

What is SDLC?

It stands for Software Development Life Cycle. It is a model used in project management that defines the stages include in an information system development project, from an initial feasibility study to the maintenance of the completed application.

Purpose of SDLC:

To deliver a high-quality product which is as per customer's requirement.

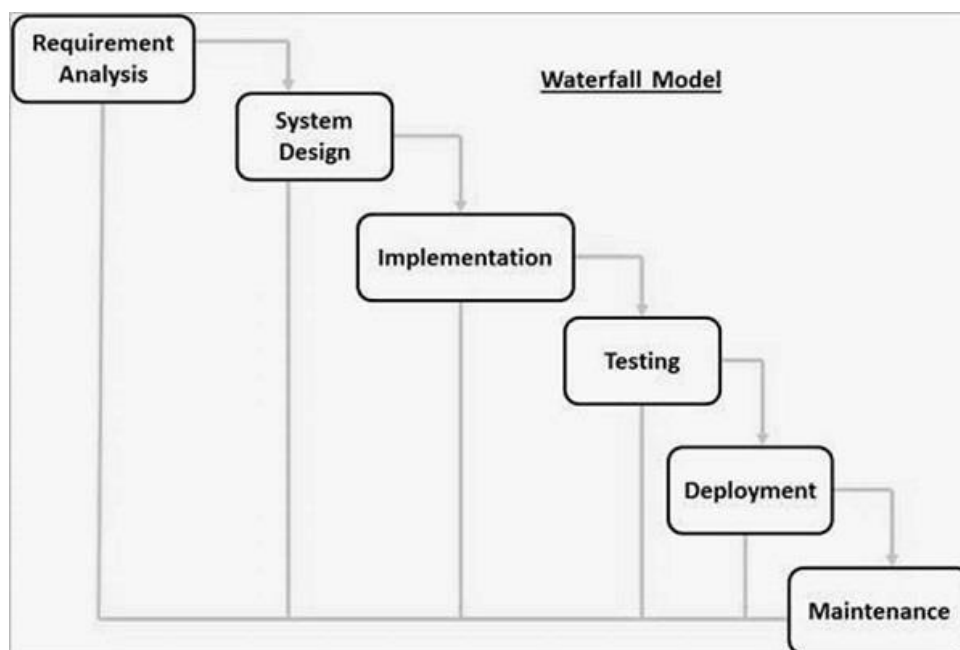
Phases of SDLC:

- i) Gathering and analysis information
- ii) Flowchart
- iii) Implementation
- iv) Testing
- v) Deployment
- vi) Maintenance

Different Models:

Waterfall Model:

It is also known as the linear sequential model. In this model, the outcome of one phase is the input for the next phase. Development of the next phase starts only when the previous phase is complete.



Advantages:

