Tutorial 1

1. **What is the difference between software engineering and system engineering?**
    - System engineering/engineers are responsible for building and maintaining the whole system while software engineers code and maintain the technology they develop.
    - System engineers often have more experience working with hardware and networks while software engineers focus on coding and developing applications.
    - System engineers also deal with the entire project engineering life cycle while software engineers deal with development part.
    - Reference : System Engineer vs. Software Engineer | Fellow.app

2. **What would be the correct thing to do in the following situation? "Imagine that you were recently hired as a software engineer to a company that specializes in aircraft navigation control software. While orientating yourselves to the company's work practices, you observe that they in fact do not conduct a few tests that they should in order to comply with the relevant safety standard. When you inquire about this from the project manager, he dismisses it saying that those tests are unnecessary (and takes an unreasonably long time to conduct, as well as being superfluous) and that they have managed with the other tests for so long, without any problems."**

    As a new user and you are unfamiliar with the internal processes you should find out more about the issue and its background

3. **What are critical systems? Explain the different types of critical systems.**

    Critical systems result in Significant losses such as

    a. Economic losses
    b. Physical damage
    c. Threats to human life

    Critical systems are technical or social technical system that people or business depend on if there system fail it will cause serious damage, problems, losses

    There are three main types of critical systems.

    - Safety critical system
        - System whose failure or malfunction may result death or serious injury to people

- Mission control system
    - Any IT component that performs a function essential to business operations
- Business critical system
    - A system whose failure may result in very high costs for the business using that system

4. **What are the reasons for Software Failure? Find some real-world examples and explain it further.**
    - **Poor planning**
    - **Scope creep**
    - **Poor communication**
    - **Lack of leadership**
    - **Inability to overcome challenges.**
5. **What are the reasons for Software Failure? Find some real-world examples and explain it further.**
    - Deliver quality software to the customer at the agreed time.
    - The product is intangible.
    - Software processes are available and product/organization specific.
    - Keep overall costs within budget.