# IT314 – Software Engineering [Lab Session I]

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Lab 1: Choosing Software Process Models
Giving reasons for your answer by taking examples (features, non-functional aspects, domain) based on the type of system being developed, suggest the most appropriate generic software process model that might be used as a basis for managing the development of the following system.

**a)A simple data processing project.**

**Software Model :** Waterfall Model

**Reason :** A simple data processing model will not consist any complex queries, Also not major changes will be required in this project so waterfall model is suitable.

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

**Software Model :** Prototyping Model

**Reason :** In a Prototyping Model, UI is very important and also it is . And therefore it is appropriate to use a prototyping model.

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

**Software Model** : Incremental Model

**Reason :** We can first design a base model with the basic features and then can further add on desirable features, for this incremental model seems to be okay.

**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.**

**Software Model :** Agile Model

**Reason :** Agile model is used for situations like greater flexibility, complex structures and also works on rapid updates which are the current requirements.

**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.**

**Software Model :** Incremental Model

**Reason :** Here we require further updates and to keep this updated we use incremental model for keeping the update cost low.

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

**Software Model :** Spiral Model

**Reason :** Here to ensure safety we require a model with minimal loss or failures. Spiral model is used for risk management and so accurate for this condition.

**g) A virtual reality system to support software maintenance**

**Software Model :** Incremental Model

**Reason :** A Virtual Reality system is an evolving technology and therefore its requirements are not specified clearly i.e. does not have a clear instruction set, and so it must be updated frequently, thereby we use an Incremental Model.

**h) A university accounting system that replaces an existing system**

**Software Model :** Waterfall Model

**Reason :** Here we already have an existing model with predefined instruction set so we will use waterfall model.

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

**Software Model :** Evolutionary Prototyping Model

**Reason :** We can utilise the evolutionary prototyping approach because the users are not well versed in the UI, they can make mistakes, and the model needs to be tested based on many user trials on a prototype for each of its capabilities.

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

**Software Model :** Spiral Model

**Reason :** Because this operation needs to be highly precise and fail-safe, the spiral model works nicely.

**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.**

**Software Model :** Agile Model

**Reason :** Agile models have the advantage of being compatible with the frequent changes, thus we can adopt them because this system requires regular updates.

**l) Software for ECG machine.**

**Software Model :** Spiral Model

**Reason :** This system needs to be fail-safe and needs to have least risk factor, hence Spiral model can be implemented.

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

**Software Model :** Waterfall Model

**Reason :** Since this is a small and well understood project it is beneficial to use waterfall model here.