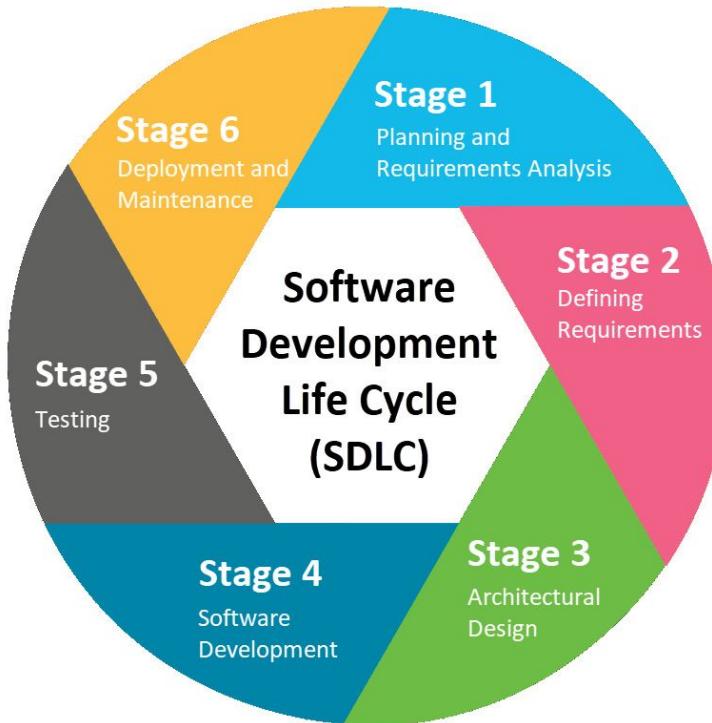


Introduction to DevOps

SDLC



Software Development Models

- Waterfall model

- 01

- V-Shaped model

- 02

- Spiral Model

- 03

- Incremental Model

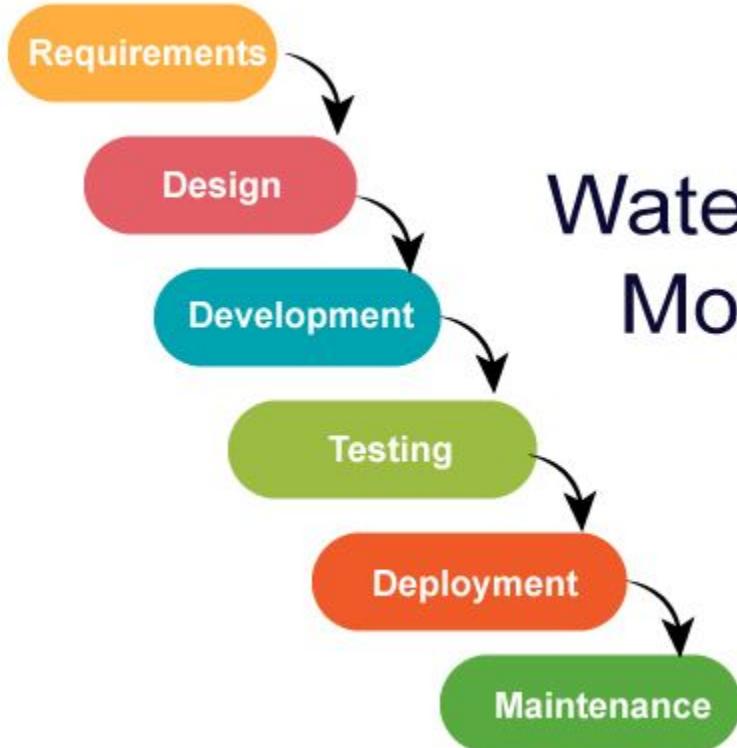
- 04

- Extreme Programming
(Agile Development)

