TUTORIAL - 6

Q.1> Compare the waterfall model of software process with the incremental model.

A.1>

① Waterfall Model / Classical / Traditional model / linear-sequential life cycle model.

- All phases involve in this model completed one by one in linear fashion
- In this model, we get software after completion of all coding phase.
- Used for small projects & exist only one cycle in waterfall model.

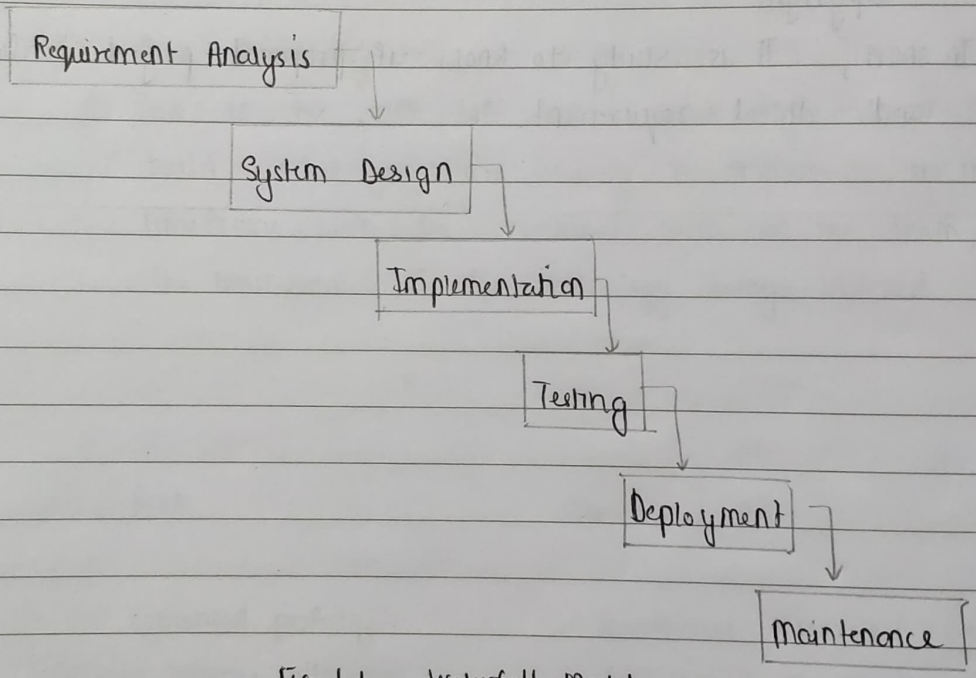
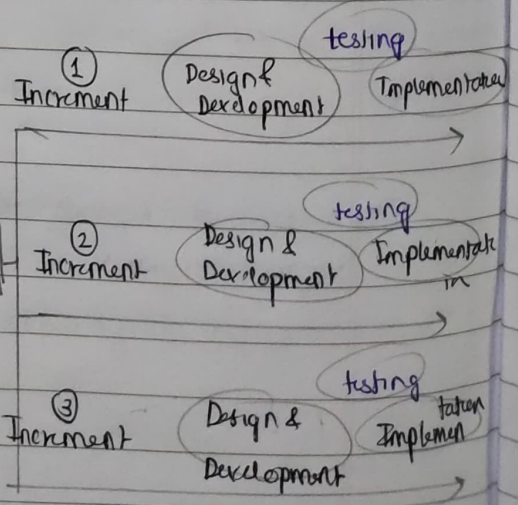


Fig 1.1 Waterfall Model

② Increment Model

- multiple development cycles (cycles divided into small modules)
- Each release of module adds function to previous release.
- process is continued, until complete system is achieved



