1.3] SDLC Models

A framework containing the process, activities & task involved in the development operation & maintenance of the software project spanning the life of system from the definition of its requirement to the termination of its use.

Types of SDLC Models:

1] Waterfall model

2] Spiral Model

3] Prototype Model

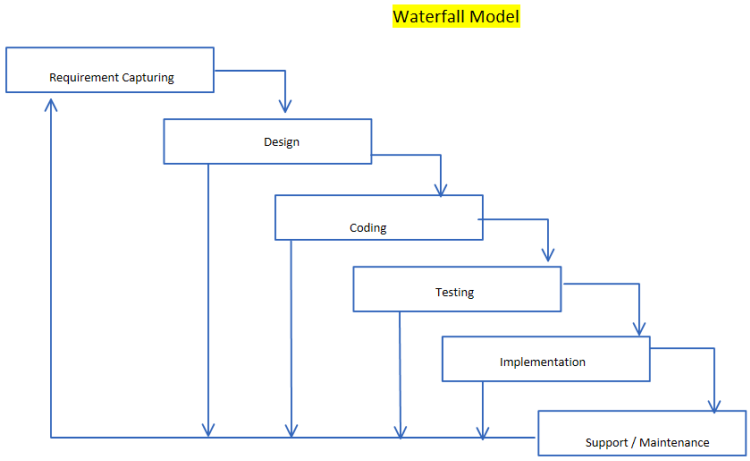
4] Rapid application development model

5] Iterative and incremental development model

6] Agile Model

1] Waterfall Model:-

- It is also known as ‘Classic life cycle model’ or ‘Linear sequential model’
- This model suggest systematic and sequential approach to software development that begins at requirement analysis and progress through all life cycle phases sequentially.
- Diagram:

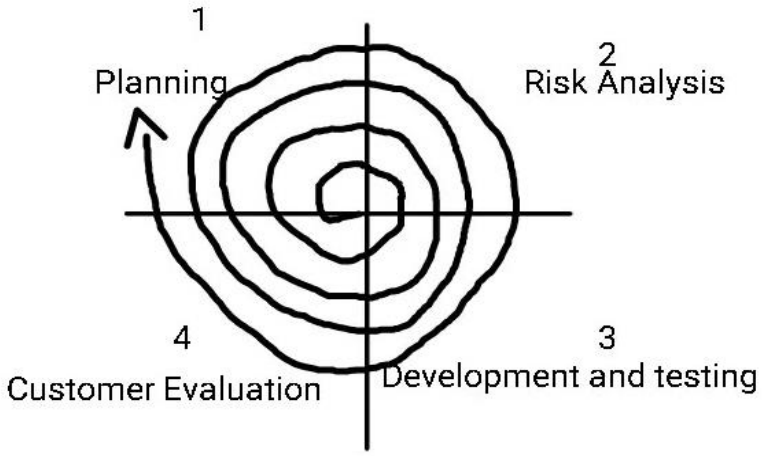


- Development activity carried out sequentially.
- Review and approval of each phase outputs (Deliverables).
- Mode doesn’t permit going back & forth.
- If any defect found, go back to the originating phase & start traversing sequentially all over again.
- Suitable for project Where:

- ❖ Requirement are clearly defined.
- ❖ Small and medium term duration.
- ❖ Familiarity with the domain & development environment.

2] Spiral Model:

- In spiral model, software is developed in series of incremental release.
- Diagram:



- Suitable for large projects with multiplication implementation.
- Each spiral consist of deliverable product.
- Customer can start using the system every spiral.
- Feedback of each spiral is incorporated in the next spiral.
- Each spiral consist of a waterfall model.
- Advantages:
  - ❖ Useful for large projects
  - ❖ Customer requirements change over a period.
  - ❖ Early availability of usable system.

3] Prototype Model:

- Identify basic requirement: A prototype is developed based on the initial understanding of customer requirement.
- Developed initial prototype: The initial prototype is developed that includes only user interface.
- Review: The customer including end user, examine the prototype & provides the feedback on additions or changes.

- Revise and enhance the prototype: Using the feedback both the specifications & prototype can be improved.
- Advantages:
    - ❖ A visible working prototype helps customer to define the requirements.
    - ❖ Can be used when customer is not sure about what he wants.
    - ❖ Faster way of finalizing the requirement.
    - ❖ Useful for new technologies.
    - ❖ Useful for product development.

4] Rapid application Development:-

- RAD enables creation of fully functional software within very short time.
- If the requirement are well understand & defines and the project scope is constraint, the RAD process enables a development team to create a fully functional system with in very short time period.

5] Iterative and Incremental Development Model:

- The basic idea behind iterative enhancement is to develop software system incrementally.
- At each iteration, design modifications are made along with adding new functional capabilities.
- In an incremental development, the system is developed in different stages, with each stage consisting of requirements, design, development & test phases. In stage new functionality is added.
- This type of development allows the user to see functional product very quickly & allows the user to import what changes are included in subsequent releases.

6] Agile Model:

- In agile model project is divided in to various sprints.
- Each sprint contains highest priority requirements.
- A time period of sprint typically 2-4 weeks.
- In agile model, daily scrum meeting with team to share status and potential issues.
- Each sprint is release to customers.
- Used for time critical applications.