Today 90DaysOfDevOps (With TWS) - Day 1

01) What is DevOps

DevOps is a culture and methodology that combines software development and IT operations to improve collaboration and speed up the software delivery lifecycle. It focuses on automation, continuous integration, continuous delivery, monitoring, and feedback. For example, using CI/CD pipelines, infrastructure as code, and containerization, DevOps helps organizations deliver reliable software faster while reducing errors and downtime.

DevOps Lifecycle

Plan → Code → Build → Test → Release → Deploy → Operate → Monitor (repeat)

Benefits of DevOps

1 Faster delivery of applications
2 Reduced downtime and failures
3 Better collaboration between teams
4 Scalability and automation

02) What is Automation, Scaling, and Infrastructure

■ 1. Automation
Definition: Automation means reducing manual effort by using scripts, tools, or pipelines to perform repetitive tasks automatically.

How to explain in interview: Automation in DevOps is about using tools and scripts to perform repetitive tasks such as testing, deployment, configuration, and monitoring without manual intervention. For example, using Jenkins pipelines to automatically build and deploy code whenever a developer pushes changes.

Examples: Instead of manually deploying code → use CI/CD pipeline. Instead of manually creating servers → use Terraform or Ansible scripts.

■ 2. Scaling

Definition: Scaling means adjusting resources (like servers, containers, or memory) to handle increased or decreased load.

How to explain in interview: Scaling ensures that the application can handle traffic efficiently. In DevOps, scaling can be horizontal (adding more servers/containers) or vertical (increasing resources like CPU/RAM of existing servers). Tools like Kubernetes and AWS Auto Scaling make this process automatic.

Examples: During festival sales, an e-commerce app may need 10 servers instead of 2 → scaling adds servers automatically. After traffic reduces, scaling removes extra servers to save cost.

■ 3. Infrastructure

 Definition: Infrastructure is the foundation of IT systems — servers, networks, storage, databases, and cloud resources that support applications.

How to explain in interview: Infrastructure in DevOps refers to the physical and virtual resources (servers, networks, databases, cloud services) required to run applications. DevOps uses Infrastructure as Code (IaC) tools like Terraform or Ansible to provision and manage infrastructure in an automated, repeatable way.

Examples: Traditional way: System admins set up servers manually. DevOps way: Use a Terraform script to launch servers on AWS automatically, ensuring consistency.

■ Short & Crisp Interview-Ready Version
Automation is removing manual work using tools like Jenkins or Ansible. Scaling is adjusting resources (up or down) based on demand, often using Kubernetes or AWS Auto Scaling. Infrastructure is the backbone (servers, networks, cloud) of applications, which we manage using Infrastructure as Code tools like Terraform or Ansible.

03) Why DevOps is Important?

DevOps is important because it solves the gap between development and operations and helps organizations deliver software faster, more reliable, and with better quality.

■ Key Points for Interview

1) Faster Software Delivery → With DevOps, CI/CD enables frequent, smaller, safer releases.
2) Improved Collaboration → Dev and Ops work together instead of in silos.
3) Automation Reduces Errors → Automated testing, deployment, and monitoring minimize human mistakes.
4) Scalability & Reliability → Tools like Kubernetes, AWS Auto Scaling help apps handle changing workloads.
5) Better Quality & Security → Continuous testing, monitoring, and feedback lead to stable and secure applications.
6) Cost Efficiency → Automation + scaling reduces operational costs.

■ Interview-Ready Answer

DevOps is important because it enables organizations to deliver software faster, more reliably, and with fewer errors. It breaks down the silos between development and operations, encourages collaboration, and uses automation to reduce manual work. For example, CI/CD pipelines make releases faster, while tools like Kubernetes and Terraform ensure applications are scalable and infrastructure is consistent. Overall, DevOps improves speed, quality, and customer satisfaction while reducing costs.