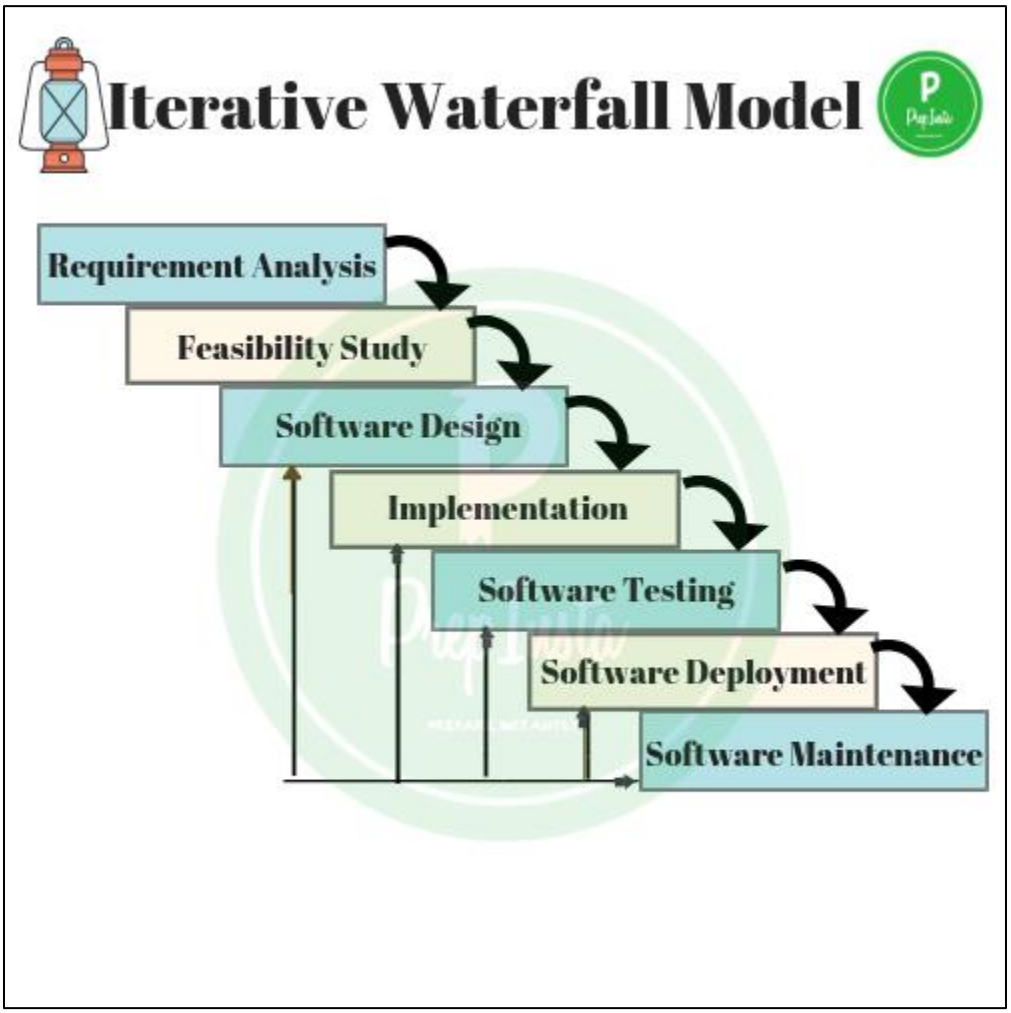
Topics:

1. Iterative waterfall model
2. V-Model

1. Iterative waterfall model



- Iterative Waterfall Model is the extension of the Waterfall model.
- This model is almost same as the waterfall model except some modifications are made to improve the performance of the software development.
- The iterative waterfall model provides customer's feedback paths from each phase to its previous phases.
- There is no feedback path provided for feasibility study phase, so if any change is required in that phase then iterative model doesn't have scope for modification or making corrections.

- Iterative waterfall allows to go back on the previous phase and change the requirements and some modification can done if necessary.
- This model reduces the developer's effort and time required to detect and correct the errors.
- In iterative waterfall model, next phase can only begin when the previous phase is completed as waterfall model.

Phases of Iterative Waterfall Model:

1. Requirement Analysis
2. Feasibility Study
3. Software Design
4. Coding/Implementation
5. Software Testing
6. Software Deployment
7. Software Maintenance

Advantages of Iterative Waterfall Model:

