■ 6-Month Roadmap to Learn CI/CD + DevOps with AWS

Month 1: Fundamentals & Foundations

- Learn DevOps culture, CI/CD concepts (CI, CD, CD).
- Master Git and branching strategies (GitHub/GitLab).
- Brush up on Linux (file system, shell scripting, systemctl, cron jobs).
- Networking basics: DNS, HTTP, HTTPS, Load balancers, Firewalls.
- Start Bash & Python scripting for automation.

Month 2: Containers & AWS Basics

- Learn Docker: Images, Containers, Networking, Volumes.
- Build and run a microservice using Docker.
- Understand Docker Compose for multi-container setups.
- Get familiar with AWS basics: EC2, S3, VPC, IAM.
- Deploy a simple app manually on AWS EC2.

Month 3: CI/CD on AWS

- Learn AWS CodeCommit (Git repo).
- Practice AWS CodeBuild (automated build + test).
- Use AWS CodeDeploy (deployment to EC2/ECS).
- Create AWS CodePipeline end-to-end pipeline.
- Project: Push → Build → Deploy Flask app on EC2 using CodePipeline.

Month 4: Infrastructure as Code (IaC)

- Learn Terraform basics (providers, resources, variables).
- Create infrastructure (VPC, EC2, ECS cluster) using Terraform.
- Explore AWS CloudFormation templates.
- Optional: Learn AWS CDK (Python/TypeScript).
- Project: Provision ECS with Terraform and deploy via CodePipeline.

Month 5: Monitoring, Security & Advanced Deployments

- Set up AWS CloudWatch for logs and metrics.
- Learn AWS X-Ray for distributed tracing.
- Set up Prometheus + Grafana (optional).
- Learn Blue/Green and Canary deployments with CodeDeploy/ECS.
- Implement secrets management with AWS Secrets Manager.
- Integrate security scans (SonarQube, dependency scanning).

Month 6: Kubernetes, GitOps & Capstone Project

- Learn Kubernetes basics (Pods, Services, Deployments, Ingress).
- Use AWS EKS to run Kubernetes workloads.
- Set up GitOps with ArgoCD for automated deployments.
- Build a complete CI/CD pipeline: CodeCommit → CodeBuild → EKS.
- Capstone Project: Deploy a microservice-based app on EKS with monitoring, IaC, and GitOps.