SSA Unit 6 Individual Reflection

The Secure Systems Architecture module project aimed for us to collaboratively produce a prototype to demonstrate the operation and interaction between a smart lock device and a simulated controller in a distributed socket system. The project had varied successes and some challenges.

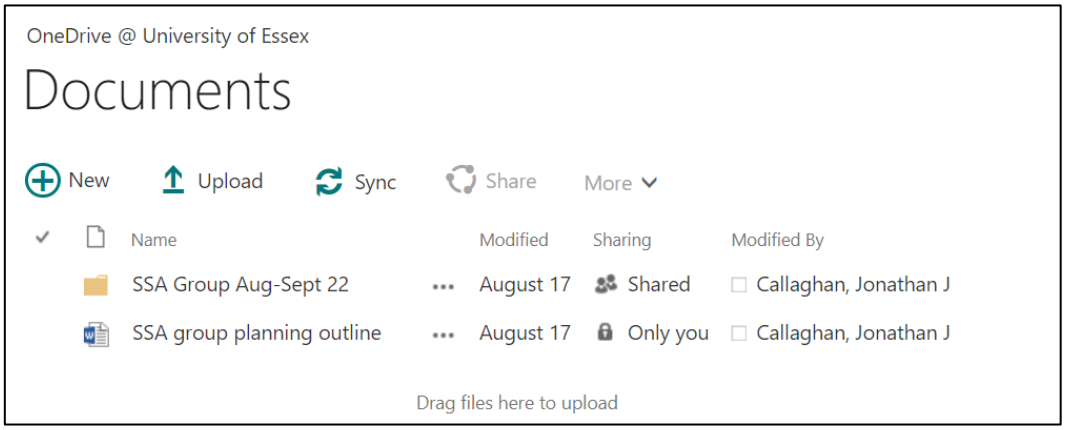


Figure 1: Setting up the shared directory for collaborating

The life cycle methodology was planned using an agile methodology so that regular sprint meetings could be held so that all members could offer ideas and demonstrate work completed throughout the project.

Initially, I had hoped that we could devise the project into sections by expertise; however, all members suggested their area of knowledge in this field was low level. Therefore I took the lead in facilitating the group's development with Ivan's support.

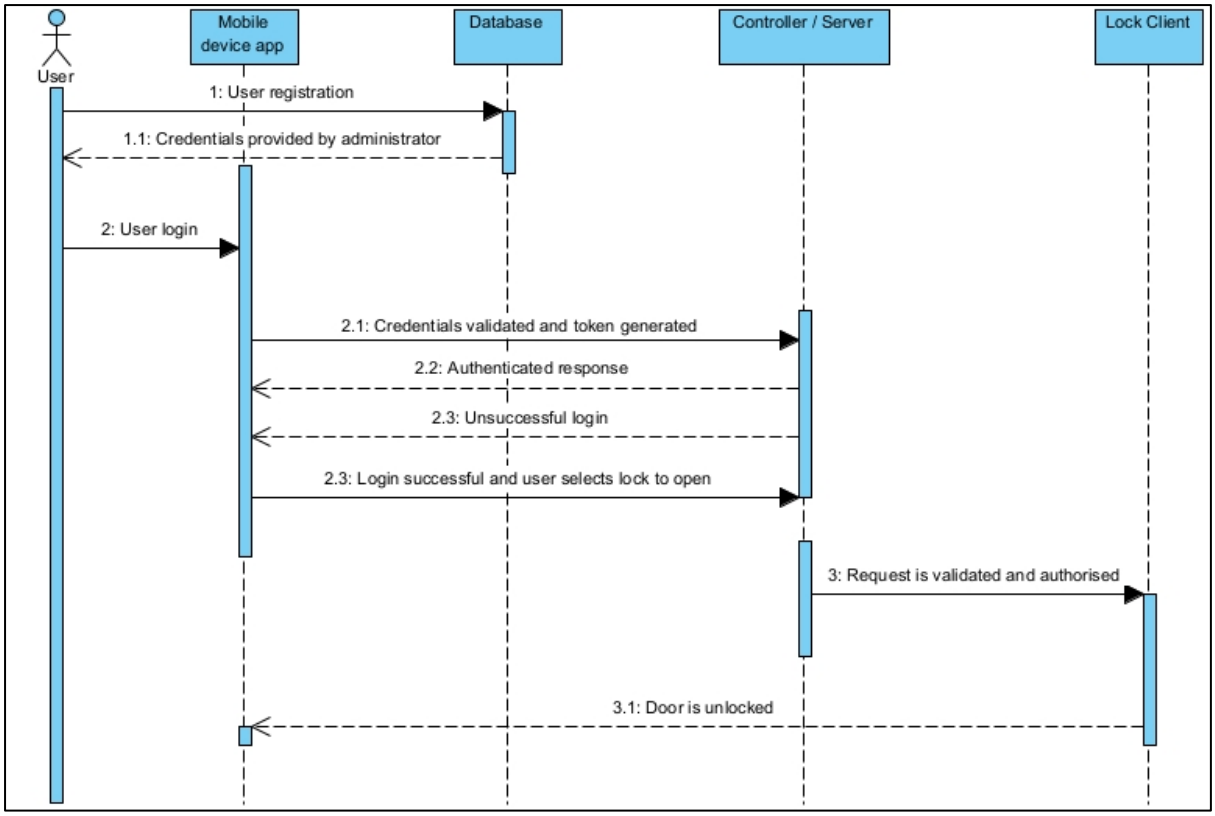
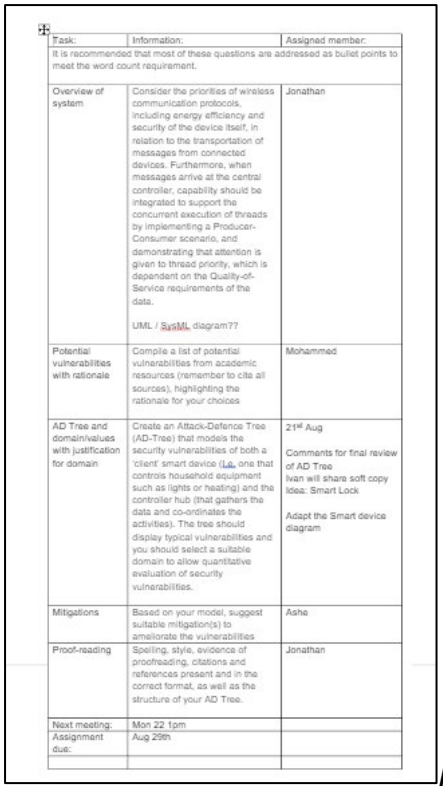


