Introduction

In this report, I will describe my project plan, show my designs and final product, and tell you what my project is for the COMP1004 module. The SPA project I've chosen is a time visualiser website which is similar to screen time for your mobile phone.

Project Vision

This project aims to help people manage their time better using a user-friendly tool. By analysing their leisure activities and displaying this information through an easily digestible pie chart, I want to make it easy for users to see how they spend their time. The goal is to provide insights and encourage a balanced lifestyle. Users will be able to make well-informed decisions based on what part of their daily life they should minimise to replace with a more fulfilling habit like exercising or reading a book.

This project's impact will vary from person to person depending on how organised and how dedicated that person is. If someone is able to see how their whole day has played out then they will have more knowledge about where their time has gone into so they are more prompted to think about if they should change their habits. This project hopes to impact people positively leading to increased productivity, reduced stress, and enhanced overall well-being.

Software Development Lifecycle

The software development lifecycle is one of the most optimal and reliable methods for building software applications, it provides a structured approach to guarantee that the end product is going to turn out as a high quality software if it is followed step by step. It breaks down a big task into smaller parts to create more manageable tasks that can be fulfilled on a weekly basis therefore giving you a rough timeline of when your project should be done. This simplifies development by getting straight to the point and having way less idle time on trying to figure out what to do next. It also lets you figure out how to adapt to time and any potential budget constraints. As the development of the software application progresses, it can dictate the estimation of necessary resources, therefore enhancing efficiency and effectiveness.

There are 7 stages of the SDLC:

•Requirements Analysis

- Identifying features of software
- Shown by user stories.

• Design/Planning

- Design software based on requirements.
- Planning Timeline
- Shown by sprints.

• Implementation

- Coding project
- Shown by sprints + GitHub page.

• Testing

- Testing features seeing if code is correct.

• Deployment

- Releasing the software application

• Maintenance

- Removing bugs that have been found later down the line, continued support for the software application by adding or changing features

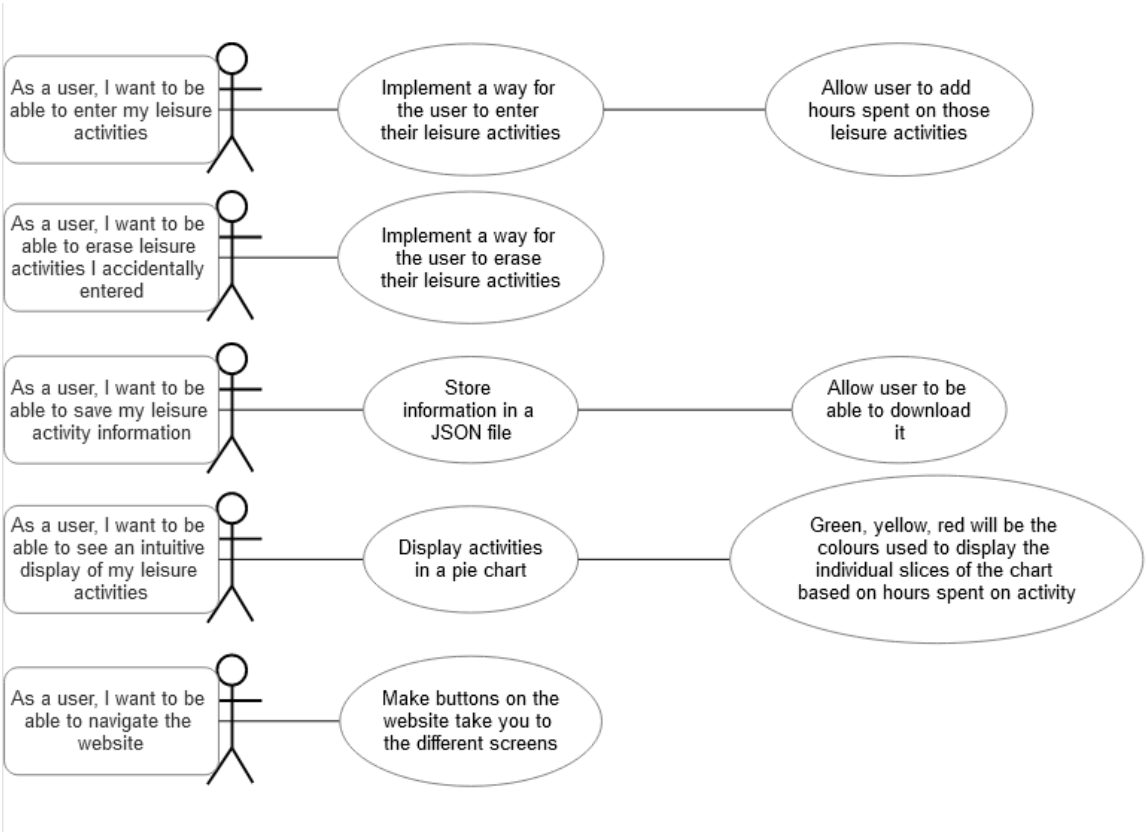
I have applied the software development lifecycle by implementing the scrum approach of the agile model for my project. I have focused mainly on the first 4 stages.

