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MCS 2nd

Computer Science

SOFTWARE ENGINEERING

ASSIGNMENT SDLC MODELS

There are seven models of sdlc software engineering

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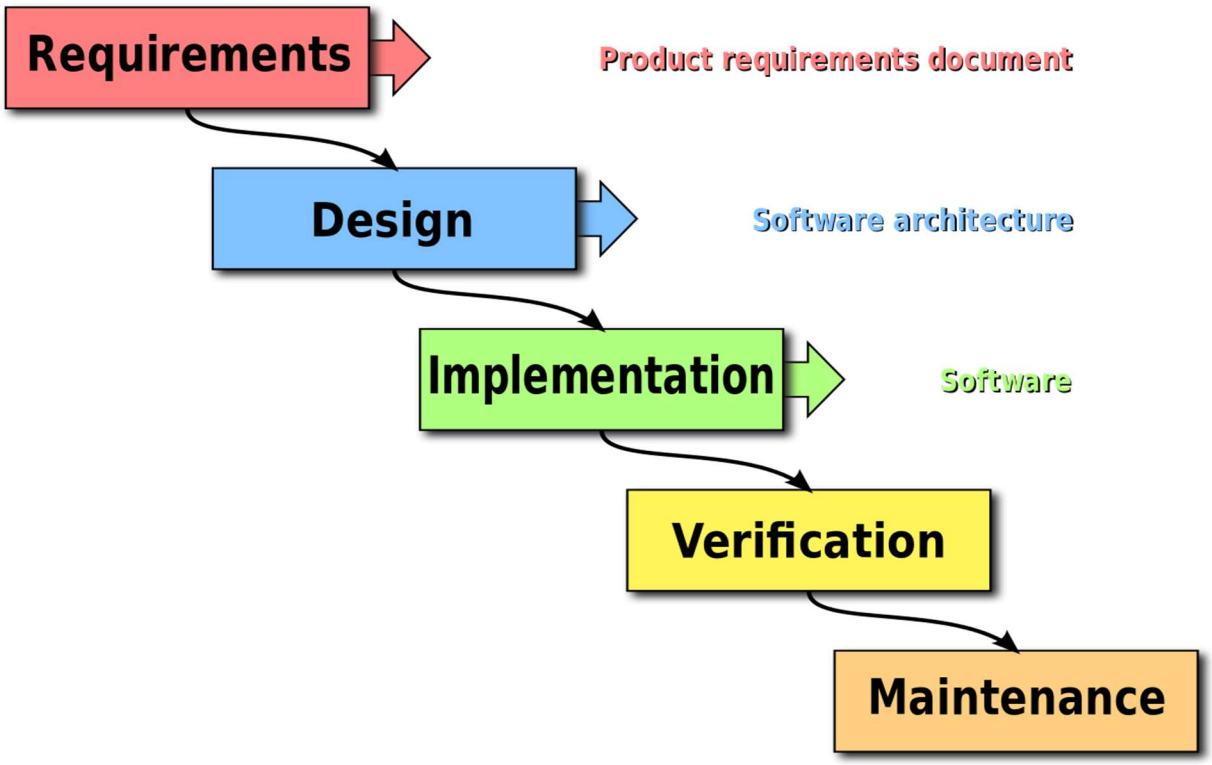
SDLC MODELS

1ST MODEL WATERFALL MODEL:

1st Model WATERFALL MODEL:

THE **WATERFALL MODEL** WAS THE FIRST PROCESS MODEL TO BE INTRODUCED. IT IS VERY SIMPLE TO UNDERSTAND AND USE. IN A *WATERFALL* MODEL, EACH PHASE MUST BE COMPLETED BEFORE THE NEXT PHASE CAN BEGIN AND THERE IS NO OVERLAPPING IN THE PHASES. *WATERFALL* MODEL IS THE EARLIEST **SDLC** APPROACH THAT WAS USED FOR SOFTWARE DEVELOPMENT.



1ST MODEL WATERFALL MODEL:

ADVANTAGES:

- The advantage of waterfall development is that it allows for departmentalization and control. A schedule can be set with deadlines for each stage of development and a product can proceed through the development process model phases one by one.
- The waterfall model progresses through easily understandable and explainable phases and thus it is easy to use.
- It is easy to manage due to the rigidity of the model – each phase has specific deliverables and a review process.
- In this model, phases are processed and completed one at a time and they do not overlap. Waterfall model works well for smaller projects where requirements are very well understood.