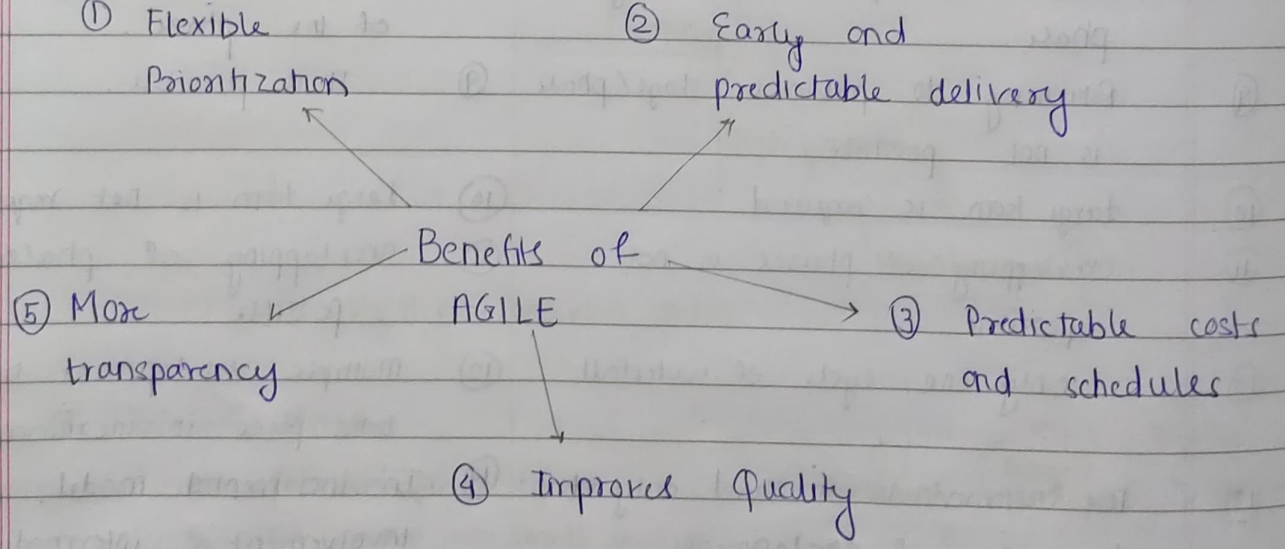
Waterfall model	Incremental model
① Need for Detailed Documentation in waterfall model is necessary.	① Is necessary but not too much.
② Early stage planning is necessary	② Early stage ~~(complete)~~ planning also is ~~not~~ necessary.
③ High amount of Risk	③ Low amount of Risk
④ Long waiting time for running software	④ Short waiting time for running software.
⑤ Can't Handle large projects	⑤ Can't handle large projects
⑥ Flexibility to change in waterfall model is difficult.	⑥ Easy to change (flexible)
⑦ Cost of waterfall model = Low	⑦ cost of incremental is also Low.
⑧ Testing is done in waterfall model after the completion of coding phase.	⑧ Testing is done in incremental model after every iteration of the phase.
⑨ Returning to previous stage/phase is not possible	⑨ It is possible.
⑩ large team is required	⑩ large team is not required.
⑪ Overlapping of phases is not possible.	⑪ Overlapping of phases is possible.
⑫ only one cycle of waterfall	⑫ Multiple development cycles take place in incremental model.
⑬ The customer is involved only at beginning of development.	⑬ In incremental model, customer involvement is intermediate.
⑭ linear framework type is used.	⑭ linear with iterative framework type is used.
⑮ Reusability is the least possible.	⑮ Reusability is possible to some extend.

2) Discuss the Agile method and how is it different from traditional process models.

2.) Agile is general approach used for software development, it relies heavily on teamwork, collaboration, timeboxing tasks and the flexibility to respond to change as quickly as possible

Agile manifesto has four essential values

① More focus on Individuals and Interactions than process and tools
② Working software is more important than comprehensive docu
③ Customer collaboration is more vital than negotiation. entation
④ The process should respond to change rather than blindly following a plan.



Characteristics	Agile Approach	Traditional Approach
Organizational Structure	Iterative	linear
Scale of Projects	Small and Medium Scale	large-scale
User Requirements	Interactive Input	Clearly defined before Implementation
Involvement of Clients	High	Low
Development Model	Evolutionary Delivery	life cycle
Customer Involvement	Customers are involved from the time work is performed	Customer are only involved in starting, not once proj. exec. starts.
Escalation management	Incase of problem, entire team resolves it.	Escalation to managers when problem rise
Model preference	Agile favors Adaption	Tradition favors Anticipation
Product or process	Less focus on formal and directive processes	More serious about process than the product.
Test documentation	Tests are planned one sprint at a time	comprehensive Test planning
Effort Estimation	Scrum master facilitates and team does the estimation	Project managers provides estimates and gets approval from PO.
Reviews & Approvals	Reviews are done after each iteration	excessive Reviews and approvals by leaders.

3.> What is meaning of COTS? which Process Model is it based on and Evaluate its advantages and disadvantages.

