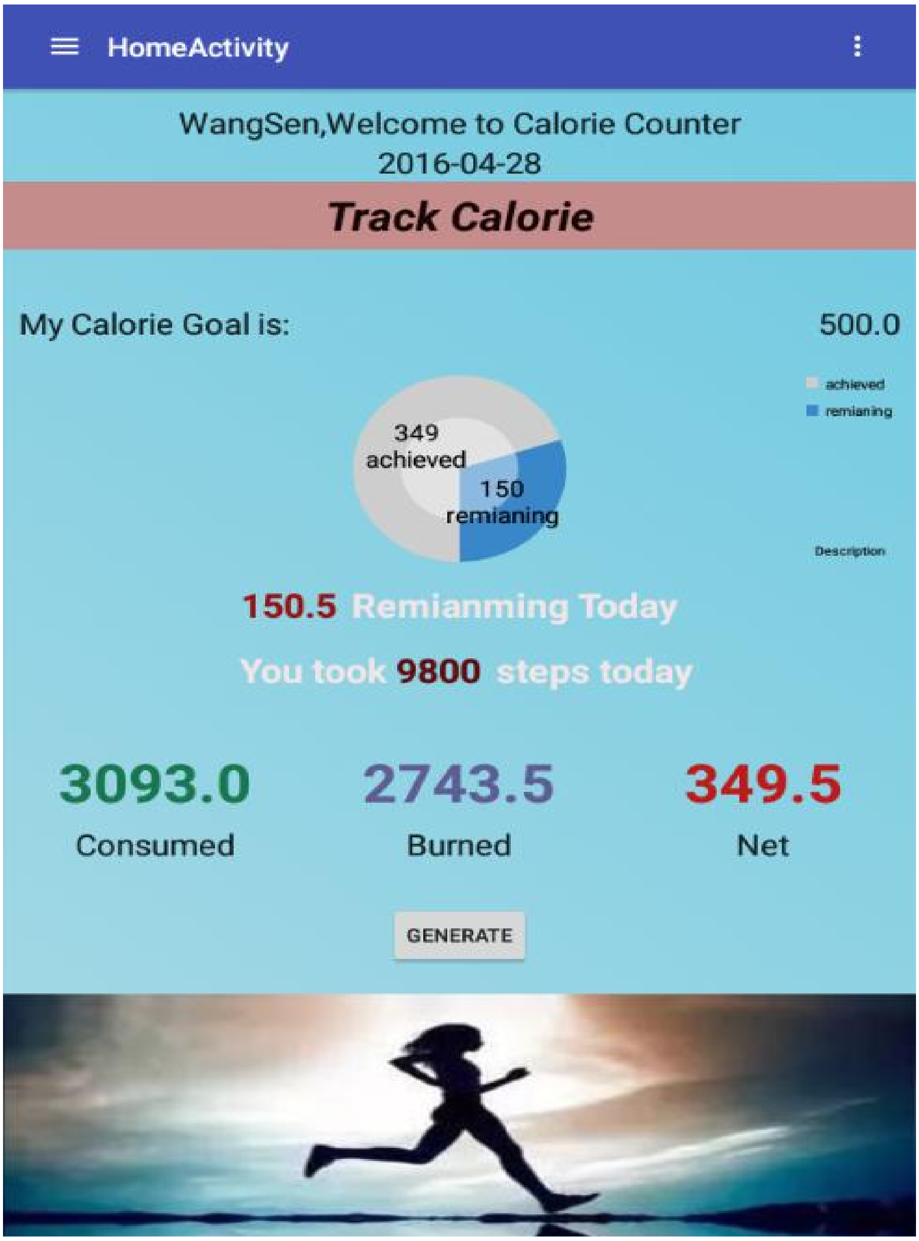
Your Goal Calorie : 300.0

Calorie Goal in the past days

| | |
|---|---|
| 2016-04-26 | 1000.0 |
| 2016-04-27 | 1500.0 |
| 2016-04-28 | 500.0 |
| 2016-04-29 | 300.0 |

*8.TrackCalorieFragment*

This screen display the the calorie track on the day. Firstly, it shows the calorie goal and the net calorie. The goal achieved and the goal unachieved are shown by the PieChart. Then the total steps is shown.The data about consume,burned and net is from server-side database. User click the generate button to update report table in the server-side.



