Reflections

Why we choose our project scenario

We chose the project scenario of the NASA ISS for a number of reasons:

- It provided exciting and clear features. Because the features of this scenario were more readily apparent for us, we could spend less time designing functional features and more time considering security implications.
- We thought that the possible feature set lent itself to multiple separate code sections. We reasoned this would make it easier for multiple people to work on the project at one time.
- The scenario lends itself nicely as an opportunity to consider security implications. One reason is that the scenario features multiple separate physical locations which introduce natural interface boundary's that provide opportunities for security features. For example, communications between the NASA ground control client and the server require encrypting.

What changed between our design and final implementations?

We scaled back the 'exercise' functionality in order to stick closer to our deadlines. We choose to scale this back because further work on this feature did not contribute to the security mitigations, which was our main focus.

Reflect on personal contributions to the group and personal teamwork

Although we initially decided not to have a group leader, I later came to fill a similar role because of my responsibility's the project. During the implementation phase, I integrated code from the other members into the 'trunk'. Doing this, I mitigated conflicts and assessed all the code for possible mistakes that could cause issues. The others have less coding experience than me, so I tried to see that they had work that was of an achievable size but still challenging enough to learn from.

I learnt about the importance of team morale during this project. There were a few times when I could see teammates making mistakes, but I found it was best to let them make them and learn from them, rather than to intervene too quickly. I think this is both important for the team morale as well as the educational development of my fellow students.

What was hard, what was easy?

I found the volume of reading this module to be hard. This module had a lot more in the 'required reading' than previously. I'm unsure if this was a mistake, sometimes we had hundreds and hundreds of pages. I also found that some of the material repeated topics I had read in other material. To help manage the load, I would not read about topics I felt I had a good understanding of from other material.

Time management

In several cases, I looked up video essays to cover material, especially if professionals I follow had videos on the topic. One channel that I found that provided great content related to software development and cloud engineering was "Continuous delivery" - this channel can be found at https://www.youtube.com/c/ContinuousDelivery. This helped to manage my time more efficiently by learning in a way that suited me.

Critique of artefacts created

I created several artefacts throughout the module. The discussion artefacts specifically represent a considerate learning experience. The discussions were a great opportunity to deep dive into topics that I found interesting in the module. I found my research into the topic of 'salting' that my college Anrich was discussing to be particularly enlightening. What was nice about researching this topic was how the history of the subject's development provided a nice 'ladder' to learn. As with many aspects in the field, encryption techniques have grown more advanced and complicated over time. This means following a chronological order of 'inventions' is a nice way to gradually learn more advanced topics.

Guidance from the tutor

In the previous modules, I had not reached out to the tutor for guidance outside of the group seminars. My colleague Yohay was more accustomed to doing this and did so on behalf of our group. I found the half-hour meeting we had with our tutor to be really useful in this module. I think that the open-ended nature of the group project –where the students created their own brief- made this interaction much more important as we needed to ensure we were headed in the right direction and not spending time on aspects less important from the university's perspective. For example, we ran through a demonstration of our project with the tutor and from the feedback, we came away understanding that the presentation of the information was at least as important as the code.

Creating the presentation

Initially, we worked separately on the aspects of the presentation, I found this was not progressing as expected. We decided that unlike the coding, which we completed

individually we should create the presentation at the same time on a call. Reflecting on this I realize that some work benefits from collaborative approaches and others from independence. I think coding works better individually because it could be embarrassing to encounter and overcome issues in front of others. The presentation however benefited from discussion.

What might I do differently?

For the group project, we may have chosen too many functional features; this is something to consider for future projects. I think some of the other groups had a smaller set of functional features and this allowed them to spend more time on graphical user interfaces. This was a trade-off we didn't consciously make and I would consider this on future projects.

Career and personal development progression (short and long goals)

Having a better understanding of important and frequently used terminology such as Kernel, Cross-site scripting has given me a lot of confidence in my knowledge. I think that my understanding of secure software development helps to make my CV stronger as it is a highly sought-after –and increasingly important- skill.

What questions do I have now the course finished?

During this module, I came to understand how fast the cybersecurity field is evolving. I wonder what I need to do now to keep my knowledge up to date. I think that resources such as OWASP's Top Ten Web Application Security Risks will be a good reference as they are updated to reflect the reflect current biggest threats. During this module, I also attended a conference held by CyNam (a local networking group specifically for cybersecurity). I think that groups and conferences such as this could be an important tool to keep up to date.

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