

Tutorial 3

1. An Inventory Management System for an organization. – **Waterfall model**(for systems which have complete idea how to do it)
2. A total health care management system linking all the hospitals, laboratories, and doctors in Sri Lanka. Then patients can find all the health care services in one place. Ministry requires an initial version of the system to be launched at a particular day. The system can be completed gradually linking all hospitals, health care services, laboratories, and doctors. – **Incremental model**(for system which needed quick output of product with basic functionalities which will be updated in future)
3. Your company has an idea to develop a Household Robot. This robot will assist in almost all the housekeeping activities such as cleaning, painting, washing clothes and cooking. Your team has experience in developing assistive robots prior to this. But this new robot will be a more sophisticated product. Initially, you must identify suitable business partners to sponsor / manufacture the robots for sale – **Prototype**(because has to identify suitable business partners to sponsor for the product prototype model will be much better because developers can show them and get their attention)
4. A multiple rocket launcher control system for U.S air force. (Unfortunately, your team has absolutely no experience of developing this type of software.) – **Spiral model**(this is a critical system with risk management so better option is spiral model)
5. A simple data processing project. – **waterfall model**(for simple project with complete knowledge of scope of the project)
- 6.
7. 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 model** (for long projects, for products which needed to be delivered quicky to market with limited functions)
8. A Corona-detecting system is a technologically challenging system that has some innovative concepts. Also, client expects quick solution to prevailing condition of the current context. – **Spiral model** (because it is a safety critical system including need of quick product)

9. BMW Company intends to manufacture child safety unit in first time history. – **Spiral model(because it is a safety critical system)**
10. Sri Lanka needs an Election Management System in next two months. – **Incremental model (quick product is needed with rapid development)**

Explore V model and compare it with waterfall model

Waterfall model	V - Model
Low cost	High cost compared to waterfall model
Low in flexibility	Flexibility increased compared to waterfall
Steps move in a linear way	Steps don't move in a linear way
Re usability is low in waterfall model	Can be re usable compared to waterfall model
Guarantee of success through waterfall model is low	Guarantee of success through waterfall model is high

Activity 01

Waterfall model is linear sequential model. Requirements should be very clear before going to the next phase of design, Testing carried out once the code has been fully developed. So in Waterfall model the defects were found very late in the development life cycle as quality.

Assurance or Testing people not involved from the beginning of the project. It is traditional SDLC and it is having the following stages

is followed for quality of the development. Major issue is, you cannot reverse the phase. Requirements cannot be changed during the development process.

V-Model (Validation and Verification model) is modified version of Waterfall model. V-model connects each development activity with a test or validation at the same level of abstraction.

("Testing" will come at each stage). It emphasizes on performance and correctness. V-model is understandable and very easy to use. Works well for small projects where obligations are simply understood so that in earlier stage itself we can find out any flaws or if any changes come in any stage we will rectify immediately. So, it is very cost effective.

01. Requirement
02. Analysis
03. Design
04. Coding
05. Testing
06. Implementation
07. Maintenance

In this model if one stage is completed then only will go to the next, So, Testing will come after development of entire system or application. So due to this if any change request/requirement comes in between any stage then it will be very tedious. So, it is very time consuming and costly.

In Waterfall Model, Each stage has well defined and understood requirements is clear before development starts. Each phase is completed in specified period after that it moves to next phase, As its linear model easy to understand, simple to use. Each phase proper documentation

Activity 02

- What you should consider when selecting a good SDLC model
 - Requirements
 - Team experience
 - Time to complete the process
 - Budget
 - Risk tolerance

Activity 03

Identify main features of Unified Process (UP) model and compare with Incremental model.

- Has incremental and iterative nature
- Two dimensional
- Task is divided into increments.
- Within each increment the developers have to iterate until task is completed

Activity 08

The unified process (UP) is a use-case-driven, architecture-centric, iterative and incremental development process framework that leverages the Object Management Group's (OMG) UML.

- The UP is broadly applicable to different types of Software Systems, including small and large scale projects having various degrees of managerial and technical complexity, across different domains.
- The unified process divides the project into four phases inception-identify core use cases, and use to make architecture and design tradeoffs. Estimate and schedule project from derived knowledge

Elaboration - Capture detailed user requirements Make detailed design, decide on build vs. buy. Construction - Components are bought or built, and integrated. Transition - release a mature version that satisfies acceptance criteria.