Software and Security Engineering: Supervision 1

Lectures covered by the supervision:
https://www.cl.cam.ac.uk/teaching/2324/SWSecEng/
- Lecture 1: What is a security policy or a safety case? Definitions and examples.
- Lecture 2: Examples of safety and security policies.
- Lecture 3: Attitudes to risk.

Past exam questions:
https://www.cl.cam.ac.uk/teaching/exams/pastpapers/t-SoftwareandSecurityEngineering.html

Supervision questions:
1. Define security engineering and dependability.
2. Create a real-world dependability-related scenario and discuss the following terms:
   a. Secrecy
   b. Privacy
   c. Confidentiality
   d. Anonymity
   e. Integrity
   f. Authenticity
   g. Trust
3. Create an example of a system with properties of high secrecy and confidentiality but specify how it can have low level of privacy. The example should describe a system with high level of anonymity, integrity, and authenticity. Create examples of potential errors, failures, accidents, and hazards such system. Discuss examples of acceptable reliability and acceptable risks for your system.
4. Create examples to compare strengths and weaknesses of Bell-LaPadula security policy, multilateral security policy and Biba model.
5. Create a real-world scenario to explain covert channels. Apply fault tree, threat tree, and FMEA to build a safety case and analyse risks introduced by covert channels in your example. Who is responsible in your scenario for avoiding safety issues: users or manufacturers/engineers?
6. Discuss error types mentioned in the lectures – what is the error space they cover and who should be responsible for countering those types?
7. Discuss aspects of social psychology mentioned in the course (Lecture 3.2). Create examples.
8. Create and discuss examples of privacy policy default mental models and natural actions that require an explicit opt out.
9. Discuss the most important issues with passwords.
10. 2013p3q9 - https://www.cl.cam.ac.uk/teaching/exams/pastpapers/y2013p3q9.pdf
11. 2020p2q - https://www.cl.cam.ac.uk/teaching/exams/pastpapers/y2020p2q5.pdf
12. Summarize the main message from lecture 1 in 1-3 sentences?
13. Summarize the main message from lecture 2 in 1-3 sentences?
14. Summarize the main message from lecture 3 in 1-3 sentences?

Bonus task:
1. As part of the supervisions, I would like to offer a set of slides that will help you to establish a continuous engineering environment. Therefore, as the first bonus task, I suggest that you create a simple, test-driven, software project and commit it to GitHub. Please provide a link to the project.

2. Create a project board in GitHub (basic Kanban recommended) and add few future user stories. Provide the link to the project.
https://docs.github.com/en/issues/organizing-your-work-with-project-boards/managing-project-boards/about-project-boards
3. Specify interfaces between components in your project: https://app.diagrams.net/ Provide the link to the project.