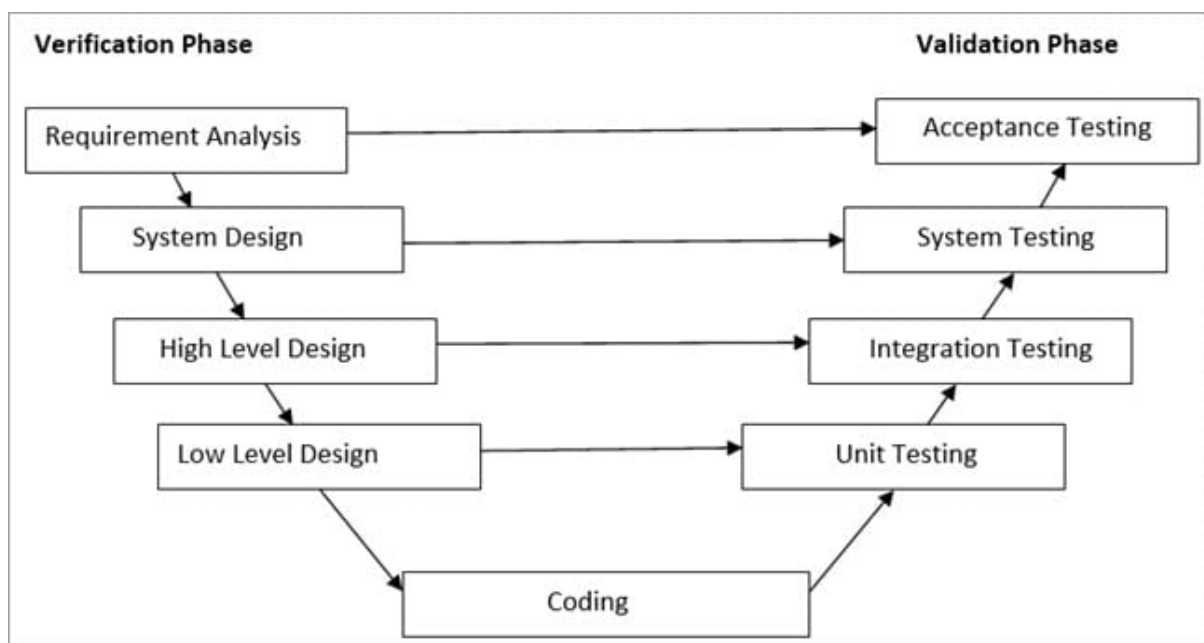
- Waterfall model is the simple model which can be easily understood and is the one in which all the phases are done step by step.
- Deliverables of each phase are well defined.

Disadvantages:

- Waterfall model is time-consuming & cannot be used in the short duration projects.
- Waterfall model cannot be used for the projects which have uncertain requirement.

V-Shaped Model:

V- Model is also known as Verification and Validation Model. In this model Verification & Validation goes hand in hand i.e. development and testing goes parallel.



Advantages:

- It is a simple and easily understandable model.

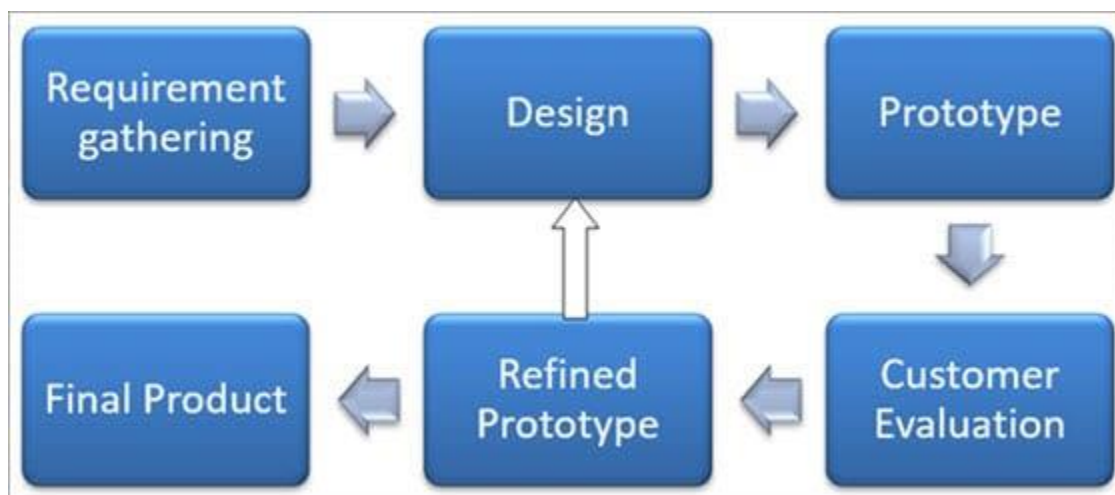
- V –model approach is good for smaller projects wherein the requirement is defined and it freezes in the early stage.
- It is a systematic and disciplined model which results in a high-quality product.

Disadvantages:

- V-shaped model is not good for ongoing projects.
- Requirement change at the later stage would cost too high.

