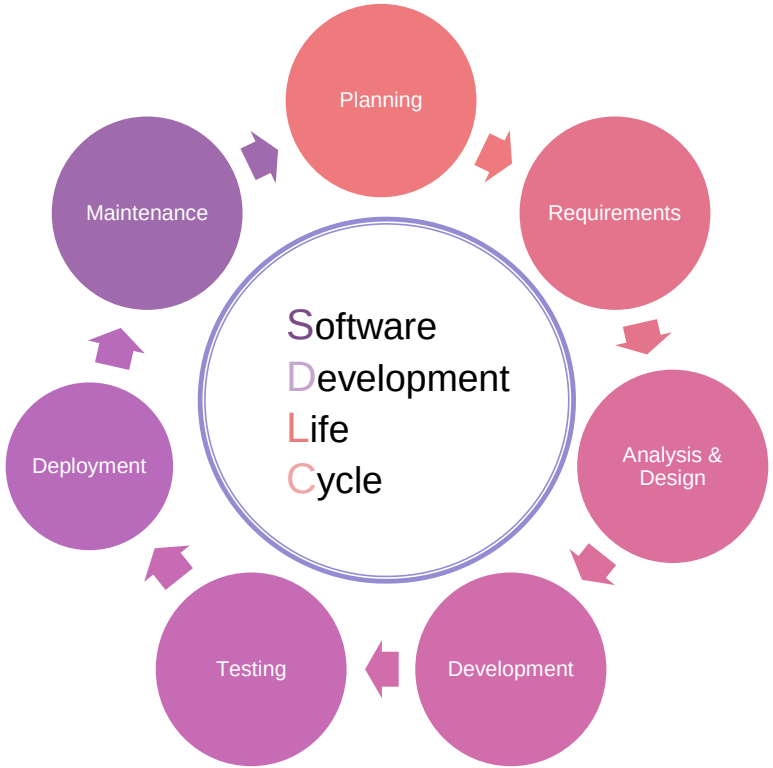
Software Development Life Cycle (SDLC)

Software Development Life Cycle

SDLC: A well-defined, structured sequence of stages in software engineering to develop the intended software product.

Provides a series of steps to be followed to design and develop a software product efficiently.

The steps or stages of SDLC usually represent the Software Engineering Disciplines and major activities involved.



Planning Phase (SDLC)

Objectives

Prepare a high-level plan for the project that includes the scope, budget, resources, quality requirements, duration and timelines of the project

Activities

1.Project/Product idea conceptualization
2.Project Feasibility Study
3.High Level Scoping
4.High Level Estimation (Time & Cost)
5.Budgeting
6.Project Planning & Scheduling

Actors

- Project Manager
- Business Stakeholders
- Sponsor
- Product Owner
- Head of Technical Team (Architect/Tech Lead)
- Lead Business Analyst

Deliverables

1.Project Scope of Work Document
2.Project Plan
3.Project Charter
4.High Level Estimate Document
5.Resource Plan

Requirements Engineering (SDLC)

Objectives

Define, document, and maintain the functional and the non-functional requirements of the system to be developed.

Activities

1.Requirements Workshops
2.Questionnaires
3.Detailed Feasibility Study (Technical & Operational)
4.Requirements modeling
5.Preparation of Requirements Specification

Actors

1.Project Manager
2.Business Stakeholders
3.Business Analysts
4.Product Owner
5.Technical Architect
6.Tech Lead
7.Senior Developers
8.Subject Matter/Domain Experts
9.UX Designer

Deliverables

1.Software Requirements Specification(SRS) Document V1.0
2.Use Case Diagrams
3.Business Process Flow Diagrams (BPMN V 1.0)
4.Answered Questionnaires
5.Feasibility Study Documents

System Analysis (SDLC)

Objectives

1. Visualize, validate and refine requirements with stakeholders
2. Provide UX Designs/Prototypes
3. Ensure the requirements are technically feasible and reasonable.