Disadvantages:

- It is difficult to estimate time and cost for each phase of the development process.
- Once an application is in the testing stage, it is very difficult to go back and change something that was not well-thought out in the concept stage.
- Not a good model for complex and object-oriented projects.
- Not suitable for the projects where requirements are at a moderate to high risk of changing.

2ND MODEL:

2nd Model:

V MODEL:

The V model is an SDLC model where execution of processes happens in a sequential manner in a V-shape.

In V model wen can reverse to check problem with compare to waterfall model.

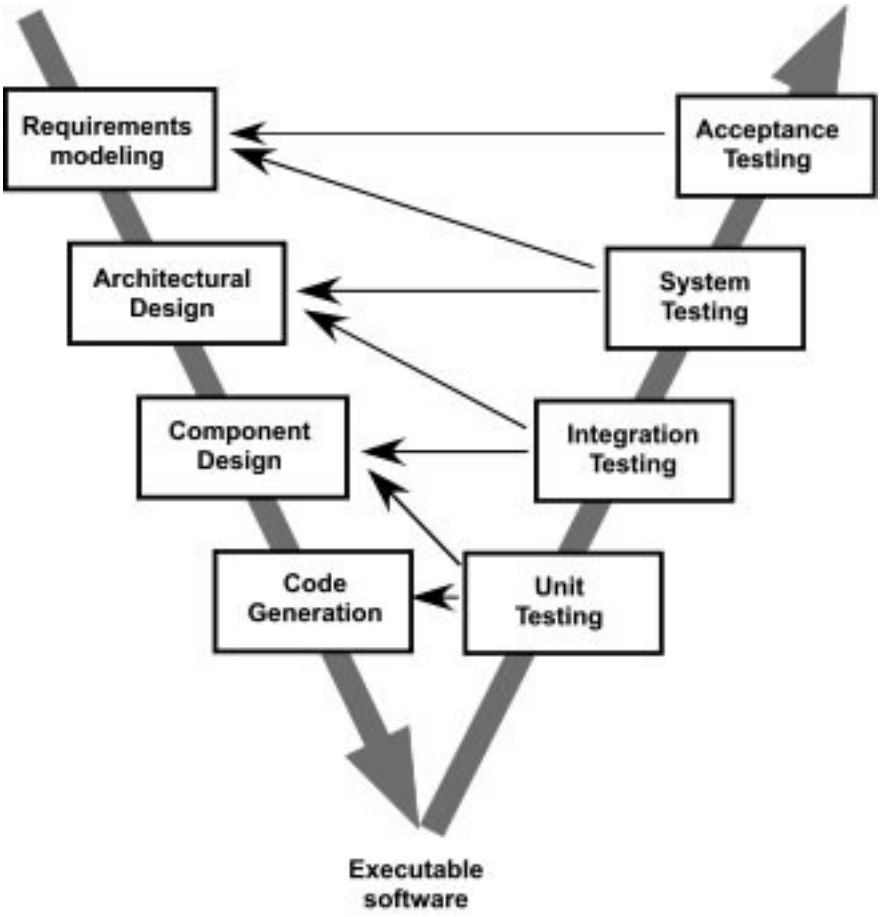
In v model first we complete the one step and then going for next step but if error were occurring in previous steps then we can go for previous steps to check the errors.

It is also known as verification and validation model.

The v model is an extension of waterfall model and is based on the association of a testing phase for each corresponding development stage.

V model provides means of testing of software at each stages in reverse manner.

2ND MODEL:



ADVANTAGES:

- Work with small size team.
- Initial delivery product is faster.
- Can accommodate changes.
- Customer response / feedback is considered.

2ND MODEL:

DISADVANTAGES:

- Work with small size team.
- Initial delivery product is faster.
- Can accommodate changes.
- Customer response / feedback is considered.
- Very rigid and least flexible.
- If any changes happen in midway, then the test documents along with requirement documents has to be updated.
- Software is developed during the implementation phase, so no early prototypes of the software are produced.