Background

In today's busy world, many people find it challenging to balance work and personal life. This project is all about using technology to assist individuals in understanding and improving how they spend their free time. The time manager will look at data about leisure activities stored in a JSON file. A pie chart is going to be used to show users if they're spending too much time on certain activities, turning it into a game-like experience.

This project allows users to customize their preferences, for example deciding what is too much time and setting personal deadlines for what they want to accomplish. This project also makes it easy for users to save their preferences so there isn't a tedious process of re-entering information. The main idea is to give people the tools to take charge of their time, make smart choices, and lead a healthier and more balanced life.

User Stories



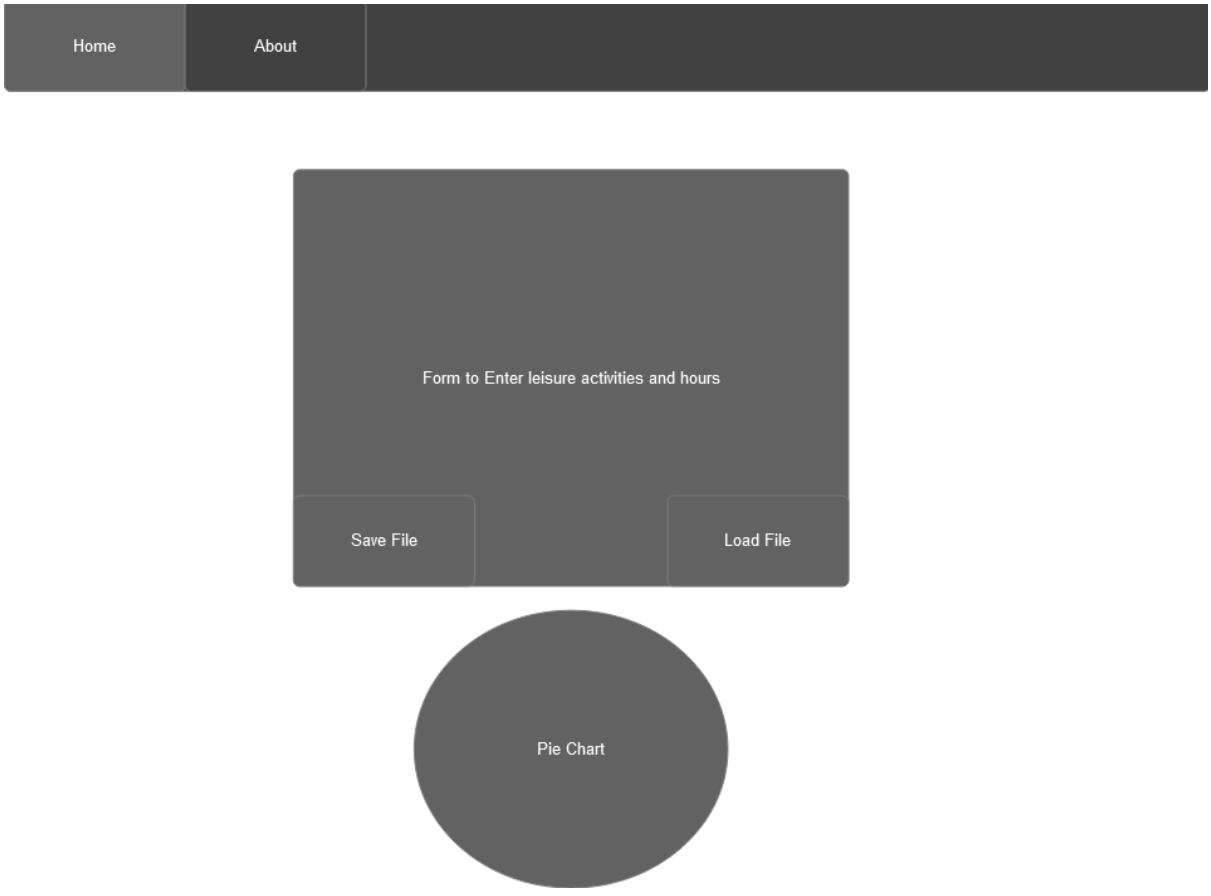
Use Case Scenario

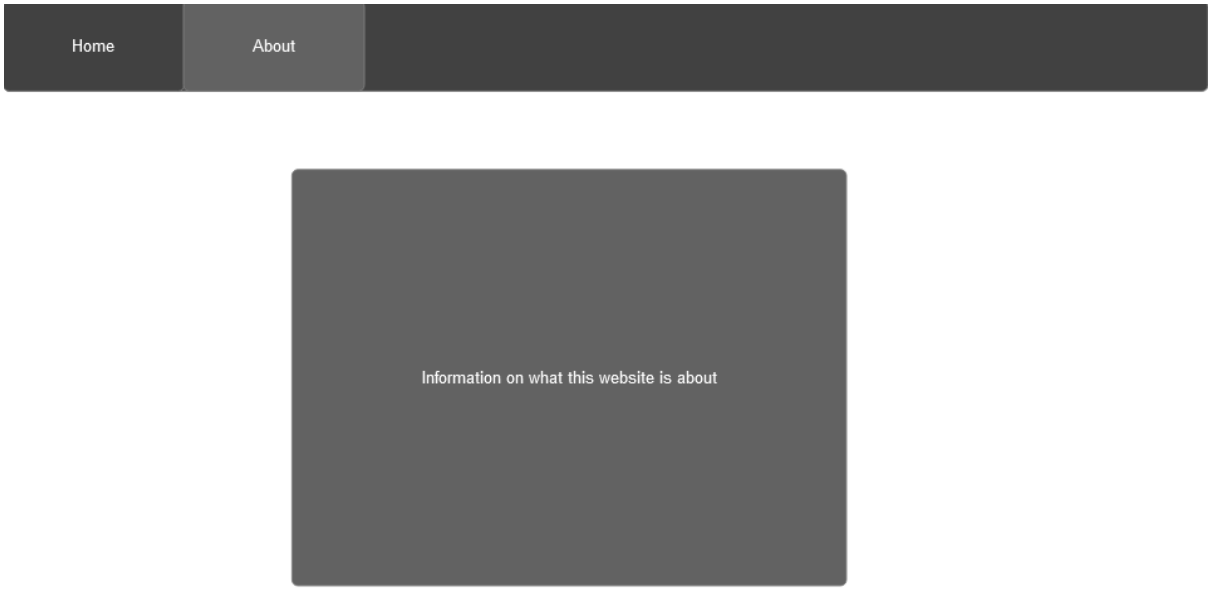
Name	Load file
Short Description	Load a past JSON file to display pie chart
Precondition	User has already created a leisure activities JSON using the website
Post Condition	User has clicked on the load file button and entered their file
Error Situations	User puts a file other than the one containing the time_data.json
System state in the event of an error	Error displayed that the file is incorrect
Actors	User
Triggers	User wants to see their past activities
Standard Process	1. User selects the choose file button 2. User selects a past time_data.json 3. User presses load file data button on the website 4. Pie chart shown

Architecture

Here will be where you will see the envisioned construction of the single-page application..

