

Project statement

I wanted to develop a tracking application that's mostly used for tracking outdoor sports activities such as running. So, I end up developing Run2Live.

This android application tracks user's location hence can be used to track activity such as running, walking or any activity in which you move and change your location. Well I myself go for early morning running and like to track myself. I hate to install and use different application when basically at the base level it's a kind of similar activity for instance running and biking are pretty much of same category of work and can be tracked with the same application but still I need to use different application. Hence, I tried to make an application that tracks two activities running and biking. Android play store has loads of application on fitness tracking, but I am not sure whether there is an application that does multiple sports especially sports like running, swimming or biking. Anyone who likes outdoor activity especially running, and biking can use Run2Live for tracking.

Application Design

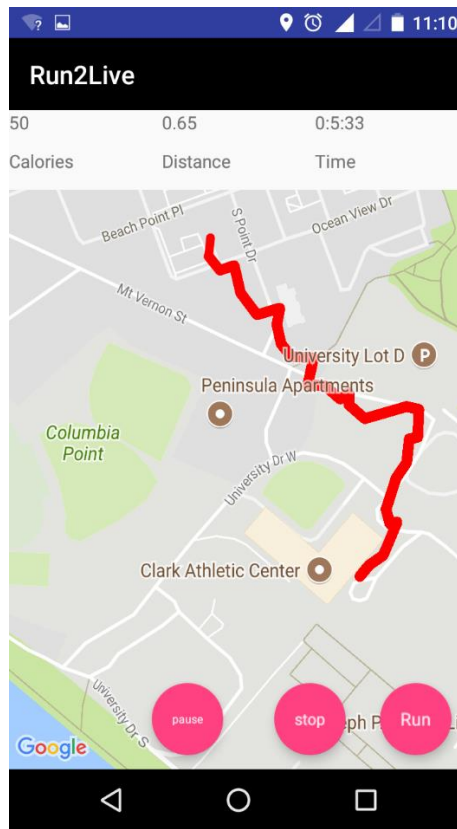
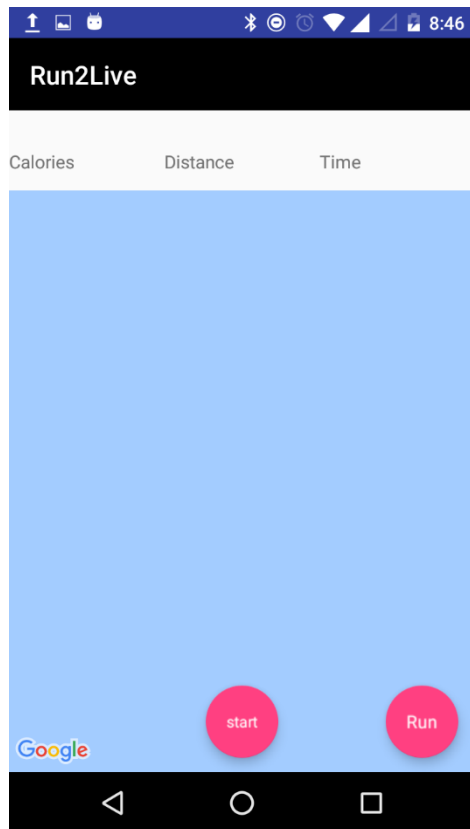
Run2Live is built upon 4 activities. The main activity; MapsActivity is where the map loads and you can see calories burned, time and distance covered(Km). Once the application is started you see the main activity. In the main activity I have map and two FloatingActionButton start and an indication of the state it is in. Run2Live can be two states run or cycle. You can switch between two states by clicking the same state indicating button. Once start button is clicked it checks for user authentication and if the user has never used the app it will ask for registration. I have used regex so that user just don't put any garbage value. In that case there is toast implemented that ask user to re-enter information. The registration information is used for calories calculation.

The application checks for user permission to use Internet, Wifi and cellular network if not provided or disabled.

The application has stop and pause button to completely stop the location update. Once the application is stopped it updates the database and the record is maintained.

The statistic activity shows you latest update such as Calories, Distance, Time and Speed. The History activity gets up to latest 8 entries from the database. There is navigation bar that provide navigation to various activity such as History and Statistic activity. The calories are calculated based on heart rate. I have used an if else condition where based on the user's age, gender and type of activity cycling or running I do the switch between heart rate and fix it for calories calculation. It only increases or decreases based on speed of the user. I have used Room persistence library for databases.

I have implemented Async task for inserting user statistic data in the database. A runnable thread is used for timer. It continuously updates the timer in the U.I thread. This thread is paused and restarted after you click pause button.



