Day 12: Introduction to DevOps and DevOps Tools

Date: July 1, 2025

Topics Covered:

- Introduction to DevOps
- Who is a DevOps Engineer?
- Key roles and responsibilities of a DevOps engineer
- Common DevOps tools used in the industry

What I Did:

On Day 12, I explored the foundational concepts of DevOps—a cultural and technical blend of Development (Dev) and Operations (Ops). I learned how DevOps practices improve collaboration, speed up software delivery, and ensure system stability. I also examined the tools that help automate and streamline workflows across software development and IT operations.

What is DevOps?

DevOps is a methodology that emphasizes collaboration between software developers and IT operations teams. The goal is to deliver high-quality software faster by:

- Automating repetitive tasks
- Integrating code continuously (CI)
- Deploying software frequently (CD)
- Monitoring performance across environments
- Maintaining stability, scalability, and security

It encourages a culture of shared responsibility, faster feedback, and continuous improvement.

Who is a DevOps Engineer?

A DevOps Engineer is a professional who manages the CI/CD pipeline and ensures smooth integration between development and deployment. Core responsibilities include:

- Building and maintaining automated CI/CD pipelines
- Managing infrastructure using Infrastructure as Code (IaC)
- Monitoring application performance and server health
- Ensuring high availability, scalability, and security
- Automating testing, deployment, and system provisioning

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Common DevOps Tools:

Tool	Purpose
Kubernetes	Container orchestration for scaling and managing deployments
Ansible	Configuration management and automated provisioning
Terraform	Infrastructure as Code for managing cloud and local infrastructure
Docker	Containerization to run applications in isolated environments
Jenkins	Automates CI/CD pipelines
Cloud Orchestration	Automates cloud service management, scaling, and integration

Key Learnings:

- DevOps enables faster, more reliable software delivery
- Automation is at the core of every DevOps workflow
- DevOps Engineers must be familiar with both software engineering and system operations
- Mastery of tools like Docker, Kubernetes, Jenkins, Ansible, and Terraform is critical
- Infrastructure as Code (IaC) and containerization are key trends shaping DevOps