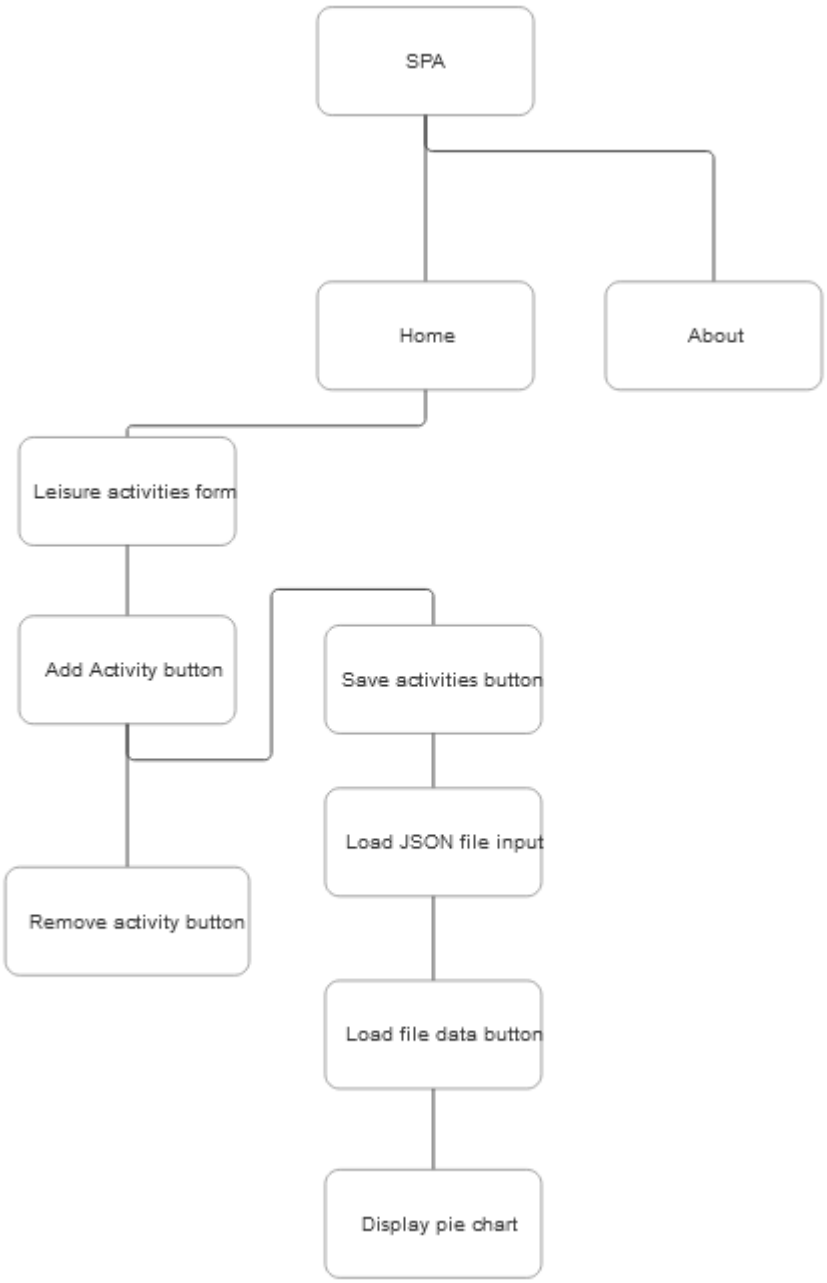
Wireframes





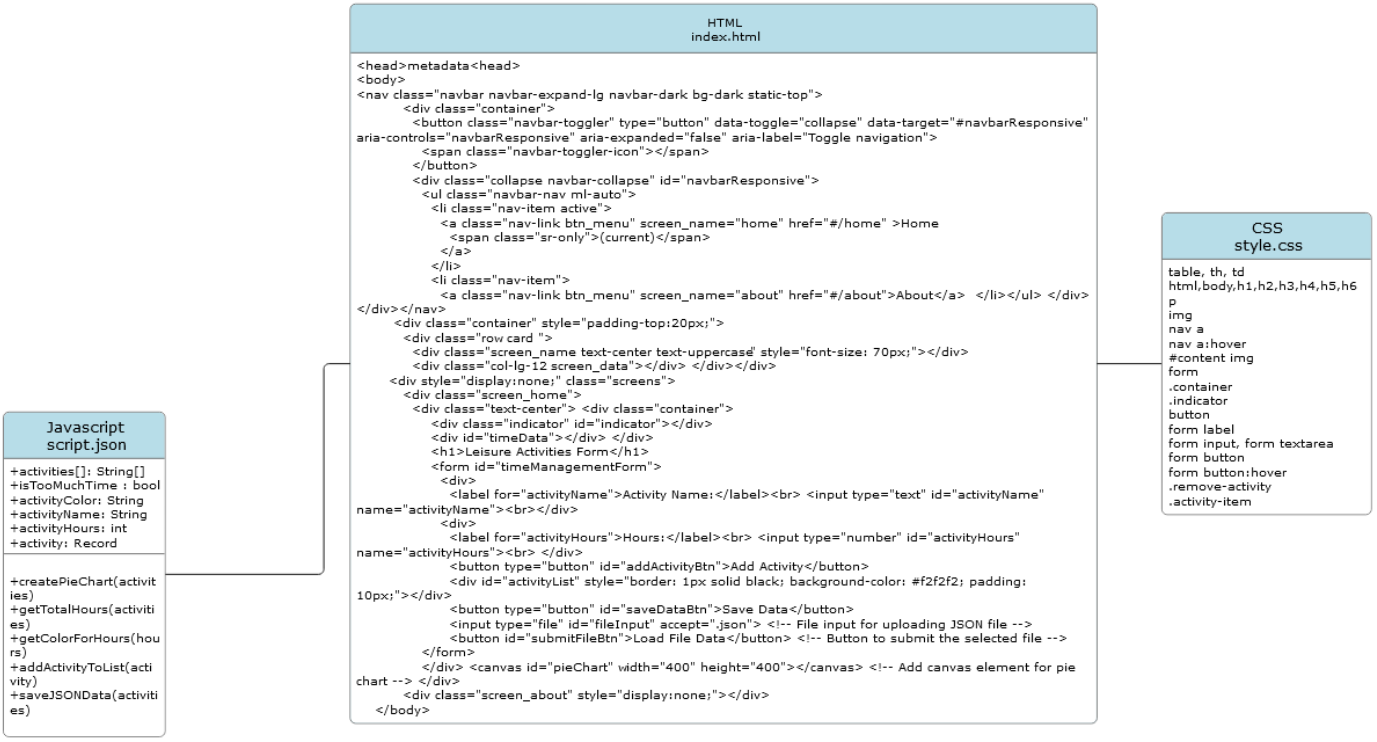
Site Map

This is the sitemap showing the HTML elements that make up each screen of my website.



Class Diagram

Here is a class diagram which displays every single one of my functions and my overall HTML, JavaScript and CSS in general detail.



Sprints

This table is representative of the status of each of my user stories features comparative to my sprints.

Features	Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6	Sprint 7	Sprint 8
Buttons on the website work as intended		Home buttons works but the about one doesn't		About button works	Added a button to submit activities	Added buttons to save leisure activities and load JSON file		Tested
Create Pie chart from information			A pie chart is formed but doesn't take account of information			Pie chart with information but it is unordered and sometimes doesn't work. Colour doesn't change for each slice	Pie chart is in order. Colour for each slice changes depending on how many hours spent on activity.	Tested.
Store leisure activities and hours spent on them		Began tinkering with storing data onto a JSON file					Activities saved onto a JSON file	Tested.
Load data from a JSON							Implemented	Tested

Be able to remove individual leisure activities				Began forming the code for removing leisure activities		When an activity is deleted, it sometimes removes all of them	Deleted corresponding activity	Tested
Displaying successful data save							Feature implemented and tested..	
UI	Wireframe created		Wireframe somewhat recreated		.			Tested.

Not worked on	Partially Implemented	Halfway done	Nearly finished or finished but testing required.	Finished (100%)

The next page is my backlog and goals for each sprint week by week as I filled them out.

The next page is my sprints, detailing my backlog and what I'm doing in the week.

