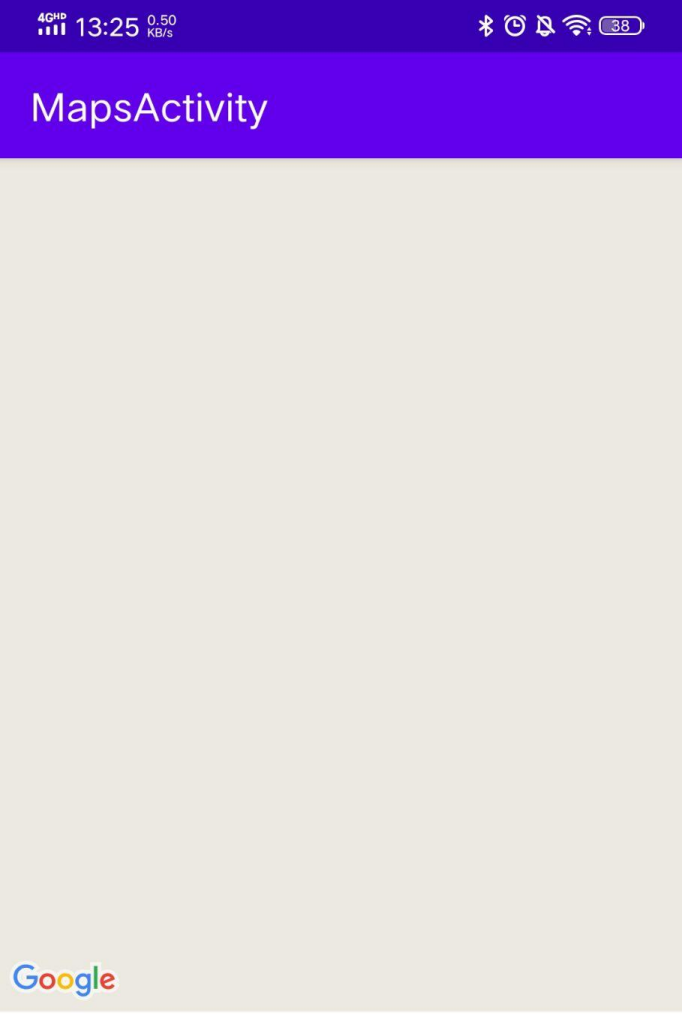
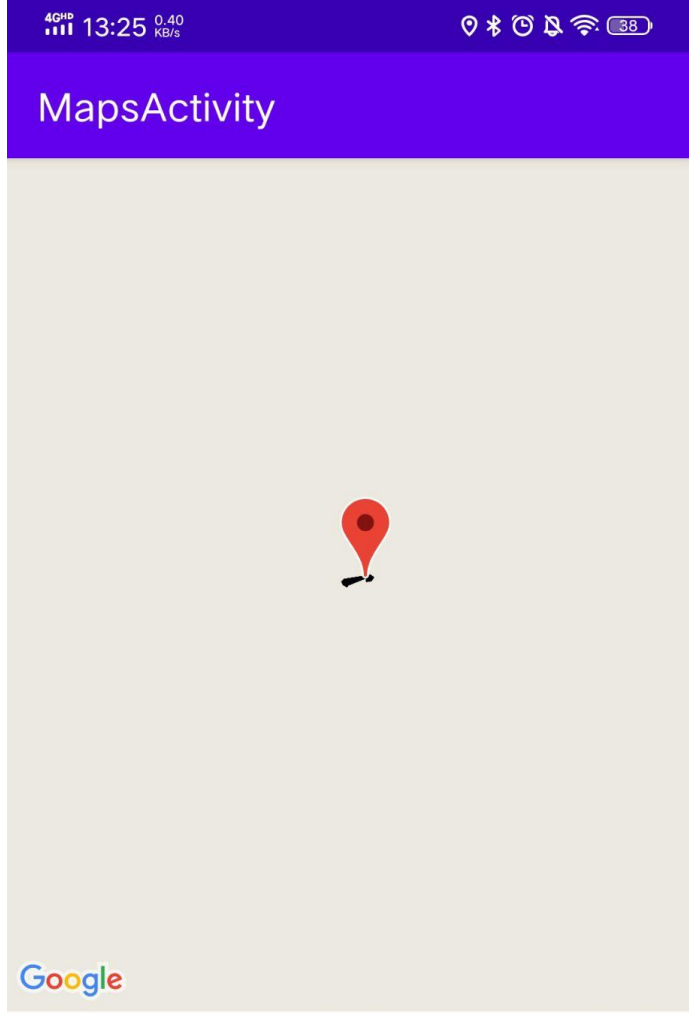


