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SEPM

★ Waterfall Model :-

The waterfall model, sometimes called the classic life cycle, suggests a systematic, sequential approach to software development that begins with costomer specification of requirements and progress through planning, modeling, construction, and deployment, culminating in ongoing support of the completed software.

A variation in representation of the waterfall model is called the V-model.

Communication → Planning → Modeling → Construction → Deployment →

The waterfall Model.

Advantages :-

- Simple and easy to understand.
- easy to manage
- Best for smaller projects.
- Individual processing.

Disadvantages :-

- Inflexible.
- Late Testing
- Not suitable for evolving projects.
- Lengthy development cycle.

for example:-

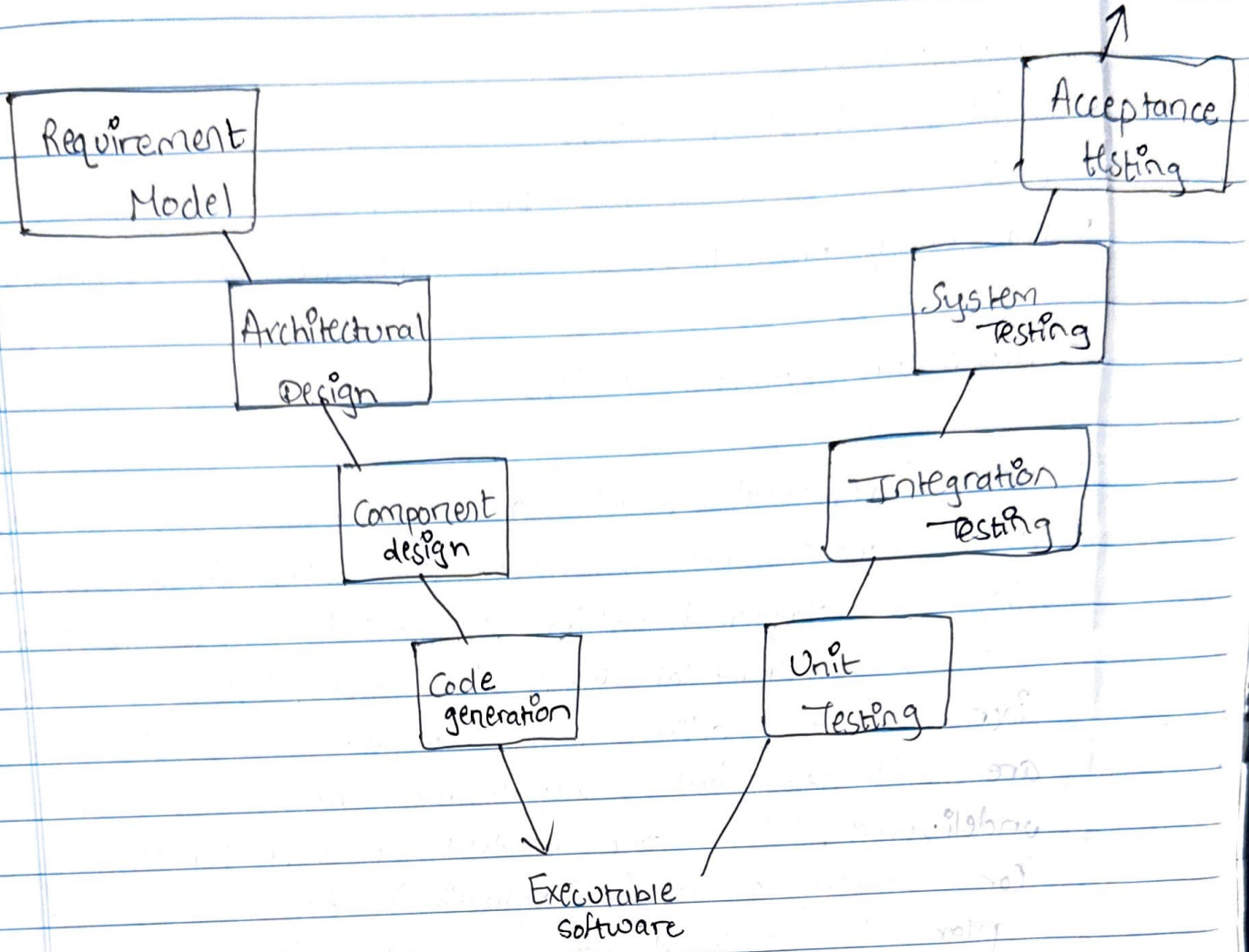
In a Library management system, phases include requirements analysis, system design, implementation, testing, deployment and maintainence. Once a phase is finished, it doesn't return to previous stages.

when to use waterfall model?

- well understand requirements
- Very Little changes expected.
- small to medium size projects.
- Client prefer a linear & sequential approach
- Limited Resources.

★ V Model:-

A variation in the representation of the waterfall model is called the V-Model. It is also referred to as the verification and validation model. It depicts the relationship of quality assurance actions to the actions associated with communication, modelling and early construction activities. In the V-Model, as the team moves down the left side, requirements are refined into details solution, once coding is done, they move up the right side, performing tests to validate each development phase, ensuring quality at every step.



When to use V-Model?

- Clear and stable requirements.
- Defined testing phase.
- Low risk of changes.
- Strict quality assurance needs.