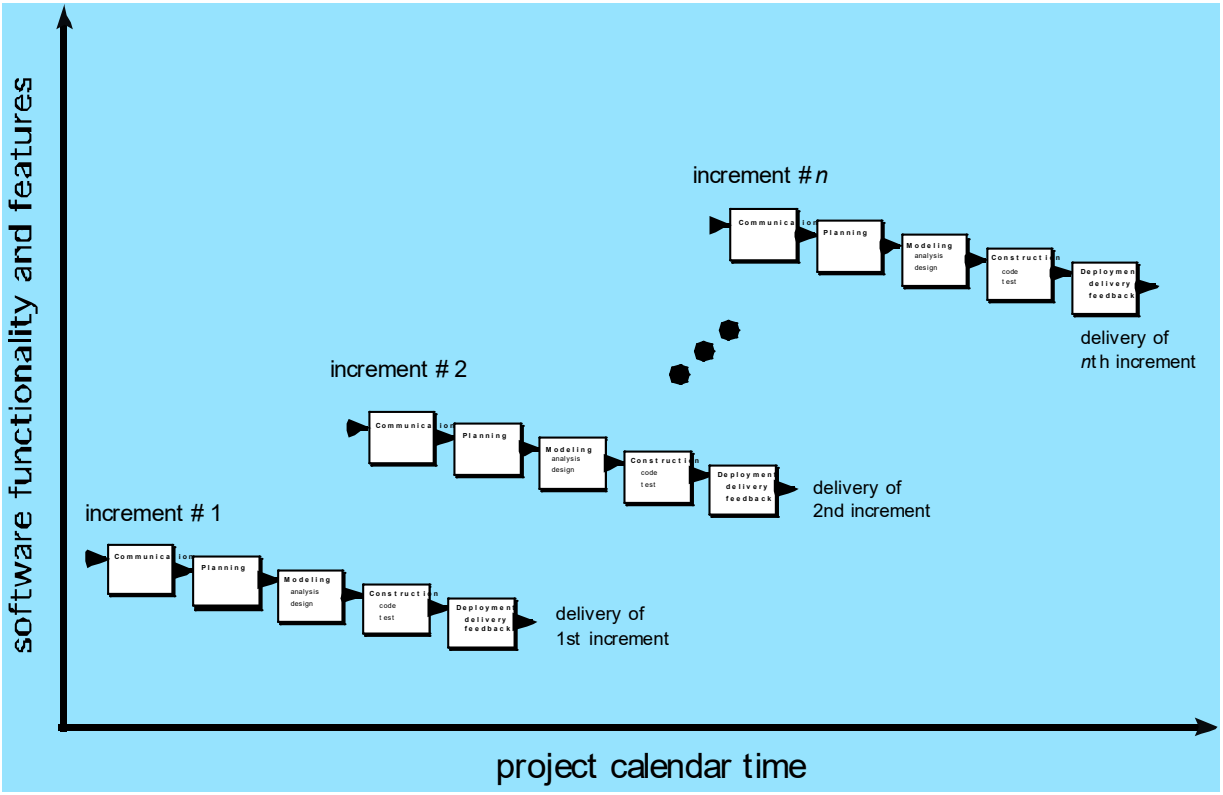
3RD MODEL:

3rd Model:

INCREMENTAL MODEL:

In Incremental model all the phases are executing at a time means repeating again in again executing in the incremental format in the incremental way.

And the incremental is going to increment ways Up to full functionality. System functionality is increasing to increasing incremental model.



3RD MODEL:

ADVANTAGES:

- Work with small size team.
- Initial delivery product is faster.
- Can accommodate changes.
- Customer response / feedback is considered.
- A customer can respond to each building
- Errors are easy to be identified

DISADVANTAGES:

- Actual cost may exceed the estimated cost.
- System broken into small increments.
- Rectifying a problem in one unit requires correction in all the units and consumes a lot of time
- Each iteration phase is rigid and does not overlap each other