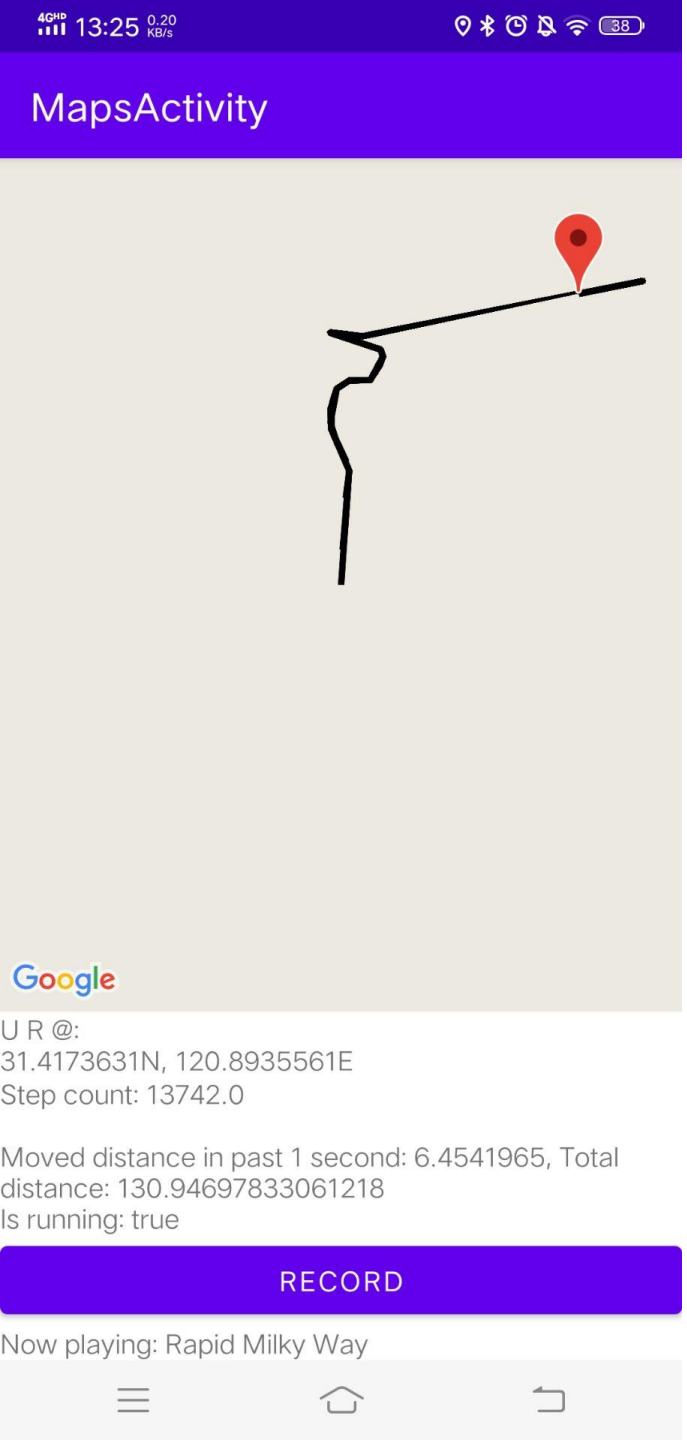
Left: initial interface. (my google map is not loading; sorry for that.)