WangSen,Welcome to Calorie Counter
2016-04-28

Track Calorie

My Calorie Goal is: 500.0

150.5 Remianming Today

You took 9800 steps today

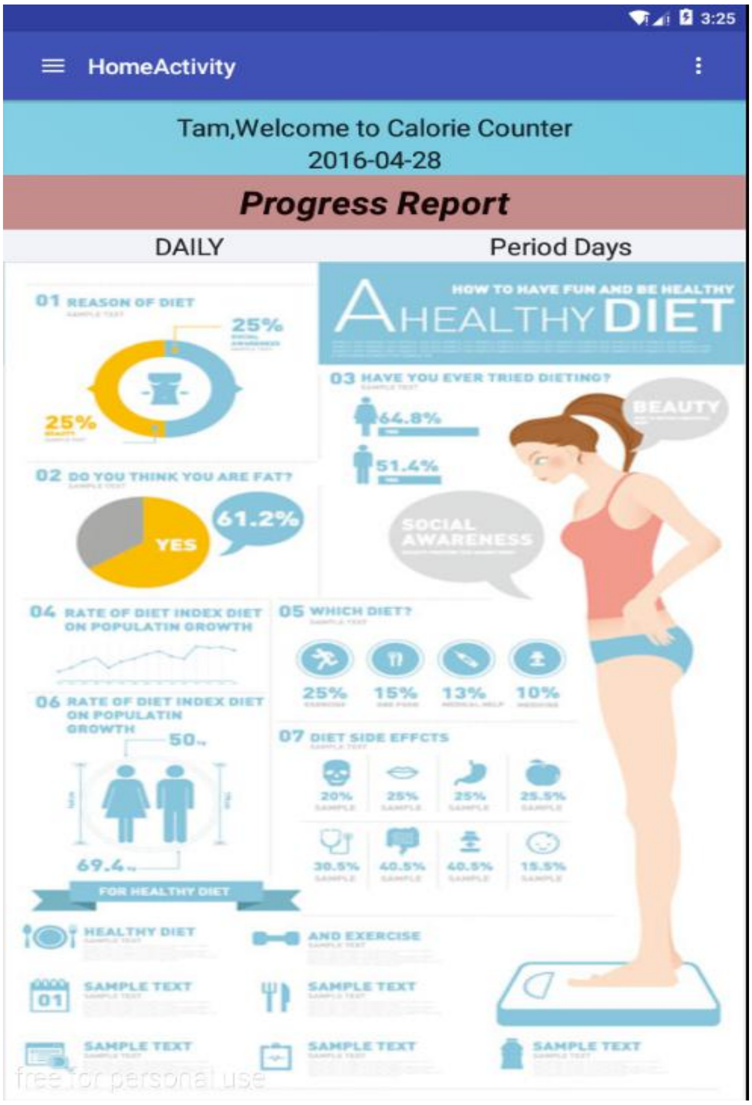
3093.0 Consumed

2743.5 Burned

349.5 Net

*9.ProgressReportFragment*

The screen display user's calorie situation on one day or period by the chart. User can click different item to get different information.In the daily progress report,all steps record are shown by piechart and the consume calorie,burned calorie and net are displayed by bar chart. When user click the period days, user need to enter start date and end date to get consumed calorie and burned calorie by the line chart.



