

Software Engineering

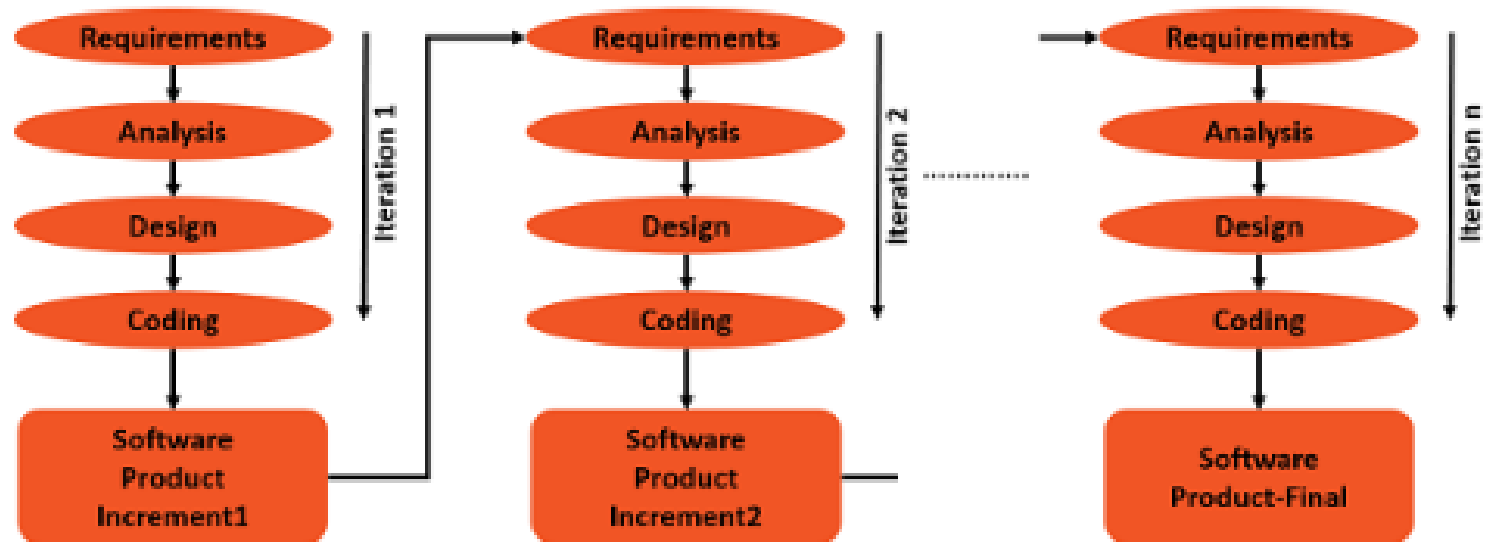
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SDLC - Iterative Model

Iterative Model

- In an Iterative model, initially, a **partial implementation** of a total system is constructed so that it will be in a deliverable state.
- Increased **functionality is added**.
- Defects, if any, from the prior delivery are fixed and the working product is delivered.
- The **process is repeated** until the entire product development is completed.
- The repetitions of these processes are called **iterations**.
- At the end of every iteration, a product **increment is delivered**.

Iterative Model-representation



Phases of Iterative model

- 1. Requirement gathering & analysis:** In this phase, requirements are gathered from customers and check by an analyst whether requirements will fulfil or not. Analyst checks that need will achieve within budget or not. After all of this, the software team skips to the next phase.
- 2. Design:** In the design phase, team design the software by the different diagrams like Data Flow diagram, activity diagram, class diagram, state transition diagram, etc.
- 3. Implementation:** In the implementation, requirements are written in the coding language and transformed into computer programs which are called Software.
- 4. Testing:** After completing the coding phase, software testing starts using different test methods. There are many test methods, but the most common are white box, black box, and grey box test methods.
- 5. Deployment:** After completing all the phases, software is deployed to its work environment.
- 6. Review:** In this phase, after the product deployment, review phase is performed to check the behaviour and validity of the developed product. And if there are any error found then the process starts again from the requirement gathering.
- 7. Maintenance:** In the maintenance phase, after deployment of the software in the working environment there may be some bugs, some errors or new updates are required. Maintenance involves debugging and new addition options.

When to use the Iterative Model-Application?

- When requirements are defined clearly and easy to understand.
- When the software application is large.
- When there is a requirement of changes in future(unstable requirements).
- Most of the requirements are known up-front but are expected to evolve over time.
- The requirements are prioritized.
- There is a need to get the basic functionality delivered fast.
- A project has lengthy development schedules.
- A project has new technology.
- The domain is new to the team.
- Such methodology is more in use for web application and product based companies

Advantage(Pros) of Iterative Model:

- You can develop prioritized requirements first.
- Initial product delivery is faster.
- Customers gets important functionality early.
- Lowers initial delivery cost.
- Each release is a product increment, so that the customer will have a working product at hand all the time.
- Customer can provide feedback to each product increment, thus avoiding surprises at the end of development.
- Requirements changes can be easily accommodated.
- Testing and debugging during smaller iteration is easy.
- It is easily acceptable to ever-changing needs of the project.
- Risks are identified and resolved during iteration.
- Limited time spent on documentation and extra time on designing.

Disadvantage(Cons) of Iterative Model:

- It is not suitable for smaller projects.
- More Resources may be required.
- Design can be changed again and again because of imperfect requirements.
- Requirement changes can cause over budget.
- Project completion date not confirmed because of changing requirements.
- Requires effective planning of iterations.
- Requires efficient design to ensure inclusion of the required functionality and provision for changes later.
- Requires early definition of a complete and fully functional system to allow the definition of increments.
- Well-defined module interfaces are required, as some are developed long before others are developed.
- Total cost of the complete system is not lower.

Thank You!