Displayed information: current location (I was unable to get my phone's step counter to work properly; acceleration sensor works normally, but it is hardly helpful when calculating speed and movement, considering all the angles and stuff), Step counter (hardly works; updates slowly while other sensors update swiftly), current movement info (distance in meters, total distance in meters, is running or not), current playing music (Melancholic road when walking, Rapid Milky Way when running. Both are packed into the app)

Button start becomes record when the exercise starts, the functionality turns to saving record.

Right: the exercise starts, a marker is placed on the map to indicate starting point. The distance information are displayed. Melancholic Road is playing.





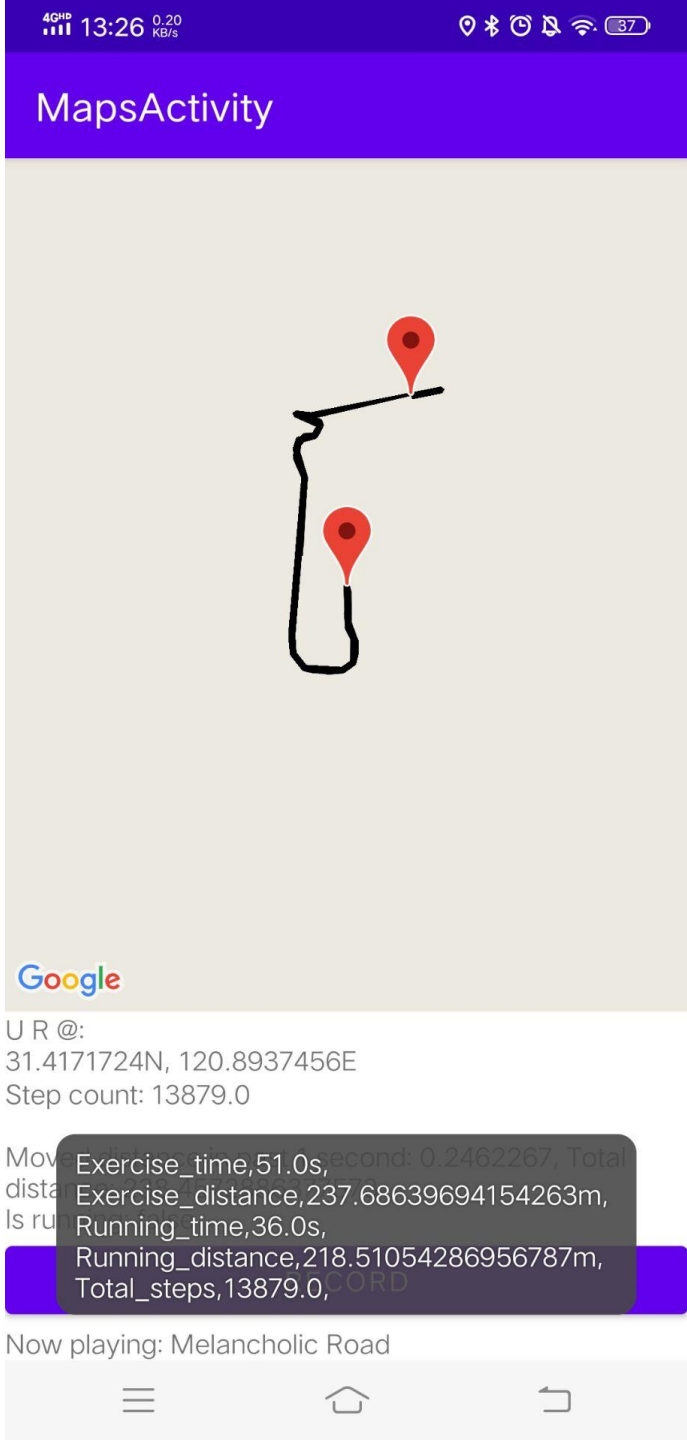
As mentioned before, the movement distance is calculated with coordinate change. And since I prioritized high accuracy, the app uses GPS location which causes the program to be only functional outdoors (which ironically fits with the purpose of the app).

