

***DA-IICT***

*IT-314 Software Engineering*

**Lab Session - 1**



*Takshay Makadia - 202101414*

*Jul 31, 2023*

- a) A simple data processing project.

**Model :** Waterfall

**Reason :** As this is a simple task of data processing and the project requirements are well understood using a waterfall model makes sense.

- b) A data entry system for office staff who have never used computers before. The user interface and user-friendliness are extremely important.

**Model :** Evolutionary Prototyping

**Reason :** As the users have no prior experience of using a computer so we can consider the user to be novice. Also as the users are inexperienced we may expect the changes in the requirements. Along with that the UI becomes extremely important as the system must be user friendly.

- c) A spreadsheet system that has some basic features and many other desirable features that use these basic features.

**Model :** Iterative

**Reason :** As more features are to be added there may be some changes based on user feedback. Also the current feature requirements are unclear but will be cleared in the future so using the Iterative model is a good choice.

- 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.

**Model :** Agile

**Reason :** As the project involves rapid changes in the requirements, agile is preferable over other conventional models. Along with that agile is user centric which can make use of in-house 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.

**Model :** Agile

**Reason :** As new features will have to be added frequently leading to frequent changes, agile is a good choice. Also it keeps the client in loop about the new features to be added.

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

**Model :** Spiral

**Reason :** Here the given task involves some risk and spiral model is preferred to minimize the risk involved. Each phase needs to be checked properly before moving on to the next phase. Along with this the requirements do not tend to change much often.

- g) A virtual reality system to support software maintenance.

**Model :** Iterative

**Reason :** Iterative model would prove to be a good choice as maintenance may require user feedback to be taken into account and changes have to be made accordingly.

- h) A university accounting system that replaces an existing system.

**Model :** Waterfall

**Reason :** As there is an existing system the requirements are almost constant and the problem is well understood. Given the above parameters, a waterfall model is a good choice.

- i) An interactive system that allows railway passengers to find train times from terminals installed in stations.

**Model :** Agile

**Reason :** There may be a need to include new trains/stations routes hence the model needs to be adaptable to rapid changes. Along with that the user input should also be taken into account.

- j) Company has asked you to develop software for missile guidance system that can identify a target accurately.

**Model :** Iterative

**Reason :** Given task deals with the defense industry and involves a great risk keeping in mind the human lives and other factors where iterative process can prove to be helpful. Each phase of the task must be backed by the proper prior planning. Along with that there may be many changes to be taken into consideration after testing of each phase.

- 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.

**Model :** Spiral

**Reason :** As it considers every possible alternative beforehand and analyzes risk, correct changes can be made. As it also incorporates the iterative process the chances of requirements documents and the system implementation being inconsistent is reduced.

- l) Software for ECG machine.

**Model :** As human lives are at stake, all the alternatives available must be thoroughly checked and risk involved must be analyzed before proceeding. Each phase must be thoroughly evaluated and changes be made when required.

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

**Model :** Waterfall

**Reason :** As the requirements are frozen a sequential type of approach can be used. The waterfall model follows a sequential approach and is also suitable for small scale/short duration projects.