

Topic:- SW Model.

i) Waterfall Model:-

⇒ Waterfall model is the simplest model of software development model. It says the all the phases of SDLC will function one after another in linear manner that is when the first phase is finished then only the second phase will start and so on. This model assume that everything is carried out and taken place perfectly as planned in the previous stage and there is no need to think about the past issue that may arise in the next phase. This model doesn't work smoothly if there are some issues left at the previous stage. The sequential nature of model doesn't allow us to go back and undo or redo our errors. It is also known as Sequential development model.

Advantage of Waterfall Model:-

- ⇒ This model is simple and easy to use and understand.
- It is easy to manage due to the

Requirement

Analysis

Design (coding)

Testing

Implementation

Maintenance

rigidity of the model, each phase has specific deliverables and review process

- In this model phases are processed and completed one at a time. Phase don't overlap.

- Waterfall model works well for smaller project where requirements are very well understood.

Disadvantage of waterfall model:

- One's an application is in the testing stage it is very difficult to go back

and Change something that was not well thought out in the concept stage.

- No working software is produced until the end of the life cycle.
- High amount of risk and uncertainty.
- Not a good model for complex and object oriented project.

When to use waterfall model?

⇒ This model is used only when the requirements are very well known, clear and fixed.

- Product definition is stable and technology is understood.

- There are ^{no} ~~are~~ ~~no~~ ambiguous requirements. This project is ~~short~~ ~~for~~ short.

ii) Prototype model:-

⇒ A Prototype model suggests that before development of actual software, a working prototype of the system

should be developed. A Prototype ~~mea~~ means sample or, test case which ~~en~~ incorporates all the necessary features and function in it. If the sample satisfy all the requirements as defined then the actual task of software development is started. The Prototype model follow following steps —

- i) Requirement
- ii) Analysis
- iii) Designing (coding)
- iv) Testing
- v) Implementation
- vi) Maintenance.

Advantage of Prototype Model:-

- ⇒ • It provides a better understanding of customer requirements and needs.
- It help to critically examine the technically issue associated with the software development.
- Missing functionality can be identify easily.
- It is very useful for the development

For Large System.

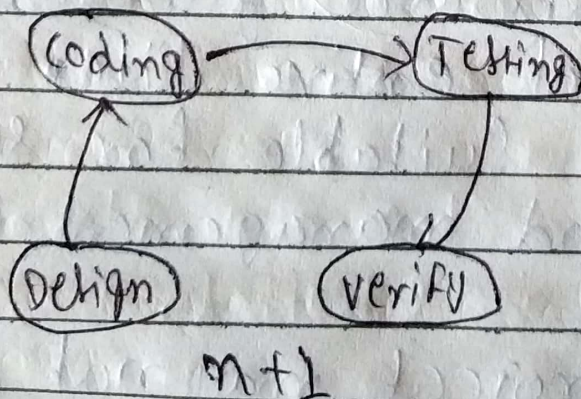
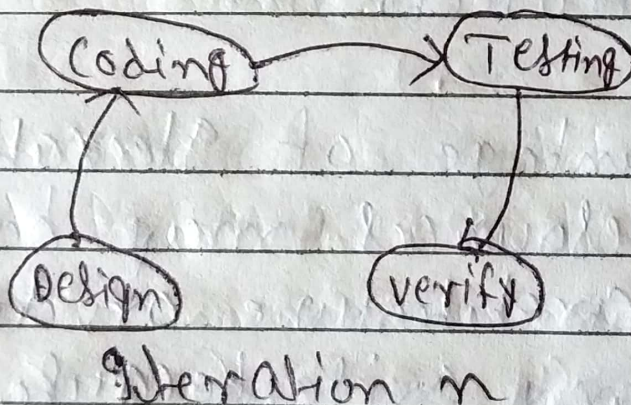
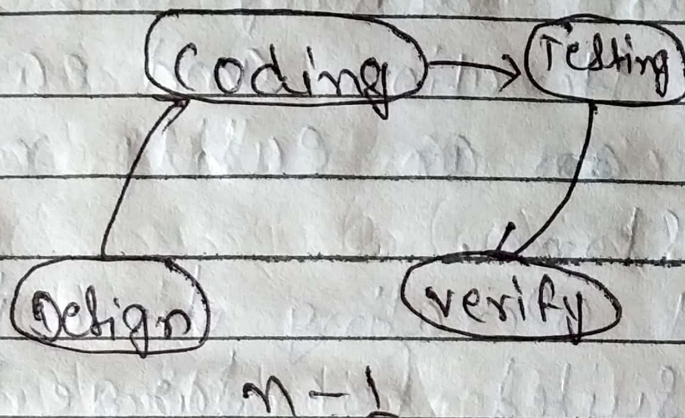
Disadvantage of Prototype model:-

- ⇒ • Leads to implementing and then repairing way of building system.
- Practically this methodology may increase the complexity of the system as scope of the system may extend beyond original plan.

iii) Iterative model:-

- ⇒ This model leads the S/W development process in iteration. It describes the process of development in cyclic manner repeating every step after every cycle of SDLC process. The S/W is first developed on very small scale and all the steps are followed which are taken into consideration. Then, on every next iteration more feature and modules are designed, coded, tested, and added to the S/W. Every cycle produces a S/W which is complete in itself and has more features and capabilities than that of previous one.

After each iteration the management team can do work on risk management and prepare for the next iteration because a cycle include small portion of whole SW process, it is easier to manage the development process but it consume more resources.



Advantage of Iterative Model:-

⇒ Some working functionality can be

developed quickly and early in the life cycle.

- Parallel development can be planned.
- Less costly to change in the scope and requirement.
- Testing and debugging during smaller iteration is easy.
- Risk are identify and resolve during iteration and each iteration is an easily managed mile stone.
- Initial operating time is less.
- Best suited for large and critical project.

Disadvantage of Iterative Model

- ⇒ • More resources may be required.
- System architecture or design issue may arise because not all requirements are gathered in the beginning of entire life cycle.
- It is not suitable for small project and management complexity is more.
- End of project may not be known which is a risk.
- Project progress is highly dependent

upon the risk analysis phase.

iv) Spiral Model:-

⇒ Spiral Model is one of the most widely used S/W development life cycle model. Spiral model was discovered in 1985 by "BOHEM". The Spiral model combine the feature of water fall model and Prototypes models. This model is used to develop large, expensive and complicated Software Product. Following are the steps involve in Spiral model →

- The new System requirements are define in detail as much as possible.

~~This~~ This usually involve interaction with customer and clients interviewing that asking various question related to the SW.

- A Preliminary design is created for the new system to be developed.
- A first Prototype of the new system is constructed from the Preliminary design.