Activities

1.Domain Modeling (Conceptual & Logical)
2.Business Process Modeling (Detailed & Refined)
3.High level Architecture Designing
4.SRS Review & Update
5.UX Analysis & Story Boarding

Actors

1.Business Analysts
2.Technical/Solution Architect
3.Technical Lead
4.Senior Developers
5.Project Manager
6.Business Stakeholders
7.Subject Matter/Domain Experts
8.UX Designer

Deliverables

1.Updated SRS Document (V2.0)
2.Domain Model V 1.0
3.Detailed & Refined Business Process Flow Diagrams (BPMN V2.0)
4.UI Sketches/Wireframes (Low Fidelity Simulations)
5.System Architecture Specs V 1.0

Design Phase (SDLC)

Objectives

1.Transform requirements into specifications covering all the aspects of the system:
   1. System Design & Solution Architecture
   2. UI/UX Design
   3. Infrastructure & Deployment Design
   4. Security Design
2. Establish and document key technical decisions regarding the development phase.

Activities

1.Domain Modeling (Physical)
2.Detailed Architecture Designing
3.Detailed UI/UX Designing (High fidelity)
4.Building PoCs and Prototypes
5.Release & DevOps Planning
6.Infrastructure setup - Development & Testing Environments
7.CI/CD Setup

Actors

1.Project Manager
2.Business Stakeholders
3.Business Analysts
4.Product Owner
5.Technical Architect
6.Tech Lead
7.Senior Developers
8.Subject Matter/Domain Experts
9.UI/UX Designer
10.DevOps Engineer
11.Test Lead/Engineer

Deliverables

1.System Architecture Specification V 2.0
2.Domain Model V 2.0
3.UI/UX Design - Mock Screens, Screen Designs, ..
4.PoCs & Prototypes
5.Configured Infrastructure - Development & Testing Environments
6.Release & DevOps Plan
7.CI/CD Infrastructure & Pipeline

Development/Implementation Phase (SDLC)

Objectives

1. Transform the design into a working software.
2. Implement the actual software based on the specified standards.
3. Produce high quality code that is easy to maintain test and enhance.

Activities

1.Coding.
2.Unit Testing and bug Fixes.
3.Code Review.
4.Source Code Control Activities.
5.Deployment to Development & Test Environments.

Actors

1.Tech Lead
2.Software Developers/Programmers
3.Test/QA Engineers
4.Technical/Solution Architect
5.DevOps Engineer
6.Project Manager
7.Business Analysts
8.UX Designer

Deliverables

1.Source Code
2.Unit Tests
3.Working Software deployed into Development & Testing Environments

Testing Phase (SDLC)

Objectives

1. To find any defects or bugs
2. To increase the confidence in the quality of the software
3. To prevent defects in the final product
4. To ensure the end product meets customer requirements

Activities

1.Test planning
2.Test case Designing and Development
3.Test environment setup
4.Test Execution
5.Test closure

Actors

1.Test Lead/Manager
2.Tech Lead
3.Testing Team
4.Business Analysts
5.DevOps Engineer
6.Business Stakeholders
7.End-users/representatives
8.Project Manager

Deliverables

1.Test strategy and plan
2.Test cases, test data & scenarios
3.Test reports (both automated & manual)
4.Defect reports
5.Updated matrices.
6.Final Product with all defects fixed

Deployment Phase (SDLC)

Objectives

1. To make the features developed by the team available for the end users.
2. To see how the system behaves on production and receive feedback from the operations team and the end users.

Activities

1.Communicate new deployment to users
2.Execute the training plan
3.Perform data entry or conversion
4.Install the system, deploy services
5.Start monitoring & health checks
6.Post Deployment Review

Actors

1. Release Manager/DevOps Lead
2. DevOps Engineers
3. Tech Lead
4. Technical/Solution Architect
5. Project Manager
6. Product Owner
7. Operations Team

Deliverables

1. Deployment Report
2. Monitoring & system health reports
3. User Manuals
4. Release Notes including the features released in this version and known issues

Maintenance Phase (SDLC)

Objectives

1. Ensure system is functional, available and secure all the time
2. Correct the faults or defects in both application and data if any
3. Improve system performance, functionality and security
4. Implement enhancements

Activities

1.Identification and Tracing
2.Analysis
3.Design
4.Implementation
5.System Testing
6.Acceptance Testing
7.Delivery

Actors

1.Maintenance Team Lead
2.Developers
3.Database Engineers
4.Business Analysts

Deliverables

1.System Performance Reports
2.System Stability Reports
3.System Error Logs
4.Minor and Patch Releases


Thanks