Prototype Model:

The prototype model is a model in which the prototype is developed prior to the actual software.



Advantages:

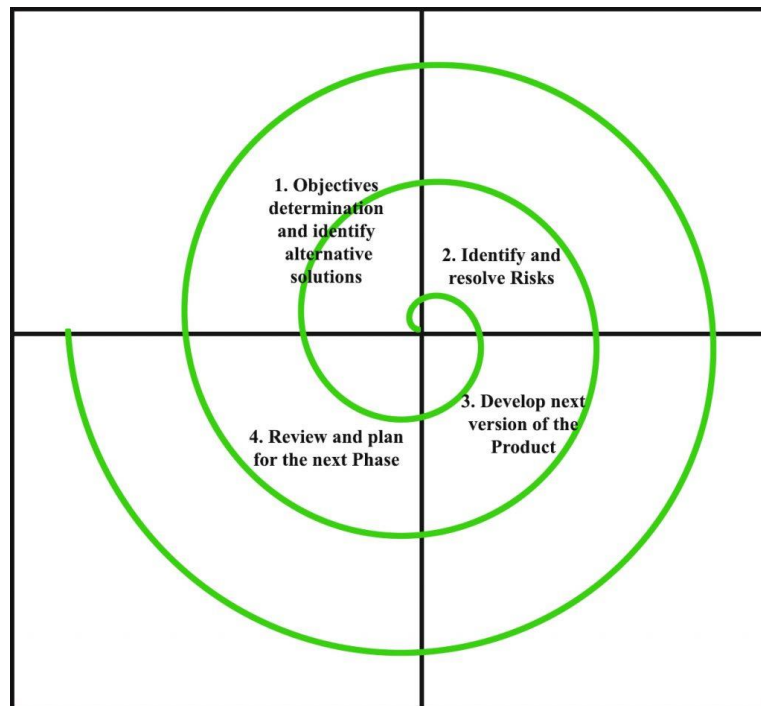
- Prototype model reduces the cost and time of development as the defects are found much earlier.
- Missing feature or functionality or a change in requirement can be identified in the evaluation phase and can be implemented in the refined prototype.
- Involvement of a customer from the initial stage reduces any confusion in the requirement or understanding of any functionality.

Disadvantages:

- Since the customer is involved in every phase, the customer can change the requirement of the end product which increases the complexity of the scope and may increase the delivery time of the product.

Spiral Model:

Spiral model phases are followed in the iterations. The loops in the model represent the phase of the SDLC process i.e. the innermost loop is of requirement gathering & analysis which follows the Planning, Risk analysis, development, and evaluation. Next loop is Designing followed by Implementation & then testing.



Advantages:

- Risk Analysis is done extensively using the prototype models.
- Any enhancement or change in the functionality can be done in the next iteration.

Disadvantages:

- The spiral model is best suited for large projects only.
- The cost can be high as it might take a large number of iterations which can lead to high time to reach the final product.

Iterative Incremental Model:

The iterative incremental model divides the product into small chunks.

Advantages:

