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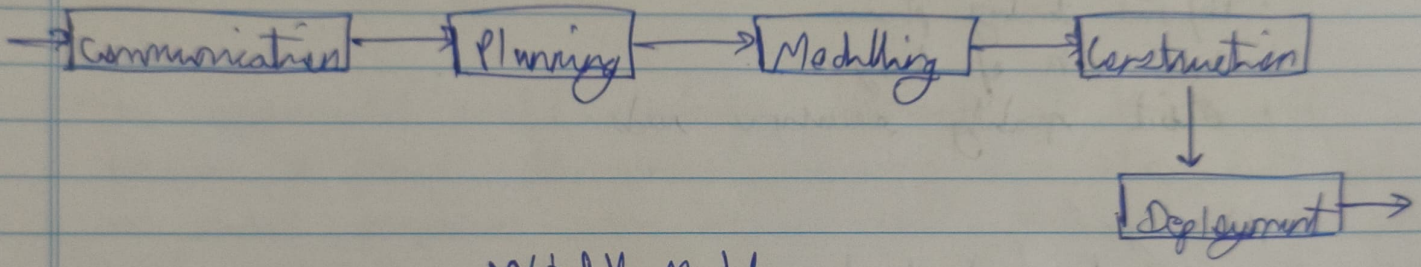
SEPM assignment - 1

1.) **Waterfall Model:**

It is called classic life cycle, suggest a systematic, & sequential approach to software development that begins with customer specifications of requirement and progress through planning, modelling, construction and deployment, culminating in ongoing support of the completed software.

A variation of the waterfall model is called V model:-



Waterfall Model

Advantages:
- Simple & easy to understand
- Easy to manage
- best for small projects
- individual processing