Figure 2: Sequence diagram design

To support the group discussions, I organised agendas in advance so ideas could gather in the planning stage of the process.



Task:	Information:	Assigned member:
It is recommended that most of these questions are addressed as bullet points to meet the word count requirement.		
Overview of system	Consider the priorities of wireless communication protocols, including energy efficiency and security of the device itself, in relation to the transportation of messages from connected devices. Furthermore, when messages arrive at the central controller, capability should be integrated to support the concurrent execution of threads by implementing a Producer-Consumer scenario, and demonstrating that attention is given to thread priority, which is dependant on the Quality-of-Service requirements of the data. UML / SysML diagram??	Jonathan
Potential vulnerabilities with rationale	Compile a list of potential vulnerabilities from academic resources (remember to cite all sources), highlighting the rationale for your choices	Mohammed
AD Tree and domain/values with justification for domain	Create an Attack-Defence Tree (AD-Tree) that models the security vulnerabilities of both a 'client' smart device (i.e. one that controls household equipment such as lights or heating) and the controller hub (that gathers the data and co-ordinates the activities). The tree should display typical vulnerabilities and you should select a suitable domain to allow quantitative evaluation of security vulnerabilities.	21st Aug Comments for final review of AD Tree Ivan will share soft copy Idea: Smart Lock Adapt the Smart device diagram
Mitigations	Based on your model, suggest suitable mitigation(s) to ameliorate the vulnerabilities	Asha
Proof-reading	Spelling, style, evidence of proofreading, citations and references present and in the correct format, as well as the structure of your AD Tree.	Jonathan
Next meeting:	Mon 22 1pm	
Assignment due:	Aug 29th	

Figure 3: Sample agenda and assigning roles

Numerous difficulties began to emerge whereby certain members decided not to attend meetings or did attend and did not contribute fully. To enhance the team's dynamics, I always offered members their time to speak and asked them what they had been working on. Unfortunately, this often resulted in either an agreement of the previous speaker or no response. I felt that the Ringlemann effect had run into the team due to a team of five; perhaps some members felt less necessary to put in the effort than others (Kravitz & Martin, 1986).

