Elevation

Elevation profile
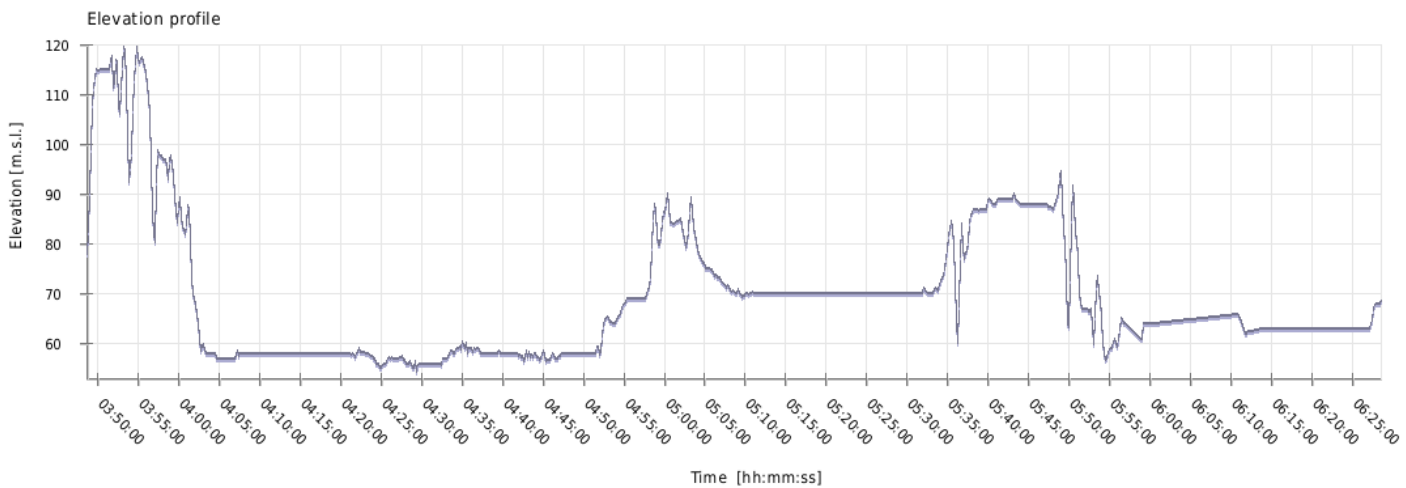

Elevation profile

Minimum elevation:	53 m.s.l.
Maximum elevation:	120 m.s.l.
Average elevation:	74.4 m.s.l.
Maximum difference:	67 m
Total climbing:	450 m
Total descent:	458 m
Start elevation:	76.7 m.s.l.
End elevation:	68 m.s.l.
Final balance:	-8.7 m

Speed

Speed profile — Speed [km/h] vs Distance [km]

