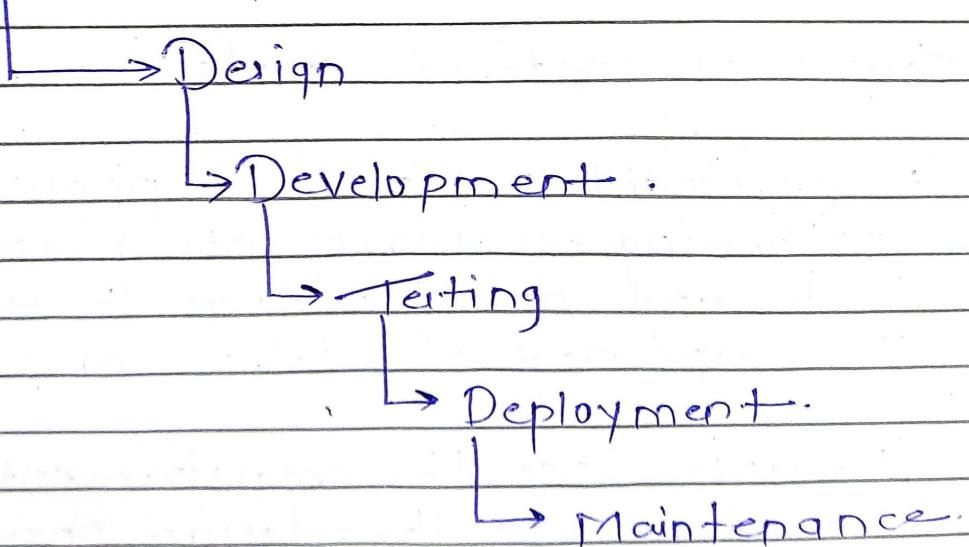


1) Waterfall Model.

The waterfall model is a software development model used in context of large complex projects, typically in the field of information technology. It is characterized by structured, sequential approach to project management and software development.

The waterfall model is useful in situations where the project requirements are well defined and the goals and the scope are clear. It is often used for large scale projects with timelines where there is little room for the project stakeholders to need to have a high level of confidence in the outcome.

Requirements.



Features of Waterfall Model.

- 1) Sequential approach:- The waterfall model involves sequential approach of software development, where each phase of project is completed before moving on to the next one.
 - 2) Document-Driven:- The waterfall model depended on documentation to ensure that project is well defined and the project team working towards a clear set of goals.
 - 3) Quality Control:- The waterfall model places a high emphasis on quality control and testing at each phase of the project to ensure that final project product meets the requirements.
- ### ① phases of waterfall mode
- 1) Requirements:- The first phase involves gathering requirements from stakeholders and analyze them to understand the scope and objectives of project.
 - 2) Design:- Once the requirements are understood the design phase begins. This involves creating a detailed design document that outlines the software phase.

6 Development :- The development phase includes implementation involves coding the software based on the design specifications.

⑥ Testing :- In testing phase the software is tested as a whole to ensure that it meets the requirements and is free from defects.

⑤ Deployment :- Once the software has been tested and approved, it is deployed to the production environment.

⑥ Maintenance :- The final phase of the waterfall model is maintenance which involves fixing any issue that arises after the software has been deployed.

⑦ Advantages

- i) Easy to understand
- ii) Individual processing
- iii) Each stage in the model is clearly defined process and results are very well documented
- iv) Reinforce good habits
- v) It works well for small projects.

Dis-advantages:-

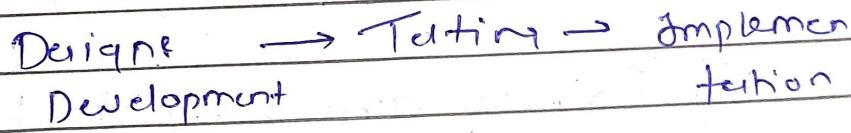
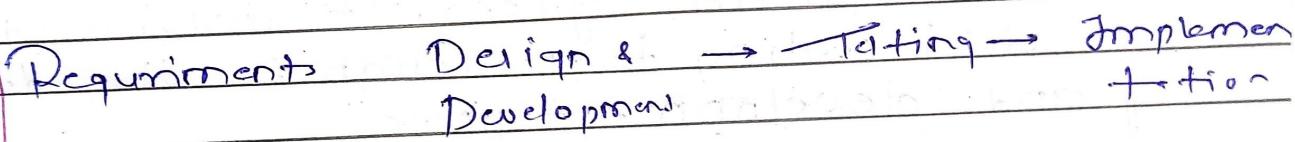
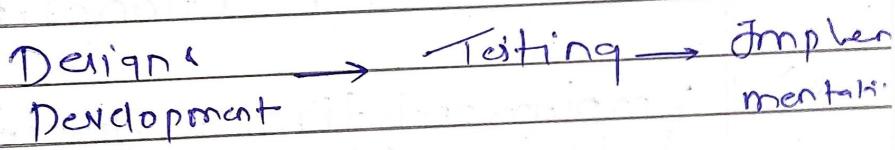
- i) No Feedback path
- ii) Difficult to accommodate change requests
- iii) No overlapping phases.
- iv) limited stakeholder involvement
- v) late defects detections.