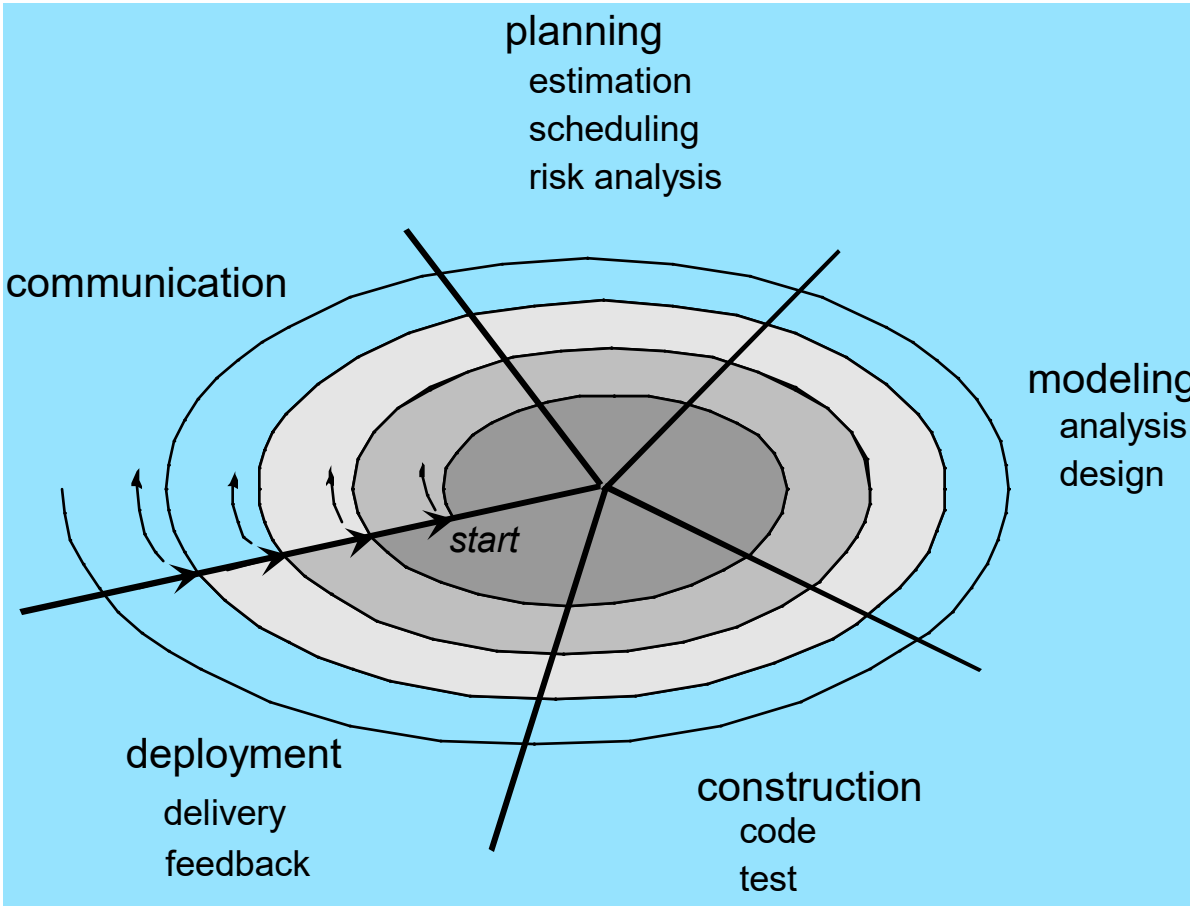
4TH MODEL:

4th Model:

SPIRAL MODEL:

Spiral model is one of the most important software of the development life cycle model. We can risk analyses in spiral model. This model was first described by Barry Boehm in 1986. Spiral model can handle large amount of risk.

It is diagrammatic representation, its look like spiral.



4TH MODEL:

ADVANTAGES:

- Best model for the risk analyses and risk handling.
- Good for large projects.
- Flexibility in requirements.
- Customer satisfaction.
- Software is produced early.

