

# Health Diary

## 1. Source files

The Health Diary Project includes all functions that have been developed for the Health Diary app.

- Source files are located in folder `.\app\src\main`.
- The code files are located in `.\app\src\main\java\app\healthdiary`, including five packages: Activities, Helper, Listeners, Services and SrveyHelper.
- User interface related code files (.java) are located in package Activities: `.\app\src\main\java\app\healthdiary\Activities`.
- User interface layout files (.xml) are located in `.\app\src\main\res\layout`.

Global string variable is defined in `.\app\src\main\res\values\strings.xml`

Other resources such as images are located in folders: `.\app\src\drawable-*`

## 2. Activities

Map between the user interface related code files and user interface layout files:

- `LoginScreen.java`—`loginscreen.xml` (the login page)
- `MainPage.java`—`mainpage.xml` (the main page after user login)
- `SettingActivity.java`—`activity_setting.xml` (the setting page)
- `WeeklyQ1Direct.java`—`activity_weekly_q1_direct.xml` (the first survey question)
- `WeeklyQ2Direct.java`—`activity_weekly_q2_direct.xml` (the second survey question)
- `WeeklyQ3Direct.java`—`activity_weekly_q3_direct.xml` (the third survey question)
- `RandomMomentContacts.java`—`activity_random_moment_contacts.xml` (the fourth survey question)

After login, a main page shows. A set of survey questions prompts at a random moment through 8 AM to 8 PM each day.

## 2. Service: Location data collection

*A service runs in background collecting subjects' location data continuously. Location data sampling frequency is dynamically adjusted based on the motion status such as moving or staying. Location data sources (including GPS and network) is also switched based on factors such as motion status, battery level and GPS accuracy.*

Source files:

- .app\src\main\java\app\healthdiary\Services\LocationCollectionService.java
- .app\src\main\java\app\healthdiary\Helper\LocationCollector.java
- .app\src\main\java\app\healthdiary\Helper\MotionDetector.java

Classes:

- LocationCollectionService: a service runs in background catching event broadcasts including screen off, battery power level low and battery power level recover. It runs a LocationCollector instance and a MotionDetector instance.
- LocationCollector: an object collects location data. It collects location data utilizing Google LocationManager. It takes four types and combinations of location data sources including Passive, GPS, Network and GPS + Network. It also takes two modes of data collection for moving and staying. In the moving mode, location data is sampled every 20 meters with a minimum time interval of 10 seconds while in the staying mode, location data is sampled every 5 minutes.
- MotionDetector: an object collects motion sensor (Accelerometer) data and determines motion status. It takes the LocationCollector instance of the LocationCollectionService as a member variable and switch the location data sources and data collection modes of the LocationCollector instance according to the detected motion status.

Usage:

- Create and Start the LocationCollectionService with the starts of the application.

```
Intent ServiceIntent = new Intent(getApplicationContext(), LocationCollectionService.class);
startService(ServiceIntent);
```

- Stop the service when closing the application or at the time you want to actively stop the service.

```
Intent serviceintent = new Intent(getApplicationContext(),LocationCollectionService.class);  
stopService(serviceintent);
```

Battery consumption tests:

- OS: Android 4.2
- Brand: HUAWEI
- Battery: 2000mAh
- Battery level from 100% to 15% duration: 14 ~ 15 hours
- Call time: around 20 minutes
- Total moving time: 1.5 ~ 2 hours

## Version

1.0.1

## License

BSD