Speed profile — Speed [km/h] vs Time [hh:mm:ss]
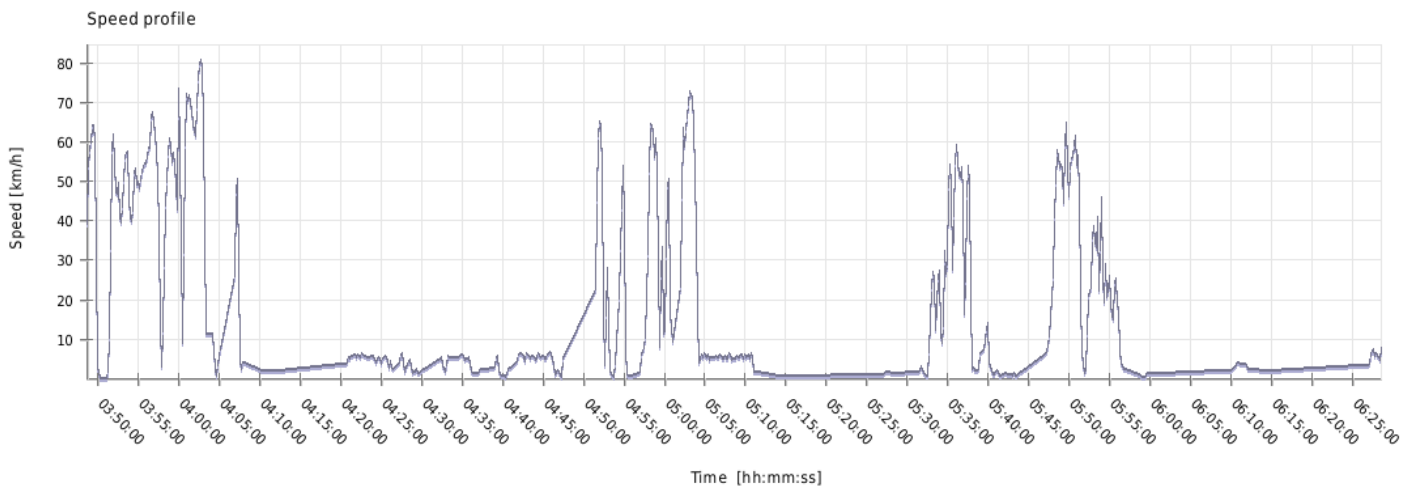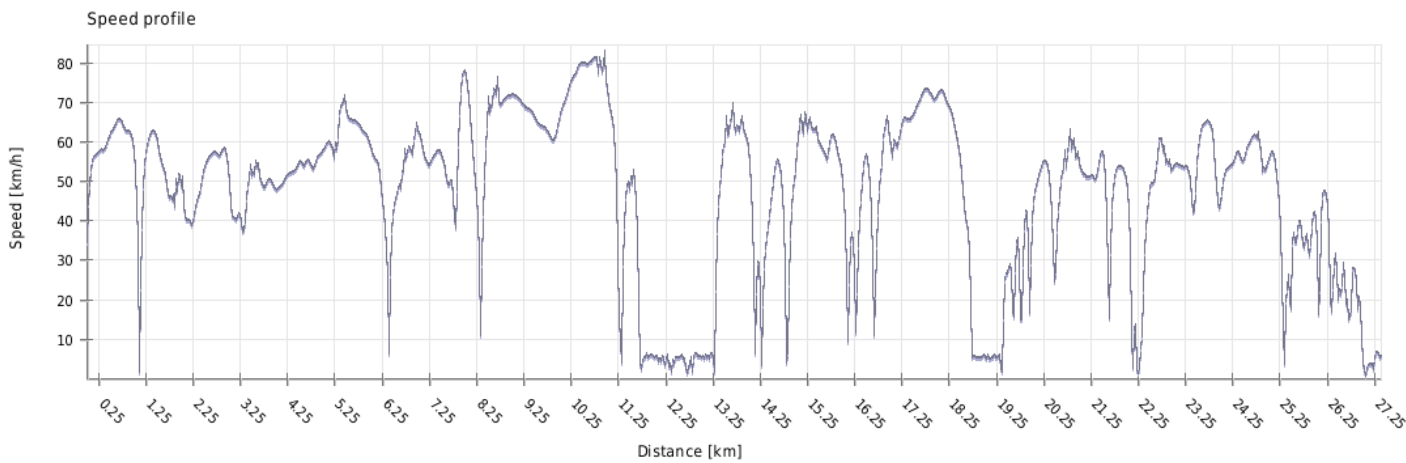
Minimum speed:	0 km/h
Maximum speed:	84.5 km/h
Average climbing speed :	31.8 km/h
Average descent speed :	35.9 km/h
Average flat speed:	25.2 km/h
Average speed:	27.9 km/h

Time

Date of track:	4.10.2024
Start time:	03:48:37
End time:	06:28:38
Total track time:	2h 40m 01s
Climbing time:	22m 51s
Descent time:	17m 24s
Flat time:	1h 59m 46s

