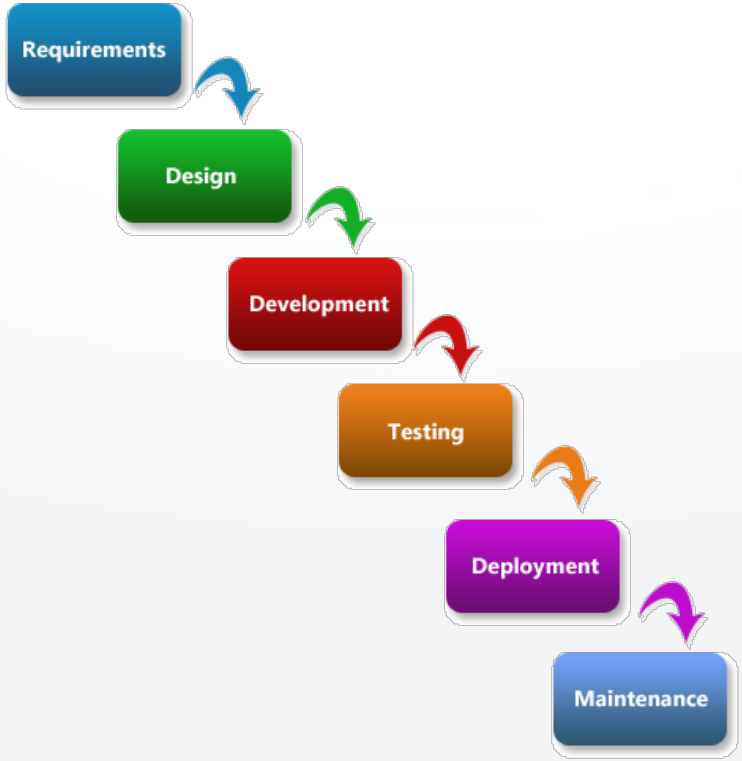
SESSION 2

SDLC

- SDLC, Software Development Life Cycle is a process used by software industry to design, develop and test software's.

Waterfall Model



Waterfall Model

Advantages of Waterfall Model

- Quality of the product will be good.
- Since Requirement changes are not allowed , chances of finding bugs will be less.
- Initial investment is less since the testers are hired at the later stages.
- Preferred for small projects where requirements are feezed.

Disadvantages of Waterfall Model

- Requirement changes are not allowed.
- If there is defect in Requirement that will be continued in later phases.
- Total investment is more because time taking for rework on defect is time consuming which leads to high investment.
- Testing will start only after coding.

Spiral Model

Spiral Model

- Spiral Model is iterative model.
- Spiral Model overcome drawbacks of Waterfall model.
- We follow spiral model whenever there is dependency on the modules.
- In every cycle new software will be released to customer.
- Software will be released in multiple versions. So it is also called version control model.

Spiral Model

Advantages of Spiral Model

- Testing is done in every cycle, before going to the next cycle.
- Customer will get to use the software for every module.
- Requirement changes are allowed after every cycle before going to the next cycle.

