Student name: Hoang Long Tran

Student ID: s223128143

SIT225: Data Capture Technologies

Activity 4.1: Collect GPS data using mobile apps

Mobile phones have significant sensing capabilities such as GPS, acceleration and lux. In this task you will use existing free mobile apps to record some GPS data.

Hardware Required

A smartphone with GPS.

Software Required

A web browser

Either Android Geo Tracker

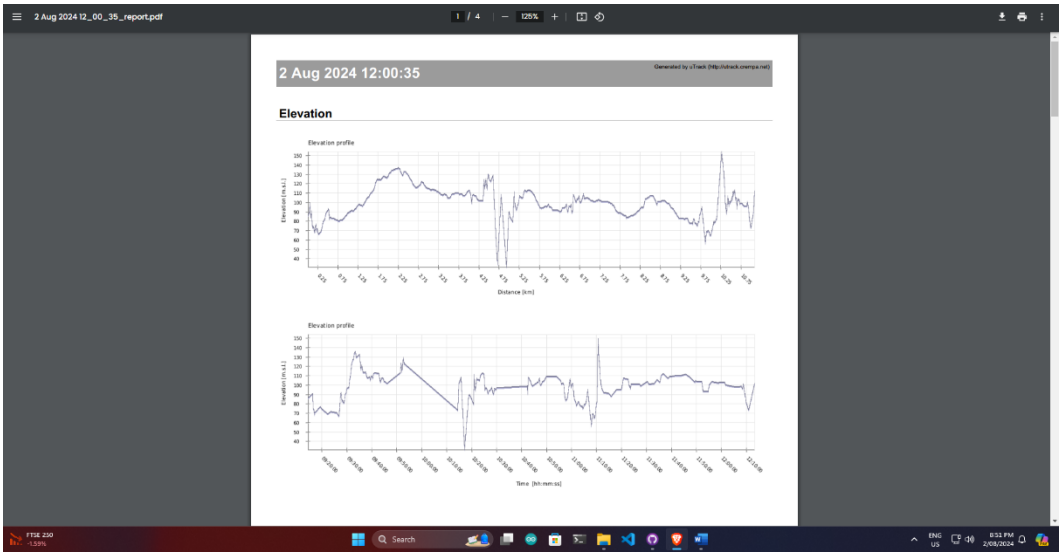
(https://play.google.com/store/apps/detailsid=com.ilyabogdanovich.geotracker&hl=en)

Or iOS myTracks (https://itunes.apple.com/au/app/mytracks-the-gps-logger/id358697908?mt=8)

You may install and try out any other app well as, as long as they can track GPS & export tracks to GPX format.

Steps:

Step	Action
1	Track a journey using one of the installed mobile apps. It is best if your tracked journey spans at least 5 kilometers. Export your track to GPX format and save the file to your computer. Alternatively, you can email the .gpx file from your phone and download it to your computer Question: Upload your .gpx file to Deakin Cloud and share the link here.

	Answer: sit225
2	Question: Open a browser on your computer and go to http://utrack.crempa.net/ . Upload your .GPX file to the site and click ‘Generate Report’. Take a screenshot and include it here. Answer: 
3	Question: What information can you see from the generated report? **Note**: Depending on the app you use to record the GPS data, timestamps could be either in local time (that is AEST if you are in Melbourne) or sometimes it could be in UTC. Answer: I have attached the data report in the Github repo, more information will be in that pdf file. Here is the list of things I found. First thing is “Elevation” which measures the place where I was compared to the sea level. The first graph depicts the elevation in msl (mean sea level) to the distance I traveled. The second graph shows the elevation and timestamp. From my calculations, I suspect the timestamp is in Europe time. The maximum and minimum elevation is 154 to 31. My total travel time is almost 3 hours. To give more background, my friend drove me from Deakin to Box Hill Center for groceries. Then I went to Aldi Box Hill (a bit further away from Box Hill Center) via bus 903 to buy more stuff. Next, I went back to Deakin, chatted a bit with another friend of mine, and finally went back to my home. On the second page of the report, it measures “Speed”. The first graph shows the speed while I was on the road (x axis is distance and y axis are speed), with an average speed of 17.5 km/h. The second graph shows the speed compared to the total travel time. Between 10:30 to 10:50, I was at

	Box Hill Central and Aldi, between 11:10 to 12 was when I chatted with my friend. Those timestamps were when I was stationary, not moving much.