DISADVANTAGES:

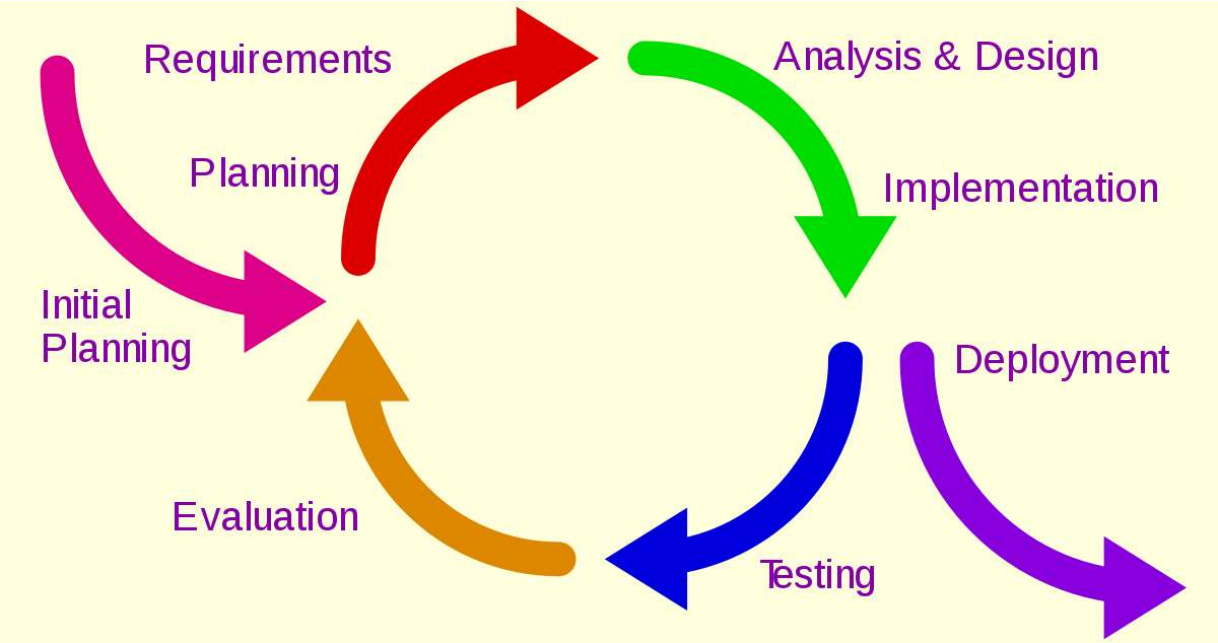
- The spiral model is much more complex than the other SDLC models.
- Spiral model is not suitable for small projects as it is expensive.
- Its costly for small projects.
- Difficulty in time management: As the number of phases is known at the start of project, so time estimation is very difficult.

5TH MODEL:

5th Model:

ITERATIVE MODEL:

The iterative model is a particular implementation of a software development life cycle (SDLC) that focuses on an initial, simplified implementation, which then progressively gains more complexity and a broader feature set until the final system is complete.



5TH MODEL:

ADVANTAGES:

- Some working functionality can be developed quickly and early in the life cycle.
- Results are obtained early and periodically.
- Parallel development can be planned.
- Progress can be measured.
- Less costly to change the scope/requirements.
- Testing and debugging during smaller iteration is easy.

DISADVANTAGES:

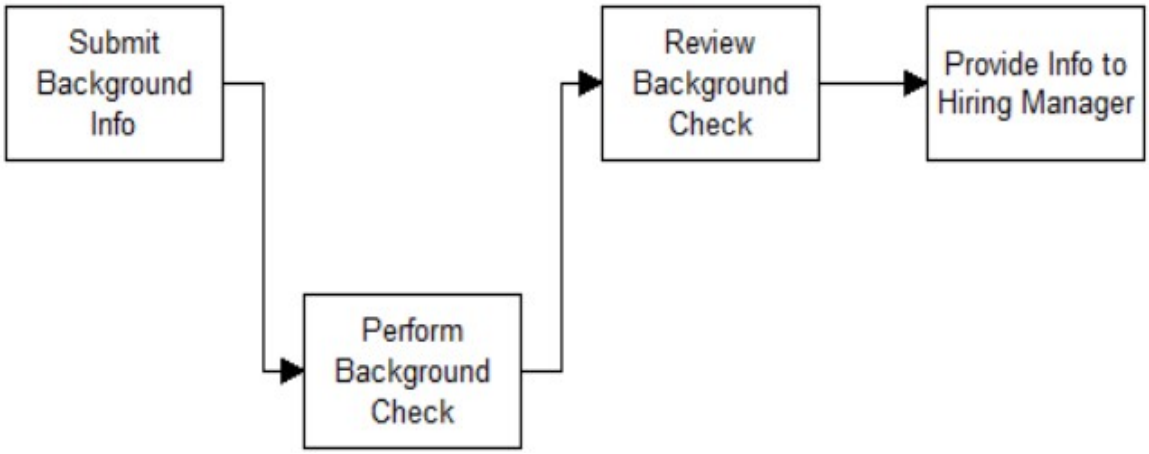
- More resources may be required.
- Although cost of change is lesser, but it is not very suitable for changing requirements.
- More management attention is required.
- It is not suitable for smaller projects.
- Highly skilled resources are required for skill analysis.
- Project progress is highly dependent upon the risk analysis phase.