Distance

Distance depending on time
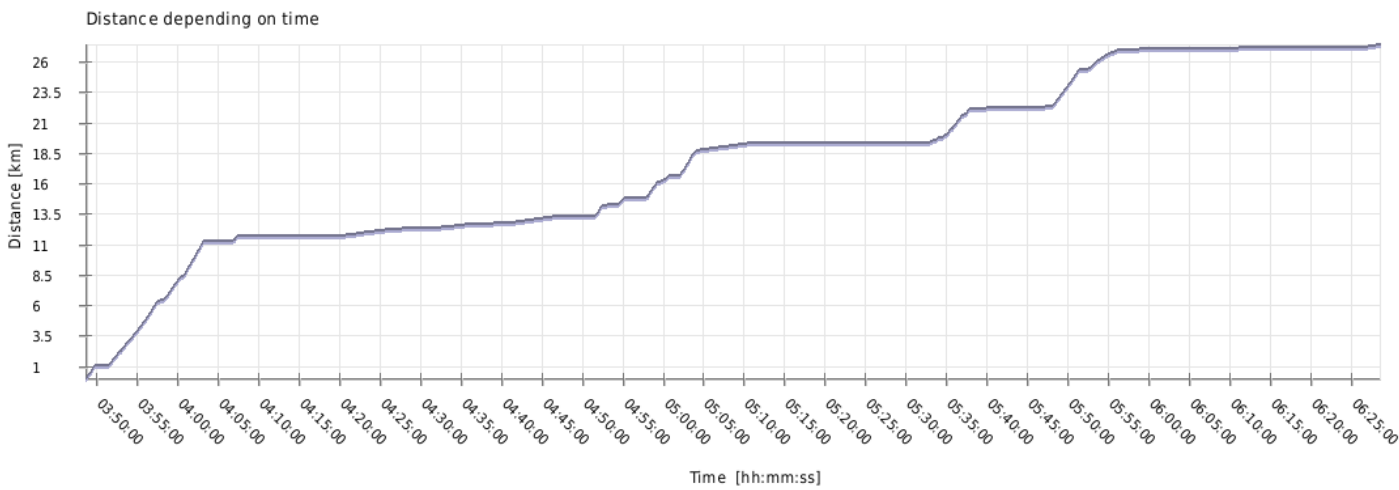
Total flat distance:	27.3 km
Total real distance:	27.4 km
Climbing distance:	4.9 km
Descent distance:	5.4 km
Flat distance:	17.1 km

Student name: Rammaka Iddamalgoda

Student ID: s223496576

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 Cloud and share the link here.

	: https://drive.google.com/file/d/1RS_RV8g9VSRwjT2_zq0796HYBgYf-3Le/view?usp=sharing
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: <Your 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: - Distance: flat, real, climb, descend and total distance - Time Taken: Start time, end, climb, descend, flat and total time - Average Speed: The average speed of the journey for climb, descend, flat and overall. - Maximum Speed: The maximum speed reached during the journey. - Elevation Profile: A graph showing changes in elevation throughout the journey. - Coordinates: The latitude and longitude of the locations recorded during the journey.

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, businesses must comply with data protection laws such as the Privacy Act 1988, which outline how organizations can collect, store, use, and share personal data. The Australian Privacy Principles (APPs) provide guidelines for transparent and lawful handling, requiring businesses to: - Collect data lawfully and fairly: Customers should be informed about the data collection, including its purpose. - Secure data: Businesses must ensure customer data is protected from unauthorized access or breaches. - Use data for stated purposes: Customer data should only be used for the purposes for which it was collected, unless explicit consent is provided for other uses. Unethical Use: - Data exploitation: Using customer data for purposes that weren't disclosed, such as selling personal information to third parties, is unethical. - Invasive tracking: Excessive or hidden tracking of customers' behaviors, even after they've left a website or service, is a violation of privacy. From my perspective, ethical data gathering is crucial to maintain trust between businesses and their customers. Transparency, consent, and security must be at the forefront of any data gathering practice. I believe businesses should adopt proactive data protection measures beyond the minimum legal requirements to ensure ethical responsibility.

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: The ethical dilemma presented by self-driving cars revolves around how the car should respond in an unavoidable accident scenario, framed as a variation of the trolley problem. Should the car prioritize saving the passenger at all costs, or minimize overall harm but sacrifice the passenger? This decision places moral responsibility on the programmers and designers of autonomous vehicles. Key Ethical Considerations: Human life value: How do we assign value to different lives? Should the car prioritize saving a greater number of people, or focus on the safety of its passengers? Self-driving cars may be able to assess accident scenarios in milliseconds, but the certainty of saving lives or minimizing harm is never absolute. Legal Accountability: If an accident occurs, who is responsible? The car manufacturer, the programmer, or the passenger who opted to use the autonomous system? I agree with the idea that self-driving cars should aim to minimize harm overall, rather than purely prioritize the safety of the passenger. However, I recognize the complexity of programming such ethical decisions, as it involves making split-second judgments that could be life-altering. That said, society should approach this with caution. Developing ethical frameworks for autonomous systems will require input from diverse fields, including philosophy, law, and technology, to ensure that the decision-making processes in self-driving cars are aligned with societal values.