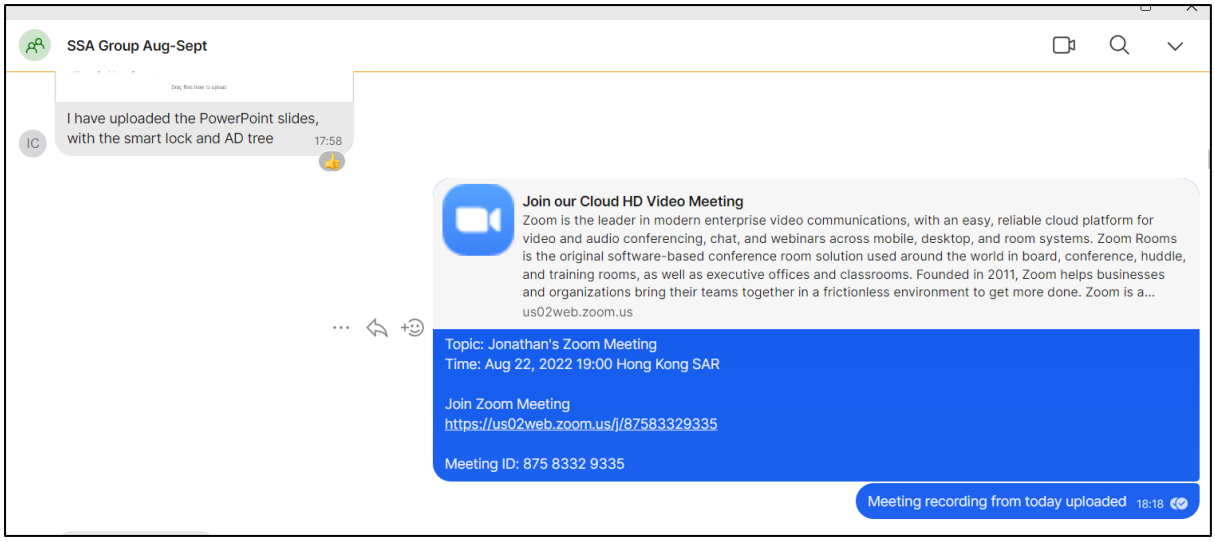


Figure 4: Signal chat group set up for communication and meetings arranged and recorded

Ivan was the only member who was keen to research, provide ideas and move forward collaboratively, and due to time constraints, we had to move with my and his ideas. Learning from this process, I feel that offering a stricter team contract at the beginning and perhaps more assertiveness as a team leader would help to facilitate accountability. However, I would suggest that with more time, I could have developed the leadership trust (Guinalíu & Jordán, 2016) within the team and improved the task cohesion.

Ivan and I contributed significantly to the remaining tasks in the project's code development section. As all members had limited coding experience, we suggested everyone contribute as best as possible; however, only Ivan and I did this. Despite requests and keeping communication lines open from our end, the other group members did not always attend meetings or respond to messages. So the challenges of putting together the project were equally as challenging to motivate the team to contribute collaboratively. I've realised that understanding individual needs is imperative to promote team buy-in the project success. For some members, this topic may not be an area for their continuing professional development; however, I could encourage the tangible rewards of skills and values gained from participating.

This learning experience has improved the development of my coding skills and document arranging; however, my reflections have allowed me to envisage how to empower the team to future success.

```
            message = 'Device is locked'
            print(message)


      elif data.lower() == 'unlock':
            message = 'Device is Unlocked'
            print(message)


      elif data.lower() == 'status':
            rand_num = random.randint(30, 70)

            if rand_num <= 50:
                  device_temp = 0
                  message = ('Device temperature is normal: '+str(rand_num))
            else:
                  device_temp = 1
                  message = ('Device temperature is high: '+str(rand_num))

      elif data.lower() == 'over':
            message = 'Assigned with communication role'
            print(message)
            message = input("Input-> ")  # take input

            while message.lower() not in mylist:
                  print ("Invalid Command")
                  message = input('Input-> ')


      elif data.lower() == 'bye':
            message = 'Session has ended'
            print(message)
```

Figure 5: Coding development incorporating random numbers and lock/unlock status

The use of scaffolding frameworks for tasks could be used to support accountability, provide models with worked examples to help team members when needing support (Sherrington, 2020) and in meetings, pose open-style questions to generate discussion.

My resilience had increased, and the challenges presented more problem-solving opportunities; therefore, I did not see the lack of cohesion as a negative factor. From a behavioural viewpoint, the challenges only gave me more intrinsic motivation to learn and complete the project. The project has developed technical skills and allowed me to practice management skills from prior experience in a new setting which I take forward to the next group opportunity.

Guinalíu, M. & Jordán, P. (2016). Building trust in the leader of virtual work teams. *Spanish Journal of Marketing - ESIC,* 20, (1): 58-70.

Kravitz, D. A. & Martin, B. (1986). Ringelmann rediscovered: The original article. *Journal of Personality and Social Psychology,* 50, (5): 936-941.

Sherrington, T. (2020). *Rosenshine's Principles in Action*. John Catt Educational.