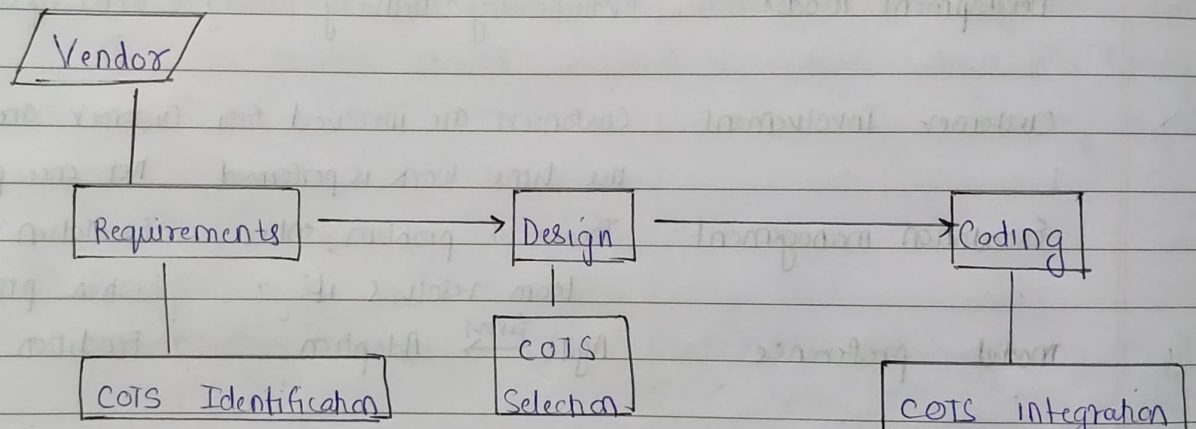
3.> COTS (Commercial Off the shelf)

It is any prebuilt package software or an application that is made to address complex challenges of business through a single application.

Example - Adobe & Microsoft (Ready to install & easily available to general public)

MOTS - (Modified) for change in source code, as per business specific needs.

GOTS - Government agency needs (public sector)



COTS Process Model

Advantages

① Reduced Purchase Cost
② larger Technical Assistance
③ Easily Deployable
④ Timely Upgrades

Disadvantages

① No competitive Edges
② Unknown Business Roadmap
③ Extra features
④ Higher Cost of Installation
⑤ Additional licensing Cost
⑥ Monotonous

4.) Why Prototyping of softwares are done? Prepare note on Prototype developing process.

4.)

Prototyping of software is done due to following Reasons

① The customer get to see the partial product early in the life cycle. This ensure a greater level of customer satisfaction and comfort.

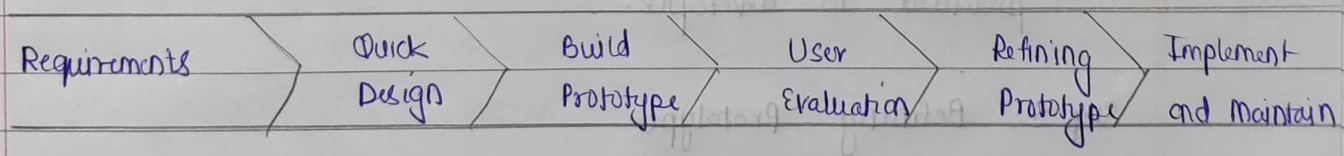
② New requirements can be easily accomodated as there is scope of refinement.

③ Missing functionalities can be easily figured out.

④ Errors can be detected much earlier thereby saving lot of efforts and costs, besides enhancing the quality of software.

⑤ The developed prototype can be reused by developer for more complicated projects in the future.

Prototyping Model Phases



Step 1: Requirements Gathering and Analysis

① A prototyping model with requirement Analysis

② In this phase, Requirement of system are defined in detail.

③ During the process, users of system are interviewed to know what is their expectation from the system.

Step 2: Quick Design

① In this stage, a simple design of the system is created. However it is not a complete design
② It gives brief idea of system to user
③ Quick design helps in developing the prototype.

Step 3: Build a Prototype

① In this phase, an actual prototype is designed based on the information gathered from quick design. (small working model of system)

Step 4: Initial User Evaluation

① In this stage, the proposed system is presented to client for an initial evaluation
② It helps to find out strength and weakness of working model.
③ Comment and suggestion are collected from the customer and provided to developer.

Step 5: Refining Prototype

① If the user is not happy with current prototype, you need to refine the prototype according to the user's feedbacks and suggestions.

Step 6: Implement Product and Maintain

① Once the final system is developed based on the final prototype, it is throughly tested and deployed to production.
② System undergoes routine maintenence for minimizing downscale / prevent large-scale failure.