6TH MODEL:

6th Model:

PROCESS MODEL:

A (software/system) process model is a description of the sequence of activities carried out in an SE project, and the relative order of these activities.



7th Model AGILE MODEL:

In the agile methodology after every development iteration, the customer is able to see the result and understand if he is satisfied with it or he is not. This is one of the advantages of the agile software development life cycle model. One of its disadvantages is that with the absence of defined requirements it is difficult to estimate the resources and development cost. Extreme programming is one of the practical use of the agile model. The basis of such model consists of short weekly meetings – Sprints which are the part of the Scrum approach.

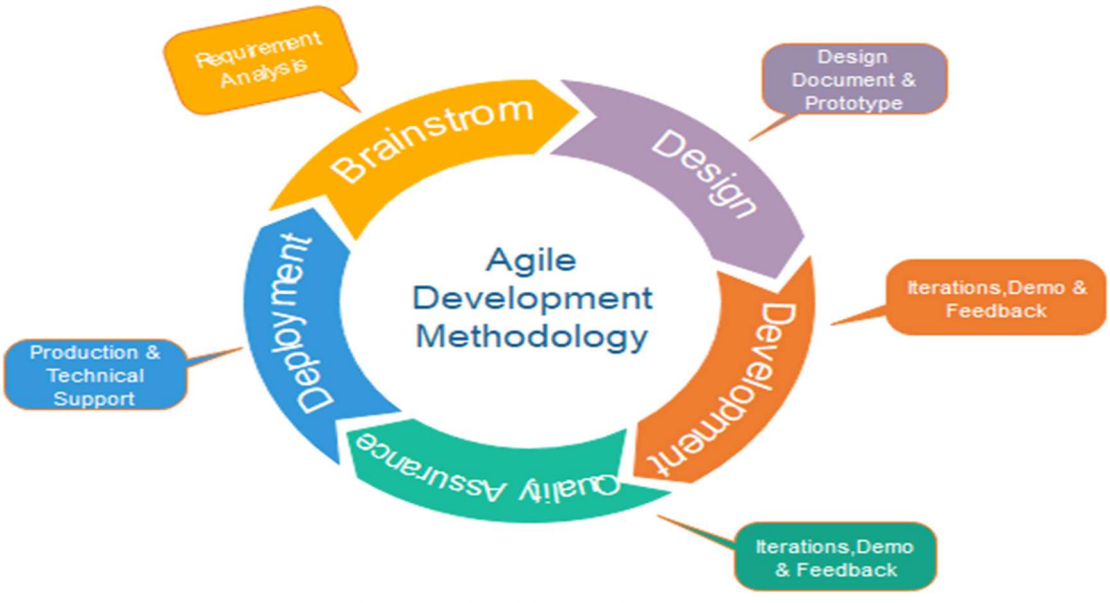


Fig. Agile Model

7TH MODEL AGILE MODEL:

ADVANTAGES:

- Corrections of functional requirements are implemented into the development process to provide the competitiveness
- Project is divided by short and transparent iterations
- Risks are minimized thanks to the flexible change process
- Fast release of the first product version

DISADVANTAGES:

- Difficulties with measuring the final cost because of permanent changes.
- The team should be highly professional and client-oriented
- New requirements may conflict with the existing architecture
- With all the corrections and changes there is possibility that the project will exceed expected time