Incremental Model :-

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Incremental Model is process of software development where requirements divided into multiple standalone modules of software development cycle.

In this model goes through the requirement, design, implementation, and testing phases every subsequent release of the module adds function to the previous release.



- Various phases of incremental model.

- 1) Requirement analysis:- In this first phase of the incremental model, the product analysis expert identifies the requirements and the system functional requirements are understood by the requirement analysis team.

2) Design & Development:-

In this phase of the incremental model SDLC the design of the system functionality and development method are finished with success.

3) Testing:- In the incremental model the testing phase checks the performance of each existing function as well as additional functionality.

4) Implementation :- Implementation phase holds enables the coding phase of the development system. It involves the final coding that design in the designing and development phase.

Advantages:-

- 1) Errors are easy to be recognized.
- 2) Simple to manage risks.
- 3) Easier to test and debug.
- 4) more flexible.
- 5) The client gets important functionality early.

Dis-advantages:-

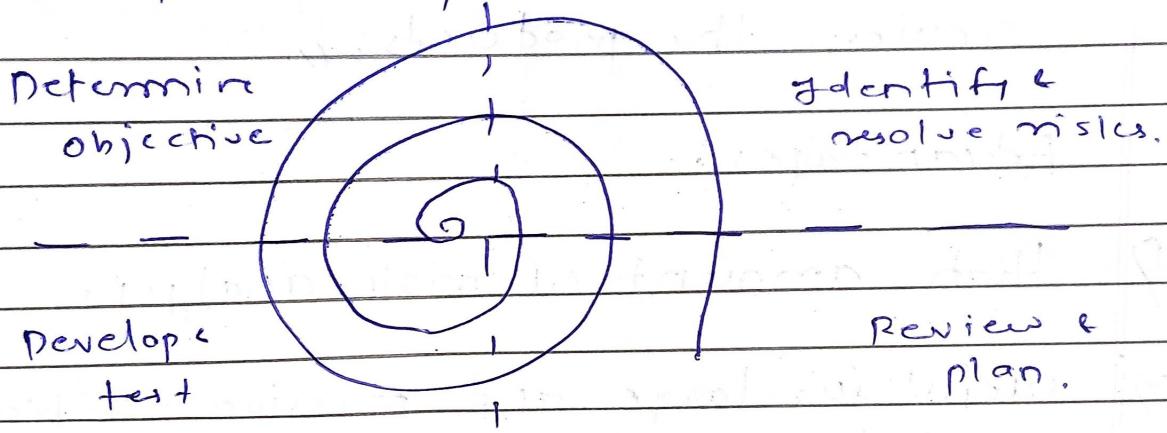
Need for good planning.

Total cost high.

Well defined module interface are needed.

Spiral Model :-

The Spiral model initially proposed by Boehm is an evolutionary software process model that couples the iterative feature of prototyping with the controlled and systematic aspect of the linear sequential model.



phases of spiral model

- 1) Determining objectives and alternative Solution:- In the first phase whatever requirement the customer has related to the software are collected on the basis of which objective are defined.
- 2) Identifying and resolving risks:- In this phase all the solutions are assessed and the best solution is selected now that solution is analyzed and the risks related to it identified.

Develop and test:-

now the development of the software is started in this phase various features implemented & those feature verified through test.

Review & plan:- In this phase we review the products.,,

Advantages:-

- 1) High amount of risk analysis
- 2) useful for large and mission-critical.

Disadvantages.

- 1) can be costly model to use
- 2) risk analysis is needed.
- 3) doesn't work well for smaller project