- 05



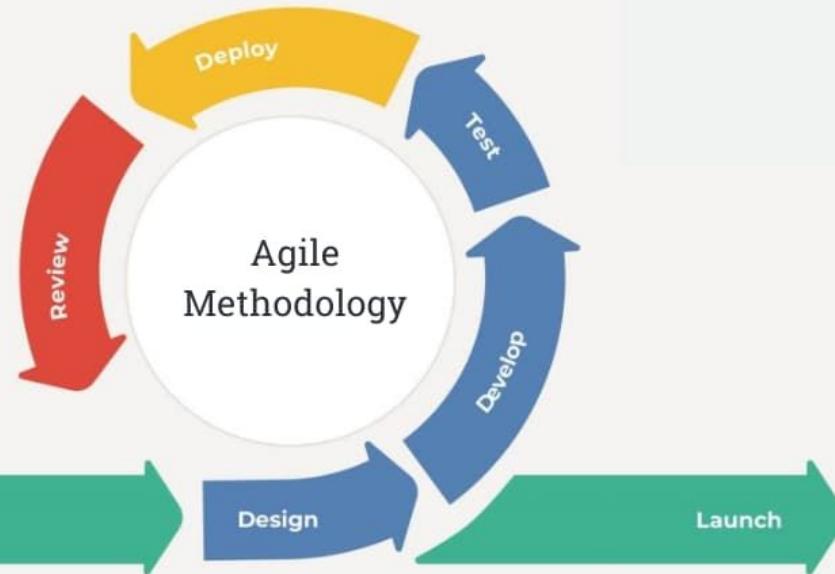
Waterfall



Waterfall Model

Agile

AGILE METHODOLOGY



Traditional Software Development

- Silos between Development and Operations team
- Manual Processes
- Long Release Cycles
- Inconsistent environments
- Longer time for disaster recovery management
- Resource overhead to keep system up and running