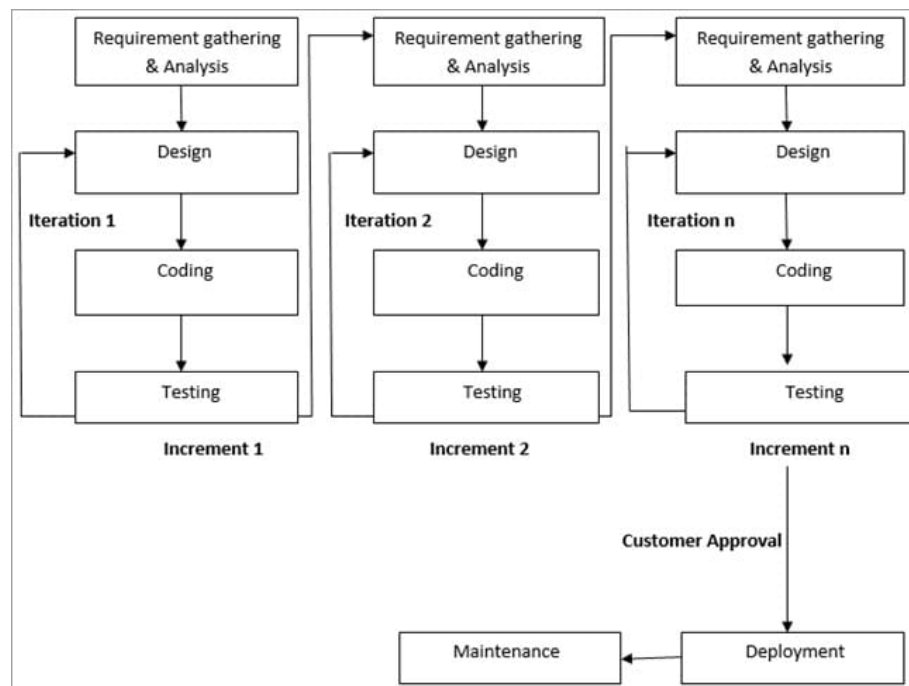
- Any change in the requirement can be easily done and would not cost as there is a scope of incorporating the new requirement in the next iteration.
- Risk is analyzed & identified in the iterations.
- Defects are detected at an early stage.
- As the product is divided into smaller chunks it is easy to manage the product.

Disadvantages:

- Complete requirement and understanding of a product are required to break down and build incrementally.

Big Bang Model:

Big Bang Model does not have any defined process. Money and efforts are put together as the input and output come as a developed product which might be or might not be the same as what the customer needs.



Advantages:

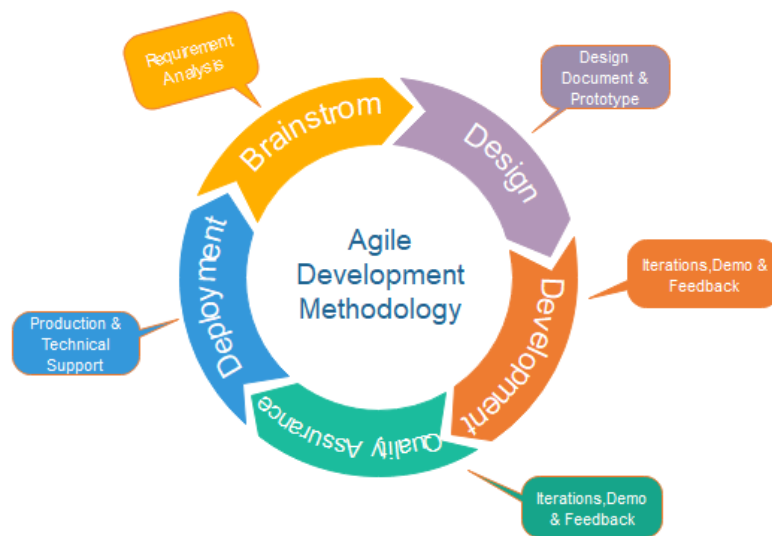
- It's a very simple Model.
- Less Planning and scheduling is required.
- The developer has the flexibility to build the software of their own.

Disadvantages:

- Big Bang models cannot be used for large, ongoing & complex projects.
- High risk and uncertainty.

Agile Model:

Agile Model is a combination of the Iterative and incremental model. This model focuses more on flexibility while developing a product rather than on the requirement.



Advantages:

- It allows more flexibility to adapt to the changes.
- The new feature can be added easily.
- Customer satisfaction as the feedback and suggestions are taken at every stage.

Disadvantages:

- Lack of documentation.
- Agile needs experienced and highly skilled resources.
- If a customer is not clear about how exactly they want the product to be, then the project would fail.

Bibliography:

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