Advantages :

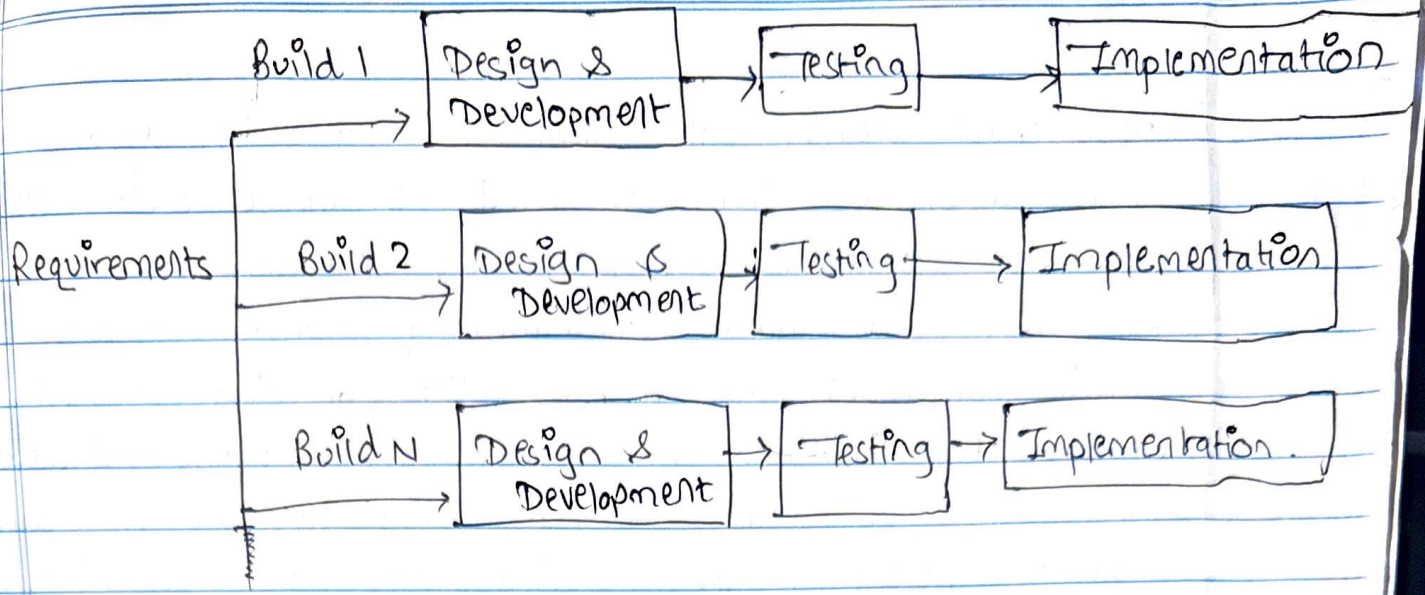
- Easy to understand.
- Saves alot of time.
- Avoids downward flow of defects.

Disadvantages:

- Rigid & Least flexible.
- Not good for complex projects.
- No early prototypes of the software are produced.

Incremental process Model:-

The incremental model combines element of linear, and parallel process flows. It applies linear sequences in a staggered fashion as calender time progresses. when an incremental model is used, the first increment are often a core product i.e basic requirement are addressed but many supplementary features remain undelivered. The core product is used by the customer (or undergoes detail evaluation). As a result, a plan is developed for the next increment. The plan addresses the modification of the core product to better meet the needs of the customer and the delivery of additional features and functionality. This process is repeatedly following the delivery of each increment until the complete product is produced.



Incremental Model.

Advantages :-

- Errors are easy to be recognized.
- More flexible.
- Easier to test & debug.

Disadvantages:

- Cost is high.
- Need for good planning.
- well defined module interfaces are needed.

☆ Spiral Model :-

Originally proposed by Barry Boehm, the spiral model is an evolutionary software process, models that couples the iterative, nature of prototyping with controlled & systematic aspects of the waterfall model.

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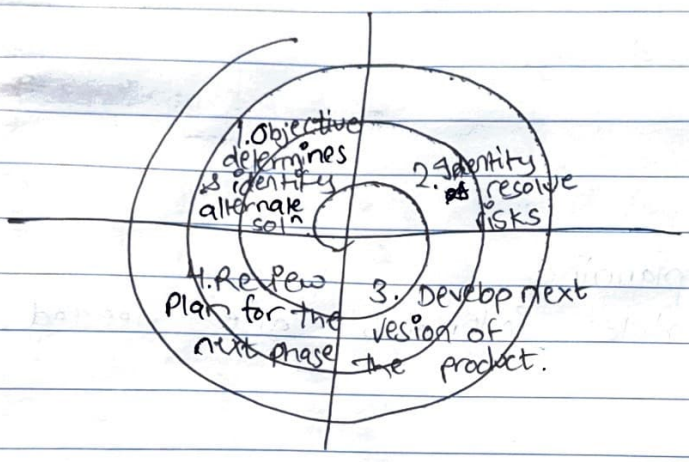
The spiral development model is a risk down model generator that is used to guide multi-stakeholder concurrent engineer of software intensive systems. It has two main distinguishing features. one is cyclic approach for incrementally growing a system's degree of definition of implementation while decreasing its degree of risk. The other is a set of anchor points milestones for ensuring stakeholder commitment to feasible & mutually satisfactory system solution. A spiral model is divided into a set of framework activities defined by the software engineering team.



Advantages:-

- Risk Handling
- Good for large projects.
- Customer satisfaction.
- Improved quality.

Disadvantages:-

- Complex.
- Expensive.
- Difficulty in time management.
- Too much dependability on risk analysis.