MainActivity

This screenshot shows the 'Run2Live' app interface for user authentication. The app has a blue header bar with a back arrow and the title 'Run2Live'. The status bar at the top shows the time as 10:55. The form contains the following fields and options:

- FirstName:
- LastName:
- Gender: ☒ Male ☐ Female
- Height:
- Weight:
- age:

An 'UPDATE' button is located at the bottom of the form.

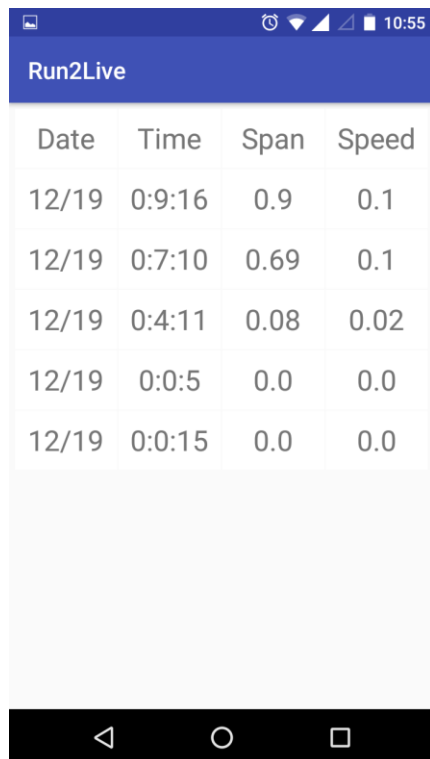
User Authentication

This screenshot shows the 'Run2Live' app interface with a navigation bar. The app has a black header bar with the title 'Run2Live'. The status bar at the top shows the time as 10:55. The navigation bar is a vertical list of options:

- Statistic
- History
- Update Profile

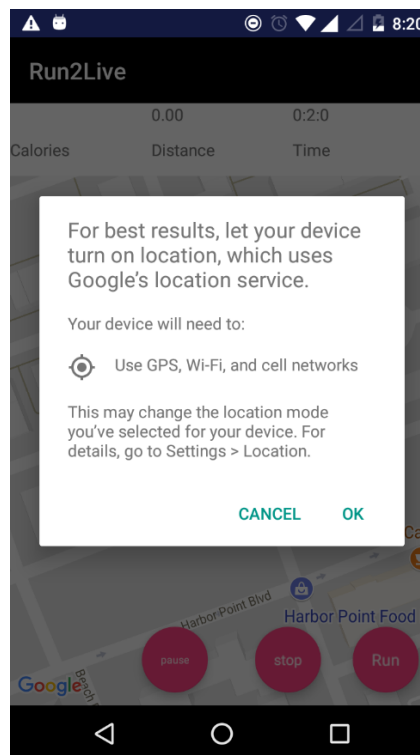
A red circular button with the text 'Run' is located at the bottom right of the screen.

Navigation Bar



Date	Time	Span	Speed
12/19	0:9:16	0.9	0.1
12/19	0:7:10	0.69	0.1
12/19	0:4:11	0.08	0.02
12/19	0:0:5	0.0	0.0
12/19	0:0:15	0.0	0.0

History



User-Permission

The MapsActivity.class is my starting activity. HistoryActivity.class is used to do database query for to get history of the usage. Profile. Class is used user authentication and validation. StatisticActivity.class is used for getting last usage it shows extra information such as speed which can only be seen here.

Whenever I walked between university and Home I tested its functionality. I have also checked it functionality with other tracking application available in play store and find the map update is comparable and up to mark, but I have this extra issue of stray movement. The problem that I face persists. I tried various method to tackle it and have implemented some and removed others. I find this problem is because the way FusedLocationProviderClient is implemented. Once started it keeps on sending latitude and longitude information that triggers the callback. It's a problem when user has started but the application but is still not moving. I tried to use location.getAccuracy() but that didn't help. As the map is update is not real time and feels map is not working but it works and update suddenly. One work around that I have implement but it's not efficient is setting the location updated to be received only after significant distance is covered.

References

<https://developer.android.com/guide/index.html>

<https://stackoverflow.com/>

<http://fitnowtraining.com/2012/01/formula-for-calories-burned/>

Experiences and Thoughts

It was fun working on the project. This is the first time I have worked on android and java and can defiantly say that I had a good learning curve. I would like to improve the U.I of the application. I would also like to structure my code. I would like to learn different technique of structure coding in android and how to make it modular.