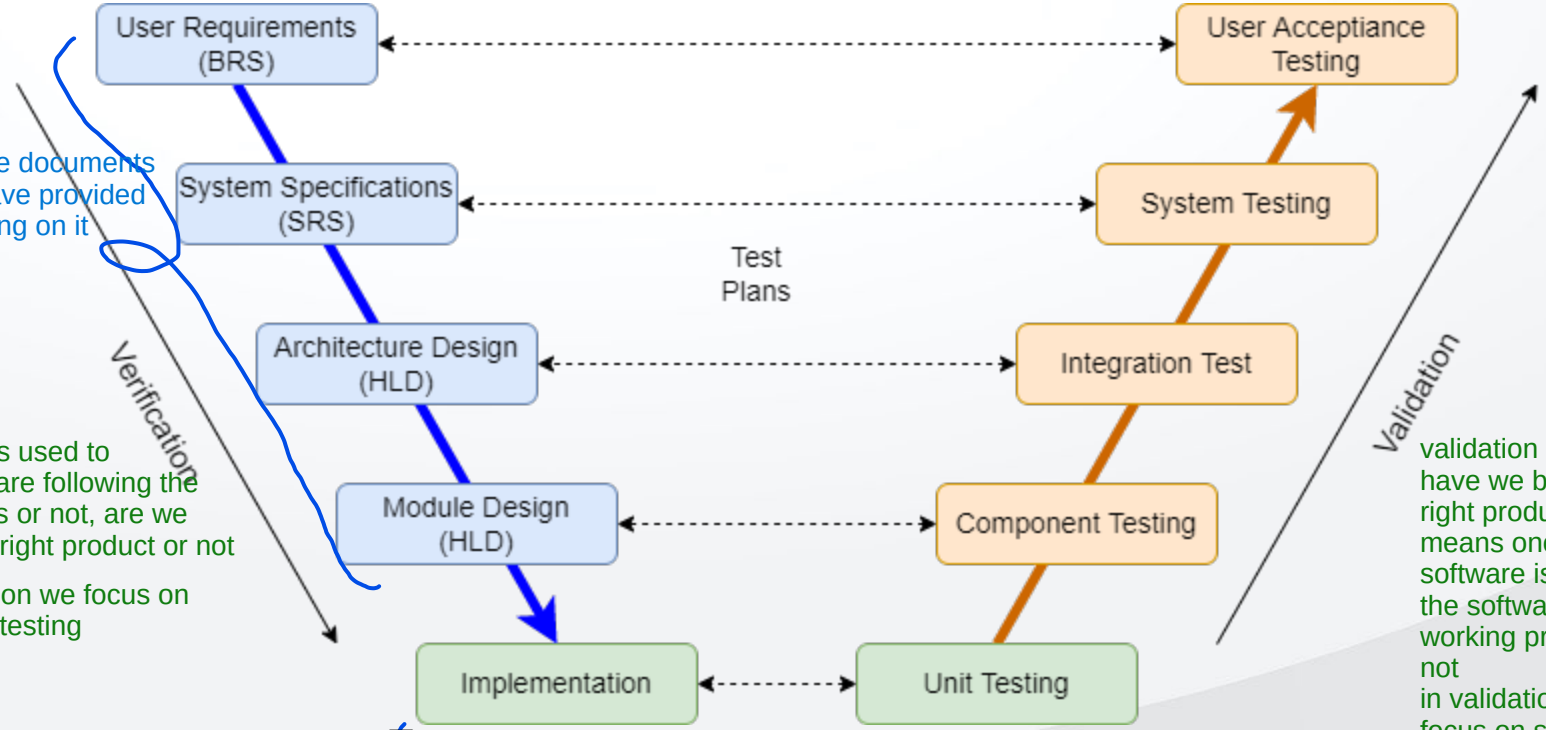
Disadvantages of Spiral Model

- Requirement changes are NOT allowed in between the cycle.
- Every cycle of spiral model looks like waterfall model.
- There is no testing in requirement & design phase.

V-Model

static testing: it is used to test the documents
1) review
2) walk through
3)inspection

dynamic testing: it is used to test the software



this are the documents and we have provided static testing on it

verification is used to check if we are following the right process or not, are we building the right product or not

in verification we focus on document testing

validation means have we build the right product or not, means once the software is ready, is the software working properly or not
in validation we focus on software testing

developemt ... actual software will be developed here

V-Model

Advantages

- Testing is involved in each and every phase.

Disadvantages

- Documentation is more.
- Initial investment is more.

Verification Vs Validation

- Verification checks whether we are building the right product.
- Focus on Documentation
- Verification typically involves.
  - Reviews
  - Walkthroughs
  - Inspections
- Validation checks whether we are building the product right.
  - Takes place after verifications are completed.
  - Focus on Software
  - Validation typically involves actual testing.
  - Unit testing, integration, system testing, UAT testing

Static Testing Vs Dynamic Testing

- Static testing is an approach to test project documents in the form of Reviews, Walkthroughs and Inspections.
- Dynamic testing is an approach to test the actual software by giving inputs and observing results.

Static Testing Techniques

Reviews:

- Ensuring correctness and completeness of documents through a thorough examination.
- Examples: Requirement Reviews, Design Reviews, Code Reviews, Test Plan Reviews, Test Cases Reviews, etc.

Walkthrough:

- Informal review where the author discusses documents or code with peers.
- Execution: Not pre-planned, conducted whenever needed.
- Documentation: No formal minutes of the meeting are recorded.

Inspections:

- Formality: The most formal review type involving 3-8 participants, including a reader, writer, and moderator.
- Scheduling: Follows a proper schedule communicated via email to concerned developers or testers.

Dynamic Testing Techniques

- Unit Testing: Testing individual components or functions to verify that they work correctly in isolation.
- Integration Testing: Checking how different modules or components interact with each other to ensure seamless integration.
- System Testing: Evaluating the complete software system to ensure it meets specified requirements and functions as intended.
- UAT (User Acceptance Testing): Real users test the software to verify if it meets their needs and expectations.