Disadvantages:
- Inflexible
- late testing
- not suitable for working projects

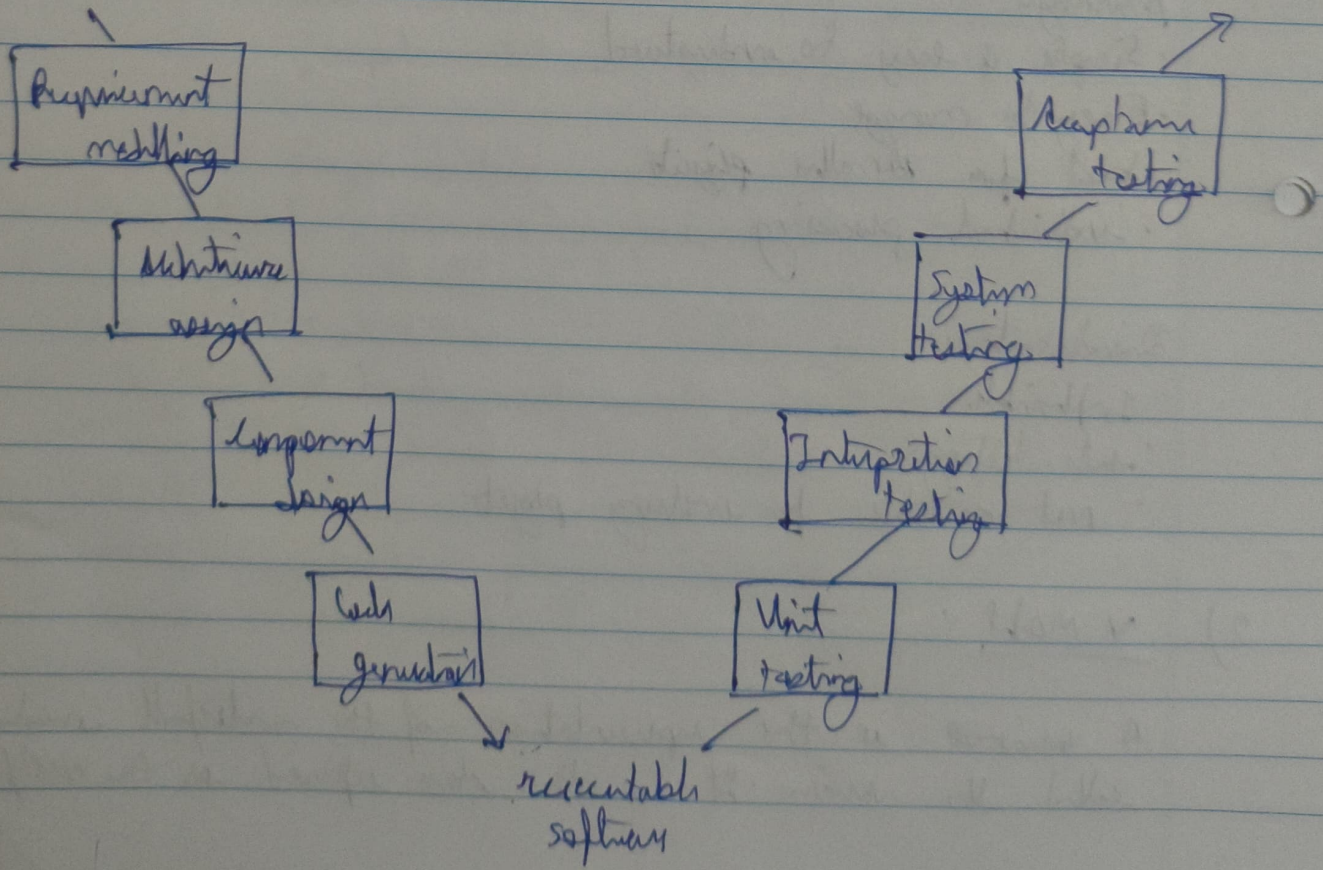
2.) **V Model:**

A variation in the representation of the waterfall model is called the V model. It is the one used as a verification

and validation model. In the V- model, as the team moves down the left side, requirements defined into detailed specification are coding is done they move up in the right side, performing testing to validate each development phase, ensuring at every step.

Use of V model
- clear, & stable environment
- Defined testing phases
- Low risk of changes
- Strict quality assurance needs.

Advantages:
- easy to understand
- Saves a lot time.

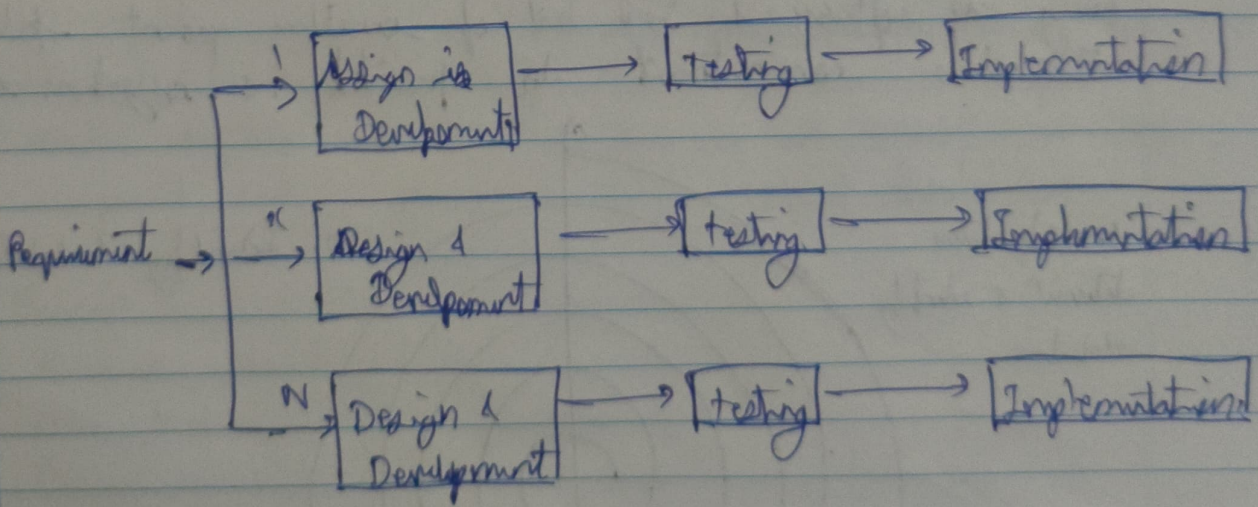


Advantages:
- Avoids downward flow

Disadvantages:
- Rigid, & least flexible
- Not good for complex projects
- No early prototype of the software are produced.

3.) Incremental process model:

The incremental model combines elements of linear and process flow. It applies sequences in a staggered fashion as calendar progress when an increment model is used, the first increment and often a core product is delivered. Each increment are additional many supplementary features remains undelivered.