Activity 4.2: The Ethics of Data Gathering

Digital privacy is top of mind for many Australians. With weekly data breach scandals, individuals are becoming more aware and concerned about who has their data, and more importantly, who controls how that information is gathered, used and shared. In this task, you will summarise a blog post regarding what should Australian businesses know regarding the ethics of data gathering.

Steps:

Step	Action
1	Question: Study the web material which can be found here (https://www.insideinfo.com.au/business-intelligence-and-analytics/ethics-data-gathering-what-should-australian-businesses-know). Discuss data legislation in Australia and (un)ethical use of customer data. Reflect your viewpoint. Answer: In Australia, the Privacy Act 1988 regulates how entities use personal data like names, addresses, signatures, and phone numbers. This is different from sensitive data like sexual preference, political opinion and religion. All businesses that have a turnover of more than 3 million AUD must comply with this Act. Businesses with less turnover may still have to comply under some circumstances. Under the Privacy Act, there is a regulation called Notifiable Data Breaches Scheme (NDB) where businesses must notify customers if their data has been breached, guide them on the next course of action, and report these breaches to the AIC. For internation corporations, they also need to keep in mind the Europe General Data Protection, which is similar to the Privacy Act but operates in Europe. In the Privacy Act, there are 13 Australian Privacy Principles (APP) that businesses must follow to understand about data collection, keep data secure, and allow users to control their data. In one of the principles, it stated that only collecting personal information is required. This statement is very broad and there is no clear line between ethical and unethical. Here are some things businesses can do to be transparent and honest about their data collection. The first thing is to state which data is being collected, notify customers that cookies are being used to collect their data, and customers can provide pseudonyms instead of their real name. While collecting data which comply to the APP is legal, those data are like double edge sword. The right data can help businesses understand their customers better but can be dangerous if it falls into the wrong hands. Also, customers do not like advertising emails since they're annoying and the customers need to know that they will receive advertising emails for it to be legal. The last thing is that asking for too much information at once seems suspicious. While those data asked may be legal and for good intention, the businesses should build up trust first before asking for too many.

Activity 4.3: The ethical dilemma of self-driving cars

Self-driving cars are already cruising the streets today. And while these cars will ultimately be safer and cleaner than their manual counterparts, they can't completely avoid accidents altogether. In this video, you will explore and reflect on how the car should be programmed if it encounters an unavoidable accident.

Steps:

Step	Action
1	Question: Study the web material which can be found here (https://www.youtube.com/watch?v=ixIoDYVfKA0). Reflect critically the ethical considerations and discuss to what extent you agree or disagree with justification. Answer: In the video, the discussion on how self-driving cars will make potential judgment that may or may not be ethical while on the road. While self-driving cars will make driving safer as it removes human errors, the decisions made by machine don't always be ethical. A great example is when to choose to hit a car on the left and a motorcycle on the right to avoid obstacles ahead. Both choices are wrong regarding the explanations. If a human were to make a decision, it will be considered as a reaction, and we are not trained to deal with a situation like this. On the other hand, self-driving cars have computer algorithms to response to situations on the road, in other words the decisions to every action of it are predetermined. This raises ethical debate on what is wrong and what is right. I can neither agree nor disagree to this. On one hand, self-driving cars can reduce the overall number of accidents which is good, but at the cost of sometimes the actions made by them are considered as unethical. Are we willing to make that trade off? Do a person want to avoid the obstacles ahead by hitting one of the nearby vehicles or they would rather hit the obstacles and be injured and possibility dead? Those are some of the questions that I cannot find an answer to, so I can not agree or disagree to this dilemma.