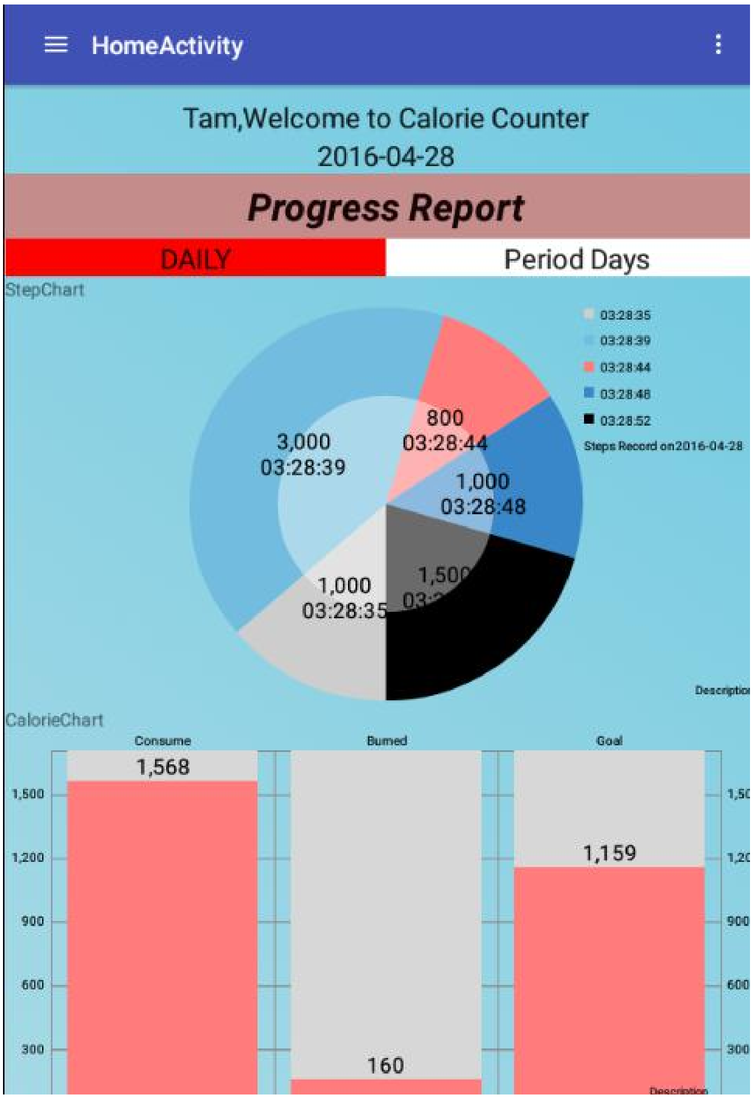
3:25

HomeActivity

Tam,Welcome to Calorie Counter
2016-04-28

***Progress Report***

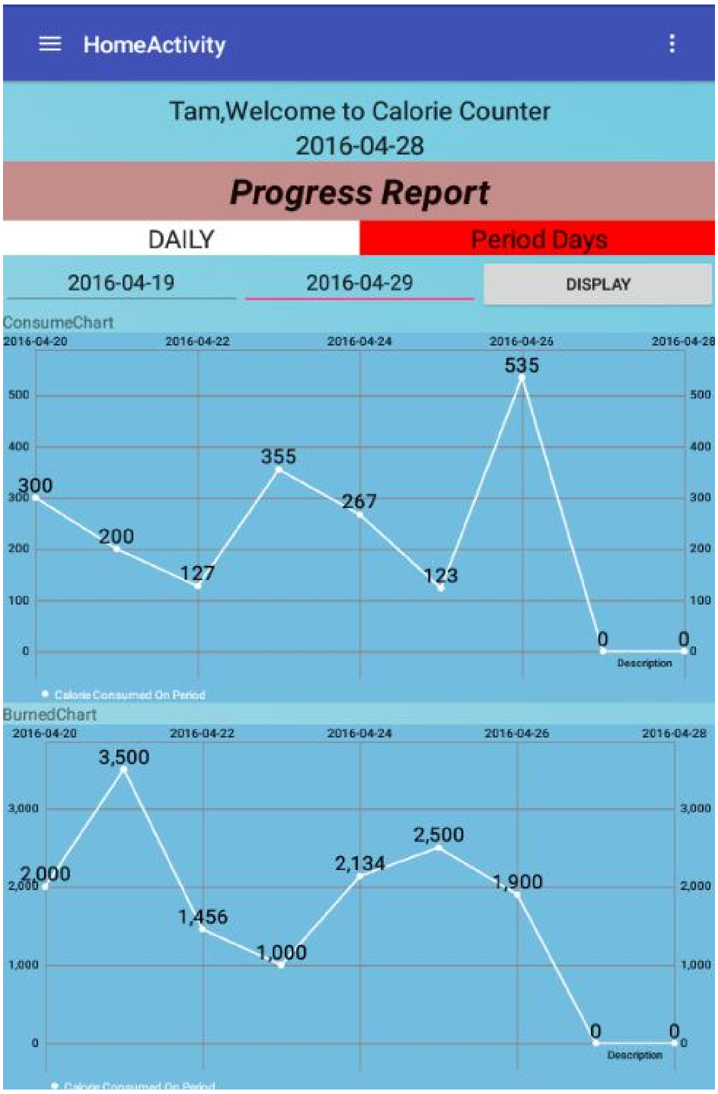
DAILY | Period Days



HomeActivity

Tam,Welcome to Calorie Counter
2016-04-28

Progress Report



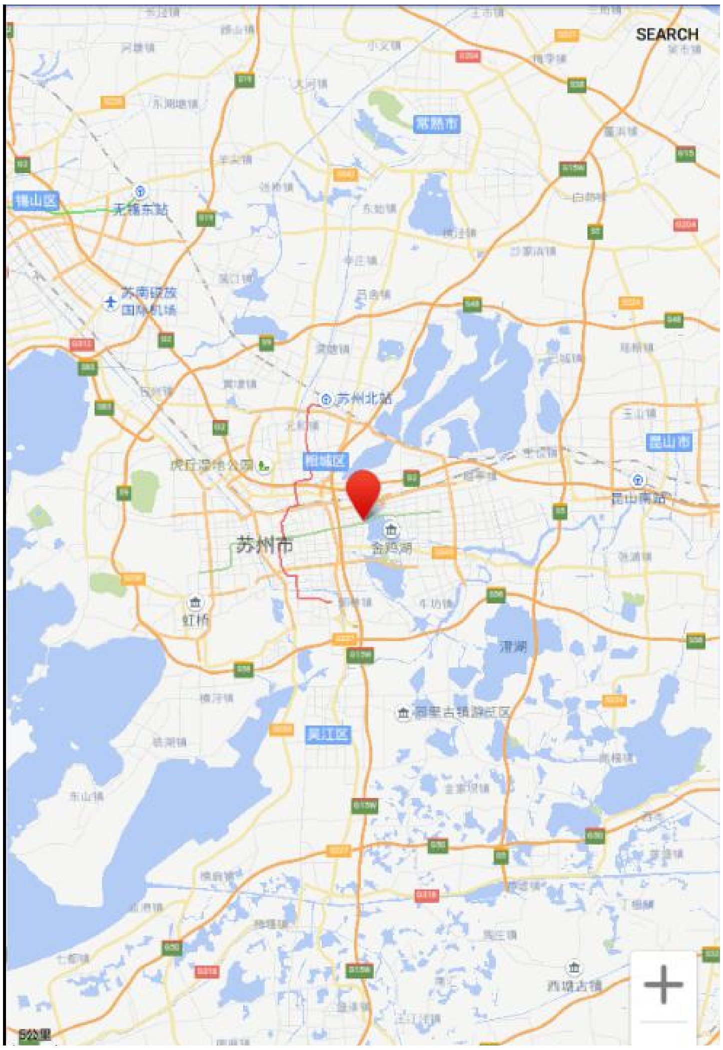
HomeActivity

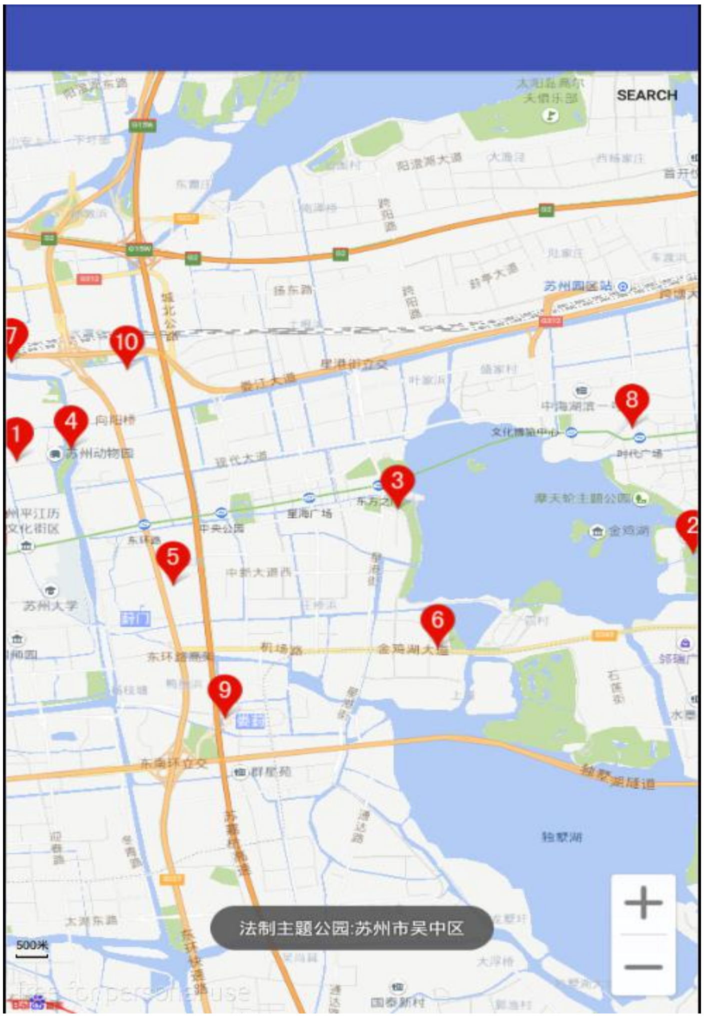
Tam,Welcome to Calorie Counter
2016-04-28

Progress Report

## *10.Map*

In this screen, I user baidu map API to search nearest parks. Firstly, the map target the location and when user clicks the search button and would get the nearest parks without the radius of 5 kilometers.When users click the park icon, they would get the detailed information about the park.





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Updated: 17 Jun 2014