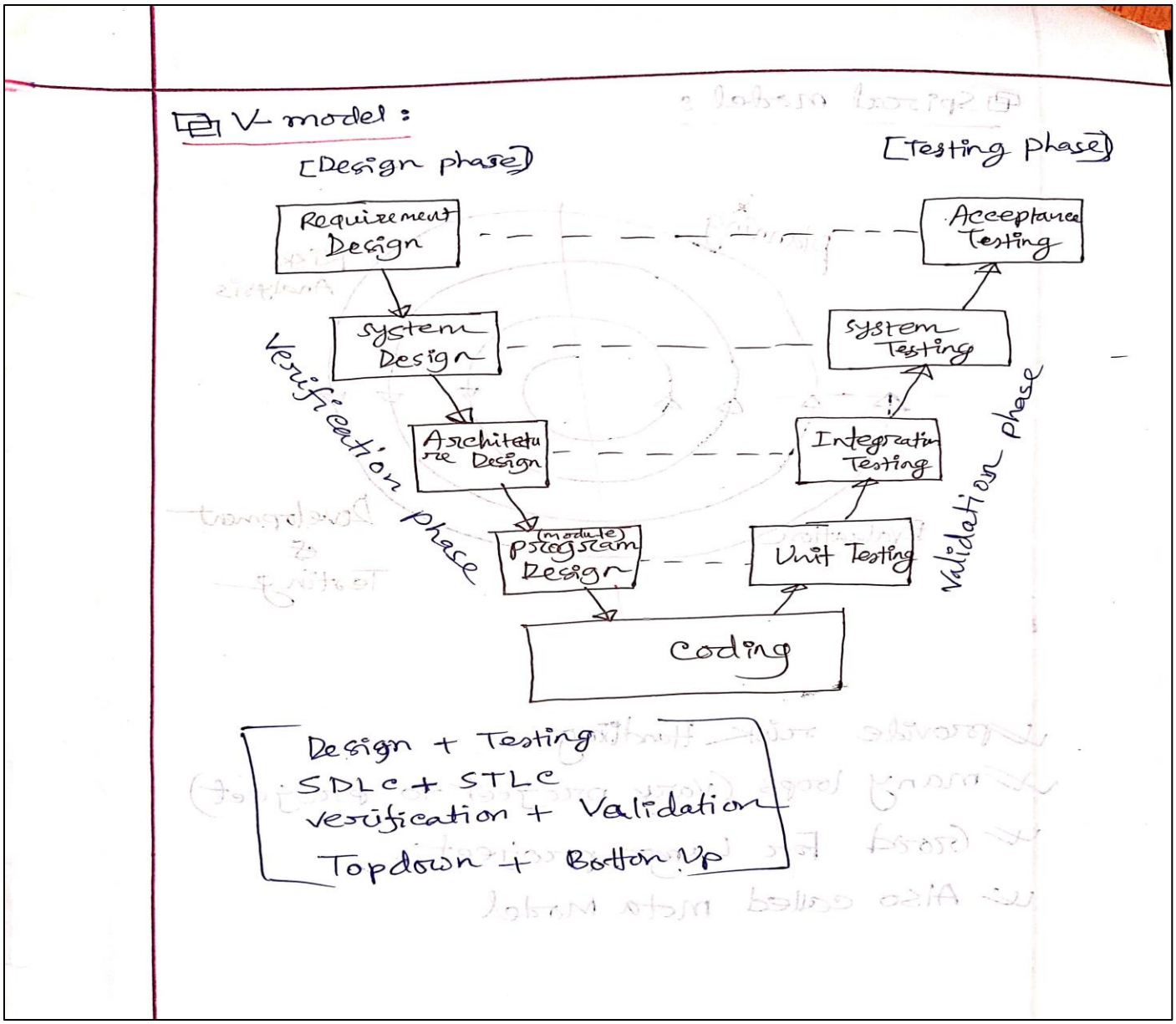
- Iterative waterfall model is very easy to understand and use.
- Every phase contains feedback path to its previous phase.
- This is a simple to make changes or any modifications at any phase.
- By using this model, developer can completer project earlier.
- Customer involvement is not required during the software development.
- This model is suitable for large and complex projects.

Disadvantages of Iterative Waterfall Model:

- There is no feedback path for feasibility study phase.
- This model is not suitable if requirements are not clear.
- It can be more costly.
- There is no process for risk handling.
- Customer can view the final project. There is no prototype for taking customer reviews.
- This model does not work well for short projects.
- If modifications are required repeatedly then it can be more complex projects.

2. V-Model

The V-model is a type of SDLC model where process executes in a sequential manner in V-shape. It is also known as Verification and Validation model.



Design Phase:

- **Requirement Analysis:** This phase contains detailed communication with the customer to understand their requirements and expectations. This stage is known as Requirement Gathering.

- **System Design:** This phase contains the system design and the complete hardware and communication setup for developing product.
- **Architectural Design:** System design is broken down further into modules taking up different functionalities. The data transfer and communication between the internal modules and with the outside world (other systems) is clearly understood.
- **Module Design:** In this phase the system breaks dowm into small modules. The detailed design of modules is specified, also known as Low-Level Design (LLD).

Testing Phases:

- **Unit Testing:** Unit Test Plans are developed during module design phase. These Unit Test Plans are executed to eliminate bugs at code or unit level.
- **Integration testing:** After completion of unit testing Integration testing is performed. In integration testing, the modules are integrated and the system is tested. Integration testing is performed on the Architecture design phase. This test verifies the communication of modules among themselves.
- **System Testing:** System testing test the complete application with its functionality, inter dependency, and communication. It tests the functional and non-functional requirements of the developed application.
- **User Acceptance Testing (UAT):** UAT is performed in a user environment that resembles the production environment. UAT verifies that the delivered system meets user's requirement and system is ready for use in real world.

Why preferred?

- It is easy to manage due to the rigidity of the model. Each phase of V-Model has specific deliverables and a review process.
- Proactive defect tracking – that is defects are found at early stage.

When to use?

- Where requirements are clearly defined and fixed.
- The V-Model is used when technical resources are available with technical expertise.

Advantages:

- This is a highly disciplined model and Phases are completed one at a time.
- V-Model is used for small projects where project requirements are clear.
- Simple and easy to understand and use.
- This model focuses on verification and validation activities early in the life cycle thereby enhancing the probability of building an error-free and good quality product.
- It enables project management to track progress accurately.

Disadvantages:

- High risk and uncertainty.
- It is not a good for complex and object-oriented projects.
- It is not suitable for projects where requirements are not clear and contains high risk of changing.
- This model does not support iteration of phases.
- It does not easily handle concurrent events.