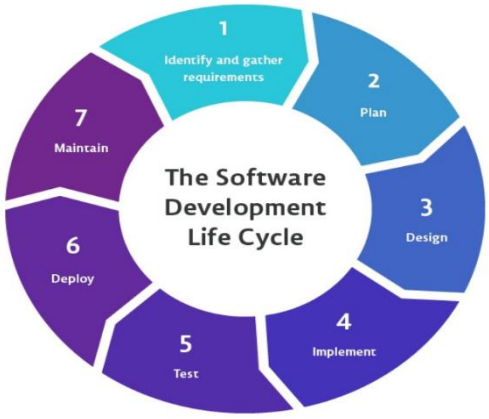
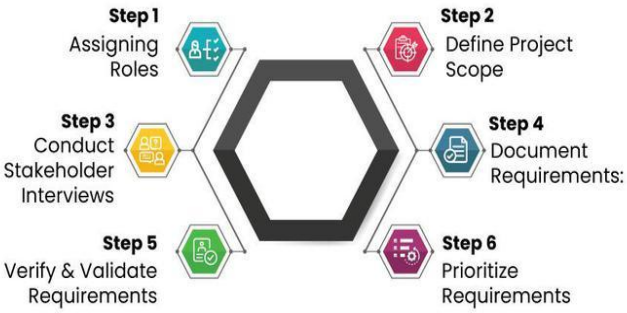
SDLC – Software Development Lifecycle

SDLC (Software Development Life Cycle) is a structured process used to design, develop, test, and deploy high-quality software. It ensures the product is delivered on time, within budget, and meets customer expectations.



Stages of SDLC: -

1. **Requirement Phase**
   In this phase, the Product Owner (PO) or Client provides all requirements about the software.
   Key Activities
   - Collecting functional and non-functional requirements.
   - Creating **text documents**, **wireframes**, and an **abstract** of the system.
   - Understanding user needs and system behavior.

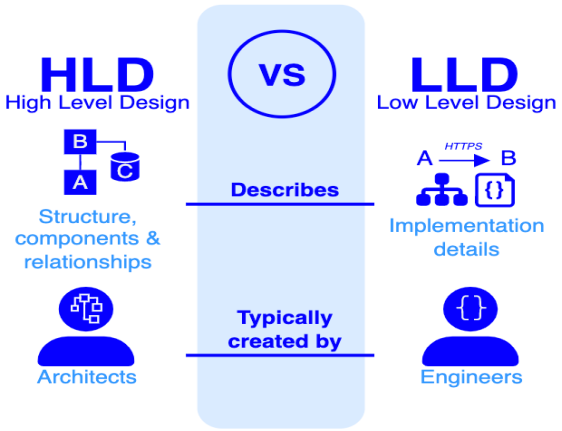


Processes of Requirements Gathering in Software Development

2. **Technical Document Phase**
   Technical Leads (TLs) and Architects prepare the detailed technical structure of the software.

Key Activities

- ➢ Creating HLD (High-Level Design)
- ➢ Creating LLD (Low-Level Design)
- ➢ Deciding:
  - Number of **classes**
  - **Interfaces**
  - **Module** structure
  - **Components** and **inheritance**
  - Database schema



3. **Coding Phase**

Developers (SE, SSE) begin writing the actual code based on the approved technical documents.

✓ **Key Activities**

- Writing code
- Performing unit testing
- Code reviews
- Version control (Git) commits and merges

✓ **Output**

- Working software modules

4. **Testing Phase**

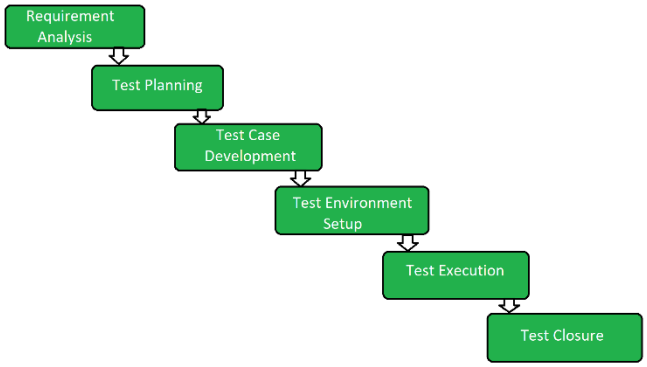
QA engineers test the software on the QA Server to ensure quality and reliability.

Key Activities

- Smoke testing
- Functional testing
- Regression testing
- Raising bugs in tools (JIRA, Bugzilla)

✓ **Output**

- Bug reports
- Test results

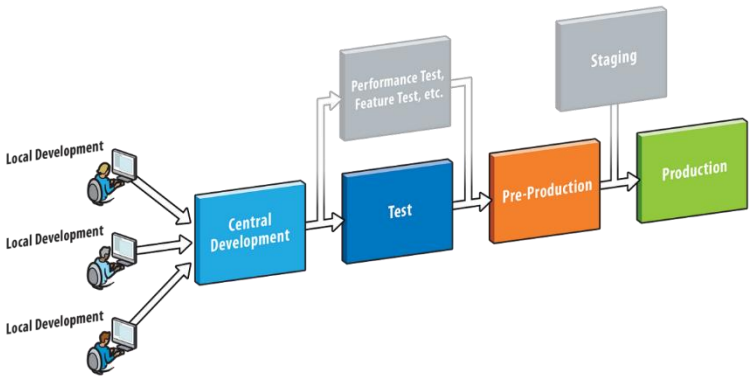


5. **Staging Environment**

Staging is a near-production environment used for advanced testing.