Incremental model

Advantages
- More flexible

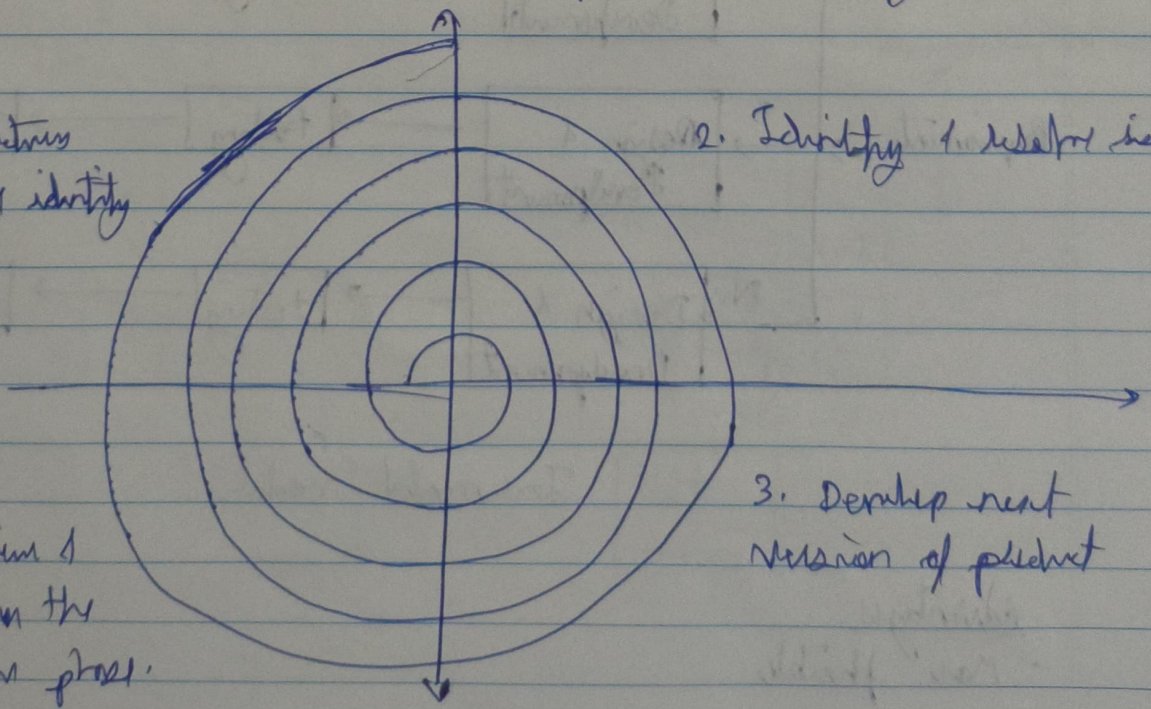
- Easier to test & debug
- errors are easy to be recognized.

Disadvantages:
- cost is high
- need for good planning
- well defined modules interfaces are needed.

4.) Spiral Model:

Originally proposed by Barry Boehm. The spiral model is an evolutionary software process model that couples the iterative nature of prototyping with the systematic aspect of the waterfall model.

The development model is a risk driven model generator that is used to guide multi stakeholder concurrent engineering of software. It is a set of creation point to help stakeholders commitment to feasible & system solutions.



Advantages:
- Risk management
- Good for large projects
- customer satisfaction
- Improved quality

Disadvantages:
- Complex
- Expensive
- Difficulty in resource management
- Too much dependency on risk analysis.

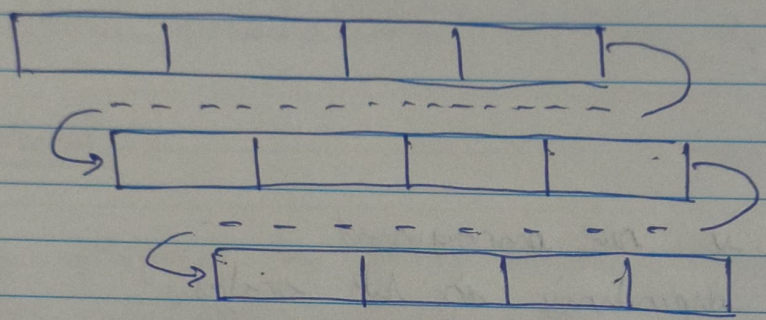
5) Rapid prototyping:

It is similar to that of incremental or waterfall model the project completed without the given requirement all collected before executing project. It is very fast. The main objective of this model is to use each component, tools, processes in the project development.

