

# IT314 – Software Engineering [Lab Session I]

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**A. A simple data processing project => Waterfall Model**

As it is a simple data processing project, there will be little to no adjustments to the requirements that are disclosed in advance. Customers will be able to understand it simply and easily.

**B. A data entry system for office staff who have never used computers before. The user interface and user-friendliness are extremely important. => Prototyping Model**

Because the data entry system for office staff is a project for total computer beginners and because it has novice users, the User Interface is crucial for user friendliness, prototyping models can be used to meet this need.

Additionally, the project could be completed with a quick design, the creation of a prototype, and its refinement in accordance with user requirements.

**C. A spreadsheet system that has some basic features and many other desirable features that use these basic features. => Incremental and Waterfall Model**

The spreadsheet system is a project having some basic features which are predefined requirements. The waterfall model could be used to meet these software requirements. And as it becomes necessary to add new features and make other desirable changes, a newer version must be created. An incremental model can be used to accomplish this. Therefore, waterfall and incremental modeling techniques are suitable.

**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. => Agile model**

As a new business, the requirements may change frequently, and feature updates are required in the early stages as in the initial stage. The agile process model promotes continuous development and testing iterations. Each incremental part is developed iteratively, and each iteration is designed to be small and manageable so that it can be completed within a specific time frame. Each iteration of the development team focuses on completely implementing a small set of features. It incorporates customers into the development process while minimizing documentation through informal communication.

- 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. => **Incremental and Prototyping Model**

Since it is an online store website, a good user interface with a long list of desired features is required. When adding new features, the incremental model makes it simple to do so. As a result, incremental modeling facilitates frequent changes while prototyping facilitates customer experience.

- F. A system to control anti-lock braking in a car. => **Waterfall Model**

The Waterfall Model is the general software process model that is best suited for managing anti-lock braking in automobiles. An essential safety feature is anti-lock braking. Before implementing the system, the analysis and design requirements in the waterfall model must be fully satisfied for the car's anti-locking system to function as intended.

- G. A virtual reality system to support software maintenance => **Incremental Model**

The Incremental Model is the most suitable software process model for virtual reality systems to support software maintenance. The system requirements are constantly changing, making it impossible to predict them before implementation and necessitating intricate software coding.

- H. A university accounting system that replaces an existing system => **Waterfall Model**

The Waterfall Model is used to create an accounting system for a university that will replace an existing system. The system requirements can be predicted as a result of the current system. The specifications are reliable and reusable.

- I. An interactive system that allows railway passenger to find train times from terminals installed in stations. => **Prototyping Model**

The prototype model is the most suitable software design for an interactive travel planning system. The user's needs might change, so quick delivery is crucial to put into practice. The prototype model will enable developers to concentrate their initial efforts on the most crucial features.

- J. Company has asked you to develop software for missile guidance system that can identify a target accurately. => **Waterfall model**

The Waterfall Model can be used to create a missile guidance system with accurate target identification capabilities. It is a government-funded project for the military with previously determined specifications. All requirements for this application must be met by the deadline.

- 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. => **Incremental Model**

Before requirements have been approved, the systems must be modified in order to accommodate emergency changes. The incremental model can be used to fulfill this requirement.

- L.** Software for ECG machines. => **Waterfall Model**

The waterfall model will be the one that works best for developing ECG machines. ECG machines are safety-critical systems, so the analysis and design specifications must be suitable to ensure that there are no measurement flaws. The Waterfall Model is used to create ECG software as a result.

- M.** A small scale well understood project (no changes in requirement will be there once decided). => **Waterfall Model**

A small, clearly defined project with predetermined requirements that cannot be changed. The waterfall model can be used to create projects of this nature. Given the small size of the project, a large team is not necessary.