LOG BOOK

Got a good group today, where everyone was participating and actively engaged even though some of our ideas were getting pretty far out there. Adrian initially started studying in Argentina due to covid and shares a love of basketball with Colm. Colm has also lived in Ireland for most of the pandemic. While Alyanna, loves video games and a particular fascination with laser cutting.

We initially discussed general ideas such as a future fridge with all these additional capabilities around efficiency gains, and utility around connecting various devices and information. We also talked about an eye tracker for engagement with advertisements, and human monitoring system of pedestrians around traffic lights to minimise accidents.

We ended up going with the fridge and came up with a name of Cool N’ Control’d, with the initial purpose of just a fridge which monitored usage to manage energy efficiency across the day. We just chose this option as it seemed the most interesting idea out the three.

Our discussions quickly evolved into additional capabilities such as scales for weighing food in the fridge to notify when running low, hydraulics to help physically disabled people, to finally machine learning to recognise food, and notify users of when due dates were coming or that food was particularly low.

Each idea that was raised I considered I rolled through in my own mind, including the difficulty, any additional possibilities, costs, time to develop, whether it was genuinely useful.

We also shut down several ideas, as it was getting more and more complicated, one of those being a self-cleaning function. While we didn’t shut down this outright, we talked through what would be needed and the overall complexity of the project.

Overall, while our ideas are very difficult to implement, we came up with some solutions such as using an existing smart fridge to avoid starting from scratch, as these fridges may already contain several devices that we require.

Logbook Week 2 –

We started off today discussing that we had massive function creep, including several ideas that were not viable. We cut down the ideas to the following.

Capturing & analysis of usage Data

Downloadable app with data on energy use, issues with the fridge, notifying when leaving the door open, connecting to an internal camera to view inside the fridge remotely.

We had a very solid discussion on one of the ideas which was monitoring what was being put in the fridge based on receipts. We realised the receipts are not complex enough to determine when due dates were coming through, and ultimately its overall utility.

Once we had cut through the fuss of functions, we also discussed instead of modifying the fridge ourselves, we would move to providing the software and hardware needed for traditional home appliance companies to implement into their products. “Don’t dig for gold, sell shovels”.

We quickly moved to constraints, and because of above had covered requirements. Was able to get through this quick quickly with minimal discussion.

The design phase was also quite straight forward in terms of exactly what we needed, which including application development, machine learning component, database, servers, external screen on fridge, sensors, and hydraulics. We had some creative differences on how to display the software architecture but ultimately just decided to create two types, one simple version, and a graphical type.

Finally, the process model we decided to go with was the iterative model,

This reasoning automatically excluded spiral and waterfall process models. We did have a bit of a discussion on whether the prototyping model was more appropriate, and if we had a limited R&D budget this likely would’ve been appropriate, however, because our primary cost is human resources, which is free, the iterative model made more sense to use.

Overall, the team is still working quite well together, but we do sometimes go a bit off topic, additional thoughts to minimise this is possibly to create a bit more structure to the team such as chairperson, minute taker etc.

Logbook Week 3 –

During today lesson I was assigned to create squares, the colouring of the flow chart, noting any constraints that came up with our design and then collaborating with the team to complete the chart. During this I did have to wait for others to finish their tasks before I could complete mine, this was mainly focused on my colouring activity. I wasn’t asked if I had completed anything, but we were waiting on a team member who wasn’t contributing. I think it would have been a bit hard to allocate equally, maybe a volunteering system would’ve helped with any perceived differing workloads. Information at the start of the session would’ve helped particularly around just everyone getting set up on lucid chart and Trello before any activities started and getting verbal confirmation. My team would have approached this differently, possibly by using the scrum approach to outline the entire task at the start, and then only starting the actual activity. It is important during task allocation activities to think about task dependencies and how that affects allocation and scheduling. For example, different working hours or time zones can impact dates/ and times when people can get together or when confusion on when items are due. Other difficulties may be differing skill levels in the team, and general performance. There is a potential for a domino effect to sink the project.

Some observations on trello are how it could apply to my current corporate role as well as how useful it would be to ensure correct software project design, accountability, highlighting of issues, quality of work. I do intend to incorporate this into different aspects of my life including in-class teamwork, assignments, possibly goal planning, and work. I think there could be some increased functionality added to trello.

Logbook Week 4;

It took quite a while to download all the necessary software as I was on MacOS, but once I was able to do that, with support from a knowledgeable team member I was able to successfully able to execute several commands in terminal to commit and push a text document up to github.

I had a much easier time with anaconda, and everything seemed to be preinstalled through the download and had no issues unlike some of my team members.

We were able to successfully get a broad understanding of what was happening, which was we were measuring either gyroscope or acceleration data. We spent quite a long time discussing and were also able to correctly determine the 24th column was a label for something.

LogBook week 5 –

Getting much more comfortable with some of the Git Commands and seeing the utility in how it would be used in a project environment.

Colm’s knowledge of various systems has been instrumental to out teams ability to problem solve any technical issues we run into, but also in our ability to interpret the code we are reviewing. We were successfully able to complete all activities assigned to us this week.

I am a bit behind in the lectures and desperately need to catch up but doesn’t seem to be hindering my practicals now. Can’t allow the lack of ‘punishment’ to dissuade me from catch up and then staying on top of the lectures.

Spent a bit of time on personal matters with the group giving suggestions on internships/jobs, and some issues the members were having with units they are doing this sem, that I have already completed.

I do need some spend more time learning about version control/git/anaconda

Logbook Week 6-

Was genuinely interesting learning about machine learning today, accuracies, confusion matrixes, all make sense. Interesting to see if there is a better way to compare confusion matrixes. As a team we were able to successfully get through all the changes aside from the very last challenge. Today I was assigned to write for the class in jupyter notes to and to push everything up to git.