✓ **Key Activities**

- ❖ Regression testing
- ❖ Load & Performance testing
- ❖ Running automation test cases



6. **UAT Environment (User Acceptance Testing)**

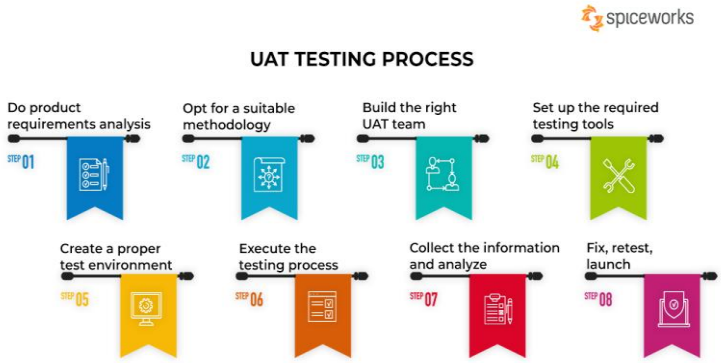
In UAT, the client or business team tests the software to confirm it meets all requirements.

Key Activities

- ➢ Client validation
- ➢ Checking real-life scenarios
- ➢ Approving the final product

Output

- ➢ UAT Sign-off (Approval to Go Live)

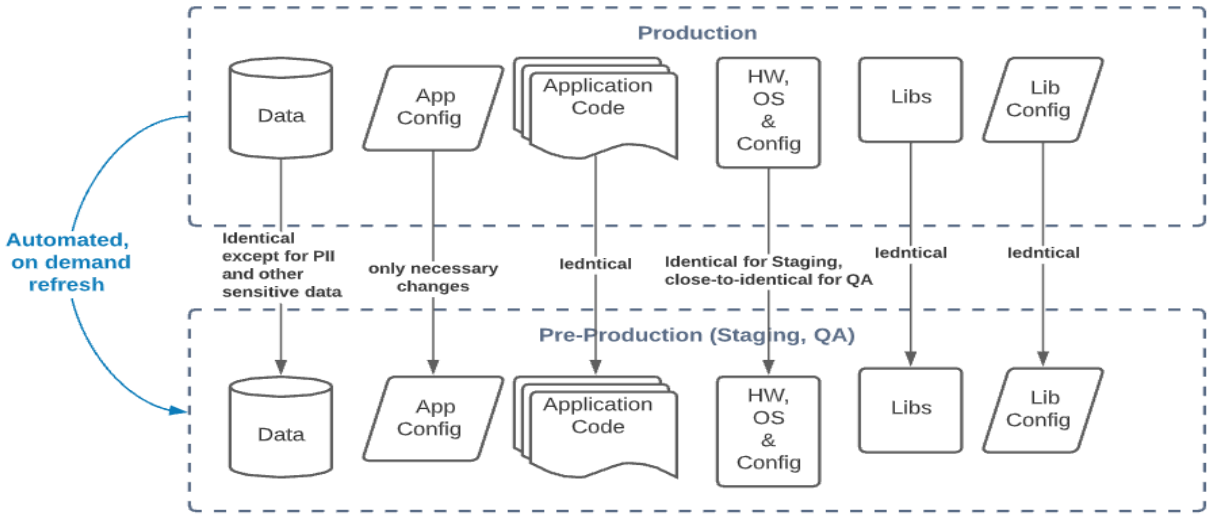


7. **PPE – Pre-Production Environment**

PPE is the last environment before production, used to ensure everything works perfectly.

Key Activities

- ✓ Final validation
- ✓ Testing deployment scripts
- ✓ Performance checks with real-like data



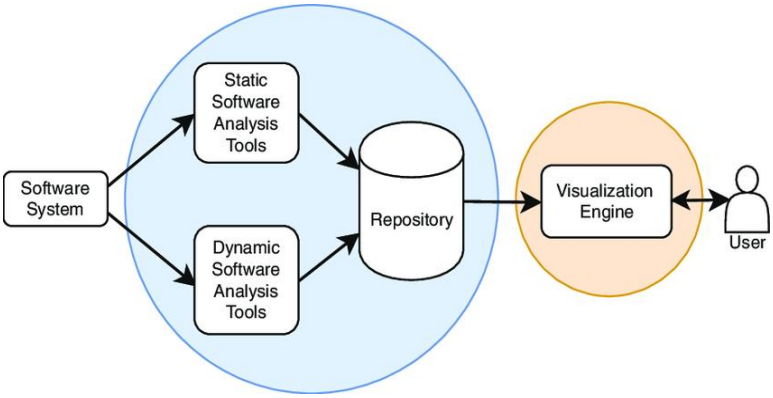
8. **PE – Production Environment (GO LIVE)**
   This is the live environment where the actual users access the system.

   ✓ Key Activities

   - Deploying the software
   - Monitoring system behavior
   - Ensuring stability and reliability

   ✓ Output

   - Live working application



9. **Maintenance Phase (Bug Fixing)**
   After release, bugs or new issues may appear, which must be fixed.

   ✓ Key Activities

   - Bug fixes
   - Patch releases
   - Security updates
   - Performance improvements