IT314 – Software Engineering [Lab Session I]

Name : Jay Sanghani
I'd : 202101185

Lab 1: Choosing Software Process Models

a. **A simple data processing project.**
   For this project I would use the **waterfall model** as the project is simple and there are no changes in the requirements.

b. **A data entry system for office staff who have never used computers before. The user interface and user-friendliness are extremely important.**
   For this model I would recommend **prototyping model** as user interface is extremely important. This system is suitable for novice users.

c. **A spreadsheet system that has some basic features and many other desirable features that use these basic features.**
   For this spreadsheet system I would recommend using an **incremental model** because A new feature will be included in every project release. The initial version will have all the essential functions, and subsequent releases will build on the core features with additional functionalities.

d. **A web-based system for a new business where requirements are changing fast and where an in-house development team is available for all aspects of the project.**

For this project I would recommend using an iterative, specifically **agile model** as it prioritizes people above processes and employs iterative processes, which is a wonderful fit for this project. It is simple to handle new requirements with the help of the internal development team.

e. **A Web-site for an on-line store which has a long list of desired features it wants to add, and it wants a new release with new features to be done very frequently.**

Releases for new features will be deployed as part of this project. The incremental model can use it. However, in this instance, the releases are frequent and the website will also require a well-driven strategy based on client input. The team can therefore handle the needs of the clients and supply new features in accordance with the **Agile model**. This will result in better management of the process.

f. **A system to control anti-lock braking in a car.**

This feature necessitates careful planning and ideal product design. It must perform consistently. The requirement is also straightforward and unambiguous. Additionally, there should be quality tests and sequential development. Thus, the waterfall paradigm may be applicable in this situation.

g. **A virtual reality system to support software maintenance**
   Since the Spiral Model places a strong emphasis on risk analysis and iterative development, it should be employed for this system. Because the system's maintenance requirements and virtual reality elements may change as they are being constructed, the Spiral model enables the team to identify and mitigate any risks early in the process.

h. **A university accounting system that replaces an existing system**
   When replacing an existing system, the **Waterfall model** makes sense because the requirements are probably clear and consistent.

i. **An interactive system that allows railway passenger to find train times from terminals installed in stations.**
   I would suggest using the **iterative model** for this system since they enable ongoing user feedback and iterative system modifications to make sure the system meets the needs of the passengers.

j. **Company has asked you to develop software for missile guidance system that can identify a target accurately.**
   Since the **Spiral Model** effectively represents the iterative nature of software development on projects with ambiguous requirements and makes use of continuous iteration to lower risk and ensure the system's quality, I suggest utilizing it for this system.

k. **When emergency changes have to be made to systems, the system software may have to be modified before changes to the requirements have been approved. Choose a process model for making these modifications that ensures that the requirements documents and the system implementation do not become inconsistent.**

   In circumstances where there is not enough time for formal documentation, I would advise picking the **agile model** because it accommodates changes quickly and places a larger priority on delivering functional software than detailed documentation. Regular team participation and communication ensure that system implementation stays in line with requirements even when requirements are not fully articulated.

l. **Software for ECG machine.**
   I would advise utilizing the **incremental model** for this machine, because the continual testing is necessary for this type of medical equipment to get accuracy & user safety.

m. **A small scale well understood project (no changes in requirement will be there once decided).**

I would suggest using the **waterfall model** because It is appropriate for small-scale projects with well-defined and stable requirements.