Phases:
- Business Modelling
- Data Modelling
- Process modelling
- application generation
- testing & turn over.

Advantages:
- Reduces time taken
- components are reused
- flexible & easy to make changes.

Diagram:



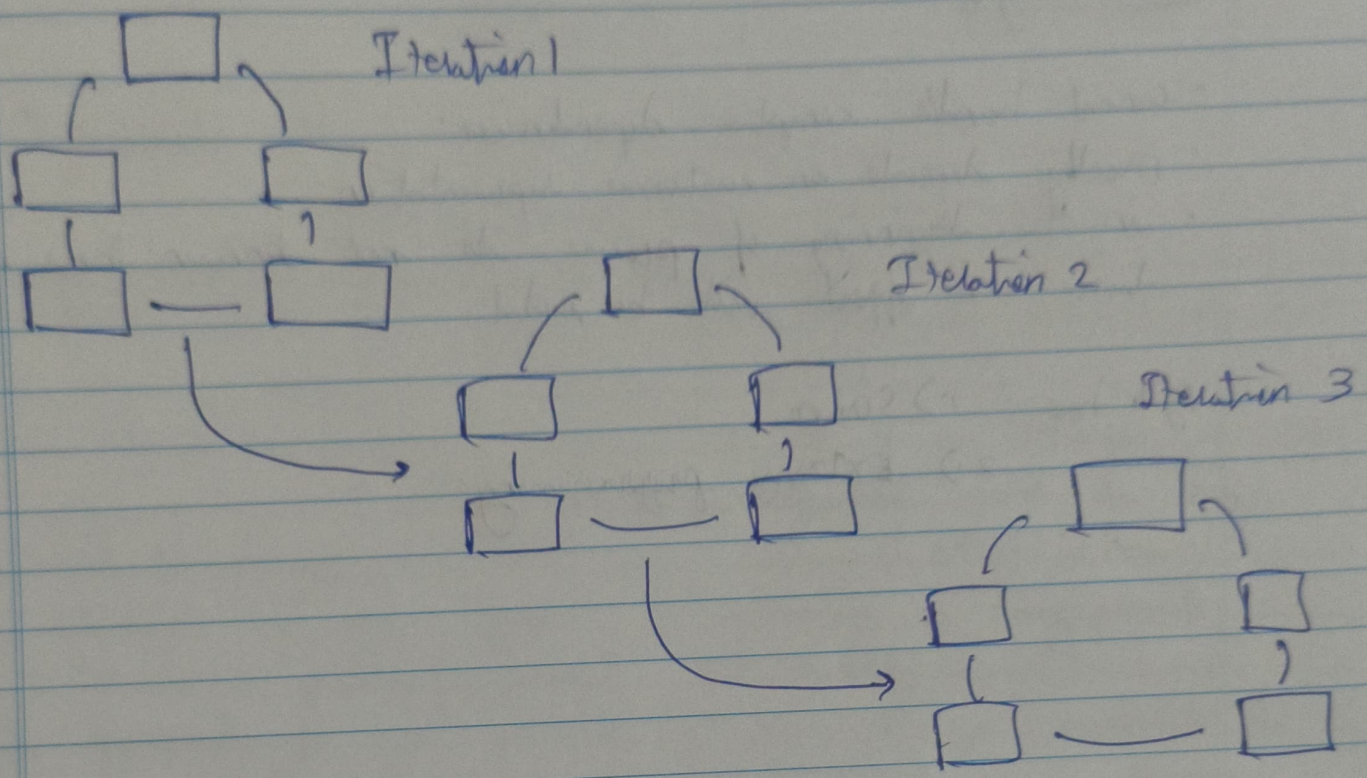
Rapid prototyping

Disadvantages:
- need highly skilled development and design
- very difficult to manage
- automated code generation is expensive.

6.) Agile Model:

It is a combination of iterative & incremental models. It's focus is given to process acceptability and customer satisfaction. It was used mainly to make engaged in the ~~work~~ of software development so that the software project can be completed quickly.

Ans:



1.) Individual and interaction
2.) Working Software
3.) customer collaboration
4.) responding to change

Advantages:
- Project completed in very small time.
- very realistic approach
- focus is given on team work.
- very few rules and documentation is negligible.
- provides flexibility.

Disadvantages:

- cannot handle complex dependencies.
- mostly depends on customer representation
- in the beginning of process, its not known that how much time and effort will be needed.

Agile has : 1) Scrum
2) Extreme programming