We spent quite a bit of time learning about confusion matrixes and spent quite a significant amount of time on type 1/ type 2 problems which we still don’t fully understand based on the context of the problem.

Overall, feeling quite happy with the group and how we are progressing.

Logbook week 7 –

The group had some difficulty remembering the necessary information about equivalence classes and so what we came up with was day, month, and year. After completing

In terms of extra tests, we felt that the given tests covered it quite well aside from a non-leap year test for February, and so one test we came up with was 28/02/2021.

Technically speaking none of the tests failed, however, there is four invalid tests and 6 are passing.

We think those tests were failing because within the function there was no testing for the day variable, which means that it was accepting any variable given for ‘day’ when certain months have different amounts of days within them. Plus, some additional conditions for February when in a leap year, plus when it is out of bounds for all months. The solution to fixing this problem is adding a condition/array/set for each month so the function knows how many days should be in each, as well the extra ones for a leap year.

In terms of the 1752 case, it was when Britain changed calendars meaning days were missing from September, and therefore an additional condition would need to be added for this.

From a group perspective Colm was ill, so was quite a bit more difficult to sort out some of git issues we were having. We had a merge conflict which slowed us down quite a bit and so I tried investigating why the error was occurring and it seems to be another team member updated a git file that I was responsible for uploading. After consulting the tutor, we deleted the folder off my computer, re-cloned the repo and then redid the changes in the file (our answers), and finally pushed it back up to the repo for everyone else to take.

We are working well as a group even though we all have some vastly different personalities.

Log book week 8 –

In today’s class, we were asked to work on fixing errors, and dealing with github issues on merge errors, and essentially working with other individuals on the same file to purposely cause problems. We used Trello to organise the tasks we were doing, and had Adrian allocated as our task leader. I edited a file from test failed to test passed, and then did my respective parts in group tasks, and helped the group fixed merge conflicts.

The commit messages have been listed in descending order, so latest ones are listed first, and older ones listed later. Everyone can see each other commits and there is nothing missing. Colm and Adrian had some merge conflicts but were able to resolve by following the instructions and editing the file. The reason there was a conflict is because we were editing the same line, but once the first person had pushed their edits, the next person is working off an old file, and so when they go to push it is in conflict with the first persons edits.

**The text in file2 is Part 1**

Alyanna Dela Cerna 4:05

77

Adrian De Dona 16:06

69

Eli Zehetner 3:59PM

4

Colm

Yeet

End Part 1

Screenshot of commits

A picture containing table

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There is a massive difference between Trello and github issues. Trello is project management software to organise resources across tasks, while githubs purpose is for people working on a shared file, and to ensure people have the most update files, as well managing issues when conflicts arise.

There is a github power-ups which attaches pull requests, issues, branches, and more directly to their respective cards. Yes definitely, it would allow you to immediately see updates when viewing tasks that you have been allocated.

What can cause a merge conflict in a git repository? How do you deal with a merge conflict if you encounter one so that you can continue working on other bits of code? Can you commit your changes while there are still merge conflicts?

It is when people are editing the same lines in a file without checking if anyone else is editing the same thing. You will need to pull, then view the changes, and determine whether you need to edit the changes or incorporate your own in a separate space. No, until the merge conflict is resolved you are not able to push your changes.

Overall, I can see the value of github in a professional setting where working on large complex programs, and there is a risk of people editing something someone else is working on, and the issues need to be resolved to ensure that everyones tasks are correctly uploaded to the main file.

Log book Week 9 –

We had a good practical today, our group is very good at discussing various ideas and being able to consider the advantages and disadvantages independently and contribute to the discussion to come to an ideal decision.

In terms of what we decided to progress with:

Hardware -

* Door trigger - for the software to know when door is open
* Extra Computer board
* Existing smart fridge to monitor
* Server
* Barometer
* Energy meter
* Button to change opaqueness of door
* Server

Software –

* Trigger for opaque door
* Trigger for light
* Reading energy levels
* Should fridge be at passive or active energy levels
* Trigger for boosted cooling system
* Trigger to replace coolant
* Database software
* Energy consumption report

Step 2 Diagram –

Diagram

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Step 3 Diagram –

Diagram

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We chose to go with the layered system for security and replacement ability. There obviously may with some issues with having to go through unnecessary layers, but currently that is not a problem. Performance may also be impacted but in current design that is also not an issue.

Step 4 Diagram –

Chart

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Week 10 –

Another good week, bit annoyed at myself for not volunteering to speak, naturally my nerves go the best of me again, and really need to work on my public speaking.

Firstly, there is a massive concern behind the codes purpose, which is analysing speech for unknown reasons, which would be breaching a lot of privacy considerations that customers may be expecting for a IoT of this type. Ethically, you need to respect the dignity of all persons, and there a high risk you are not with a device that has this type of code.

The other big issue was sharing code which may not be that individual’s right to share, meaning you could firstly be breaching copyright laws, and then there is all the ethical issues around integrity, leadership, honesty etc. Which would only lead to more issues down the track around the sustainability of the company and its products.

Finally, one issue which was identified is that the code is poorly written, and there is an issue from an ethical perspective, because practising competently and bringing a good quality product to the market is essential in acting ethically.

In the final part we went through non-functional requirements and what we rated as the three most important and how they compared to each other. We chose ease of use, reliability, and size. With reasons being that if there is no ease of use/reliability no one would buy the product, and potentially if it wasn’t reliable there would be a high rate of returns/bad feedback/ bad publicity. We rated them in terms of importance as follows

Ease of use 🡪 Reliability 🡪 size. Finally, we attached this to our high-level architecture diagram see below.

Chart

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