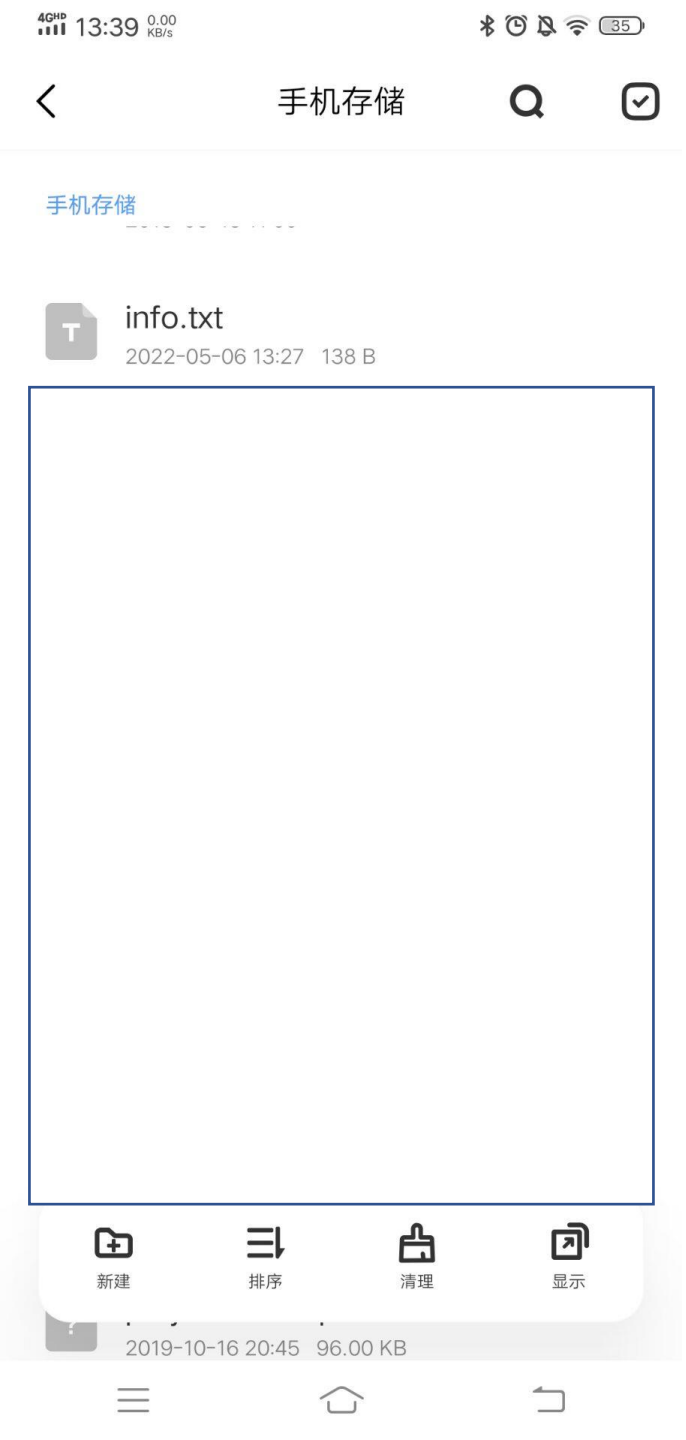
The degree of zooming the map is limited for the trajectory to be found and observed more easily.

I thought about selecting files on the storage and play them in the mediaplayer, but then it would be hard to automatically judge whether a music file is suitable for running or walking, and kind of pointless if we manually select two files on the storage. So finally I packed the two music files inside the application.

When clicking the record button, a marker is placed onto the map, the file is saved as “info.txt”, and a popup text shows up.

Strangely, though I only asked for permission to read/write files on external storage, and the route has been set to be the external storage, the file is still always saved on internal storage.





“info.txt” is the saved file. Its content is displayed in the right. Each time the record button is clicked a new file will overwrite the old one. (To avoid creating a bunch of redundant files when testing.)

In total the program uses 4 threads:

mThread for music,

lThread for location request,

fileThread for saving files (this one is not declared in the beginning), and

tempThread for step count updates. (the correct thread name should be something like cThread, since I initially wanted to use temperature sensor but my phone did not have one.)