Where the trouble begins

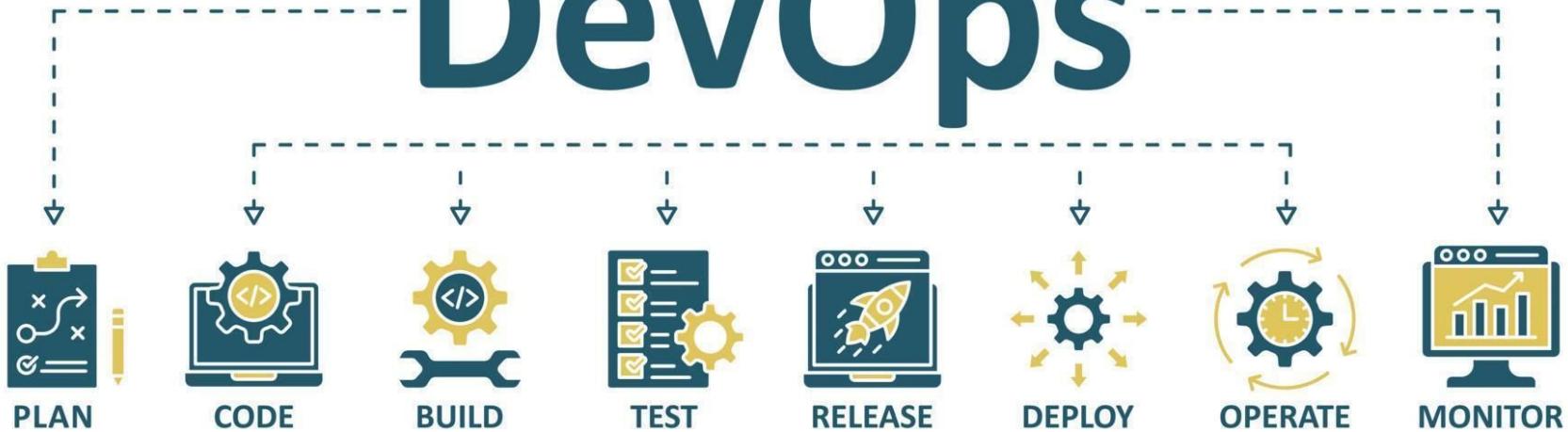


What is DevOps

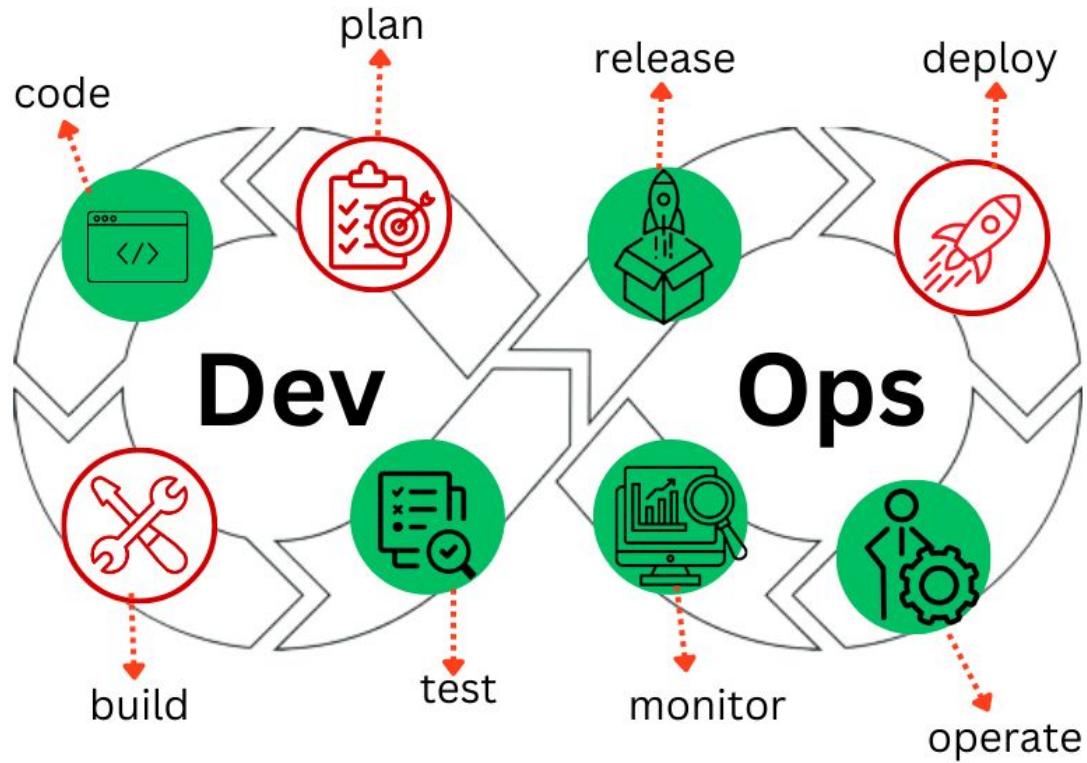
Is This a Job Role?

Is This a Software Development Methodology?

DevOps



DevOps Life Cycle



Core Motivation behind DevOps

Automation

Consistency

What does it solve?



IT WORKS
on my machine

Common Roles and Responsibilities

- Application & infrastructure planning, testing and development
- Maintaining CI/CD pipelines
- Automation implementation
- On-call, incident response and incident management
- Monitoring

Tools in DevOps

VCS

- Git
- SVN

Provisioning

- Ansible
- Puppet
- Chef
- Salt

Containerization

- Docker
- Podman

Orchestration

- Kubernetes
- Docker Swarm

CI/CD

- Git Action
- Git Lab
- Jenkins
- Circle CI

IaC

- Terraform
- CloudFormation
- Cloud Deployment

CI/CD

- Grafana
- Prometheus
- Nagios
- Zabbix

Roles in DevOps

DevOps Engineer

SRE

MLOps Engineer

Automation
Engineer

DevSecOps
Engineer

Cloud Engineer

Cloud Architect

What will you learn?

- GIT (VCS)
- Scripting (bash)
- Linux
- Networking (http, DNS, VPC, Subnetting, Routing)
- CI/CD (Jenkins, Git Action)
- Containerization (Docker)
- Container Orchestration (Kubernetes)
- IaC and Provisioning (Terraform, Ansible)
- Cloud Services (AWS EC2, load balancer, S3, lambda, RDS, VPC)
- Monitoring (Prometheus & Grafana)

Prerequisites

- Github Account
- Docker Hub Account
- Ubuntu 22.04 or Ubuntu 24.04 server VM (preferable)
- AWS account (preferable)