SPRINT WEEK 1-2 (1)	SPRINT WEEK 3-4 (2)	SPRINT WEEK 4-6 (3)	SPRINT WEEK 7-8 (4)
Goals • Implement basic structure of the website • Set up navigation between screens • Create UI wireframes • Define user stories and requirements • Begin learning necessary languages (HTML, CSS, JavaScript)	**Goals** • Improve UI based on wireframes and user feedback • Enhance user experience with smooth transitions and interactions • Learn more advanced JavaScript concepts for dynamic content manipulation • Implement basic structure of the website • Set up navigation between screens	**Goals** • Create visual representations of data using a pie chart • Continued work on trying to figure out how to store leisure activities • Wireframe has been somewhat followed to create the UI • Set up navigation between screens	**Goals** • Implement core functionality such as activity entry and removal • Implement file upload functionality for custom JSON data
Status - Completed - Goals not met	**Status** - Completed - Goals not met	**Status** - Completed - Goals met	**Status** - Completed - Goals not met
Next steps • Start implementing core features based on wireframes and user stories • Begin styling the UI elements • Continue learning HTML, CSS, and JavaScript	**Next steps** • Refactor code for better organization and maintainability • Conduct thorough testing to identify and fix any bugs or issues • Continue learning and practicing JavaScript to enhance functionality	**Next Steps** - Try to implement activity entry and removal - Gather user feedback from close friends	**Next Steps** - Continue working on trying to implement activity entry and removal - Continue working on uploading JSON data onto the website
SPRINT WEEK 9-10 (5)	**SPRINT WEEK 11-12 (6)**	**SPRINT WEEK 13-14 (7)**	**SPRINT WEEK 15-16 (8)**
Goals • Clean UI up further (user feedback) • Once implemented, take more user feedback • Implement core functionality such as activity entry and removal • Implement file upload functionality for custom JSON data	**Goals** • Running into CORS errors but found out that I can run a local HTTP server with python. • Pie chart takes account of information but still not implemented as intended • Implement core functionality such as activity entry and removal • Implement file upload functionality for custom JSON data	**Goals** • Pie chart works as intended, information is ordered, each slice is the right colour that it is supposed to be based on the amount of hours spent on that activity • Implement core functionality such as activity entry and removal • Implement file upload functionality for custom JSON data • Buttons work as intended	**Next Steps** • Testing all features to see if they work as intended and if anything needs to be fixed before the work needs to be submitted • Writing about challenges finished
Status - Completed - Goals not met	**Status** - Completed - Goals not met	**Status** - Completed - Goals met	**Status** - Completed - Main goals met
Next Steps	**Next Steps**	**Next Steps**	**Next Steps** - Submission

- Continue working on trying to implement activity entry and removal - Continue working on uploading JSON data onto the website - Learn more javascript and how to handle JSON data	- Order pie chart information, convert each slice to a colour depending on how much time has been spent on that specific activity that the user has entered - Continue working on trying to implement activity entry and removal - Continue working on uploading JSON data onto the website	- Writing a reflective account of 500 words on challenges faced during the project - Test all the features	

Gathered user feedback:

User feedback:

- During the 2th sprint.
- Users said that the UI can be made more user-friendly by making the buttons bigger and adding a better colour scheme to the background compared to the buttons.
- UI could be cleaner.

User feedback:

- During the 4th sprint.
- Users like the UI better now than it was previously.
- Users suggested that the form where you input your leisure data should have a darker background compared to the overall background.
- Users like the pie chart.

Conclusion

Challenges and issues that arose from the start to the end of the project.

The first and most important challenge since the beginning of the project has been the lack of experience I have with programming in the three languages, HTML, JavaScript, and CSS, that we had to utilise. It was difficult to learn three new languages practically at the same time while having to work on the project every week without sacrificing productivity. HTML and CSS were a bit easier to learn when compared to JavaScript. JavaScript was definitely what was slowing me down throughout the whole project since there were so many intricacies and little details that if you skip out on you will get some fatal error that you will have to spend hours on trying to fix. What was also hard was trying to interweave the three languages together which didn't come naturally at first since I had to get used to putting specific classes on HTML code so I can use them in the JavaScript code.

Some of the specific issues I had with JavaScript was the CORS errors I kept on getting from trying to use a local file from my computer. I was at first trying to load JSON files by just calling them from my system but the CORS errors kept on coming. After a while I found out that I can host a local server by opening command prompt and typing "python -m http" in the directory of where all the programming files are kept. This prevented some CORS errors but I ultimately opted in to just have a Dropbox type input for the JSON file instead. This means that the user is able to select the file on their system and it uploads on the website which seemed to bypass the CORS errors so I was very happy about that.

The other challenge where I also was getting CORS errors from was the saving information on a JSON file. I had a similar approach where I would try to save data onto my system where I had already created a JSON file. This didn't work at all and I don't think that hosting the local server fixed it but I'm not sure because I don't remember it too well. I know that in the end I had opted for the user to download a different JSON file every time they enter their leisure activity information and in that way, they store it on their device and are able to load it back up if need be.

Reflection

I'm happy with the work that I have been able to put into this project especially since I have had to learn three new languages. I have completed many of the initial goals I had and if anything, I wish I had the time to do more on this project. I will most likely continue to work on this project even after handing it in just for a personal challenge and to get better at programming for year 2. There were many new challenges and mind-numbing errors that I had to come back to after a few hours of rest. It was a unique experience that I haven't been able to do until now and it has given me a different perspective on programming and what it means to work in the field. I'm hopeful that next year there will be a similarly engaging task so I can put my new skills to the test.

GitHub Link

Github repository: https://github.com/PandoPl/COMP1004-Project

Poster