

# Internship at L&T Bangalore

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# About L&T

- **Engineering Services** – L&T in Bangalore provides design and development support for products in various industries.
- **IT and Digital Solutions** – It offers software, cloud, and data services through LTIMindtree.
- **Defence Projects** – The center works on technologies for defence and aerospace systems.
- **Smart City Work** – L&T helps build smart infrastructure like surveillance and traffic systems.
- **Innovation and R&D** – It focuses on new tech like AI, IoT, and works with start-ups.

- **Domain:** Internship Domain: Full Stack Development and DevOps
- **Technologies Trained:** React JS (Frontend), Node JS (Backend), Jenkins (CI/CD), DevOps practices (pipeline automation, and deployment workflows)

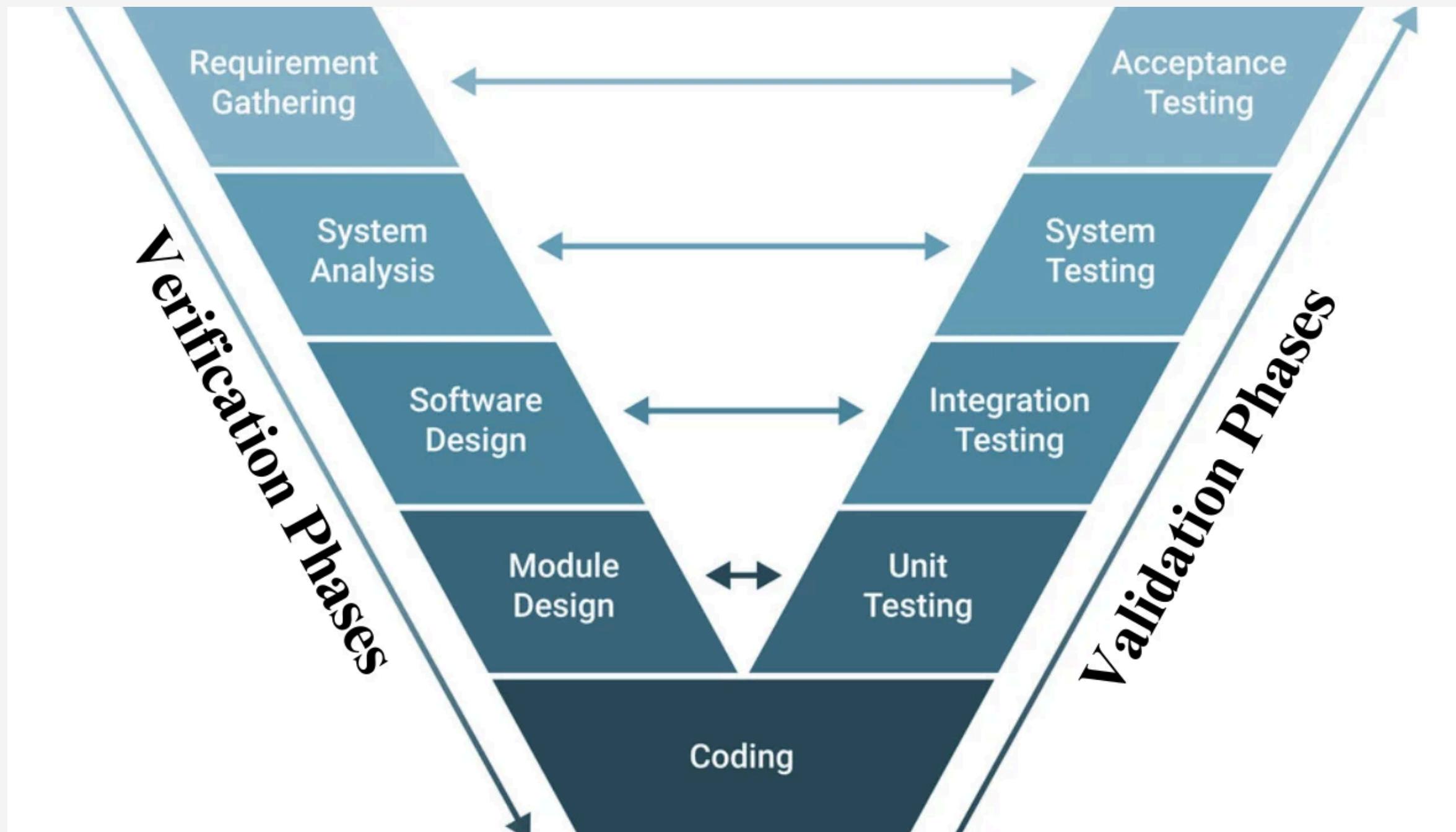
# Project SPINDLE

- SPINDLE stands for Software Platform for Integrated Delivery Efficiency.
- Project Spindle is an internal enterprise platform designed to streamline the onboarding, configuration, and orchestration of various software projects.
- It acts as a centralized system that enables teams to rapidly set up and manage new projects with standardized configurations, user interface components, and automated deployment workflows.
- The platform ensures consistency, reduces setup time, and improves visibility across project lifecycles.

# About Project

- **UI Component :** This component provides the interface through which users interact with the platform to configure and onboard new projects.  
Configure and Onboard projects.
- **Orchestrator Component :** This backend component automates the entire CI/CD pipeline and manages software deployment workflows:
  - Execute Pipelines
  - Build
  - Test
  - Deploy Software

# V-Model SDLC



- The V-Model (also known as the Verification and Validation model) is a software development life cycle (SDLC) model that extends the traditional Waterfall.
- It emphasises testing and validation at every stage of development. It's called the "V" model because the process is shaped like the letter "V", where the left side represents development stages and the right side represents testing and validation stages, forming a symmetric structure.

- Each development phase on the left side has a corresponding testing phase on the right side.
- The process begins with requirement analysis and ends with user acceptance testing.
- The stages include Business Requirements, System Design, Coding, and various testing phases.

- Unit testing validates code, Integration testing checks module interaction, and System testing verifies the complete system.
- Acceptance testing ensures the product meets user requirements.
- Testing is planned early, leading to early detection of defects.
- The model is suitable for projects with clear, stable requirements.

# Weekly Report

Week	Description – What Was Completed
Week 1	Completed onboarding, ISMS training, and attended orientation sessions.
Week 2	Finished Data Security course, received system access, and set up tools.
Week 3	Got introduced to Project Spindle, finalized tech stack, and planned UI.
Week 4	Designed and developed the onboarding form with validations and feedback fixes.
Week 5	Built the configuration module with environment-specific inputs and JSON preview.
Week 6	Developed dashboard with role-based access, filters, and status indicators.
Week 7	Integrated UI with backend APIs, tested flows, and finalized UI component.
Week 8	Created initial database schemas for storing project and pipeline details, made minor UI enhancements for improved project filtering and tagging.
Week 9	Integrated backend with the database for persistent config storage, added new UI feature for viewing pipeline history and updated logs section.
Week 10	Implemented pipeline execution logic with DB-driven status updates, added retry handling in backend and progress bar component in UI for real-time tracking.
Week 11	Started development of the orchestration engine, began hands-on DevOps learning, and installed Jenkins for pipeline automation experiments.

THANK YOU