3-Month DevOps Study Plan (with AWS Cloud Practitioner Certification Prep)

Month 1: November 24 – December 27, 2024

Focus: DevOps Foundations, Linux, Python Scripting, Terraform, Ansible, AWS Cloud Practitioner

---

Week 1: Nov 24–30

Weekend (Nov 24, Sunday)

- **Introduction to DevOps**: Lifecycle, culture, and tools (*The DevOps Handbook*).

Weekdays (Nov 25–29)

- **Nov 25 (Monday)**: Linux basics: Filesystem, commands, and permissions.
- **Nov 26 (Tuesday)**: Linux process management and shell scripting.
- **Nov 27 (Wednesday)**: Python scripting: Syntax, variables, and loops (*Automate the Boring Stuff with Python*).
- **Nov 28 (Thursday)**: Python functions and file handling.
- **Nov 29 (Friday)**: Automate a task using Python (e.g., parsing logs).

Weekend (Nov 30, Saturday)

- Linux hands-on: Set up a server, write scripts, and test automation.

Week 2: Dec 1–7

Weekend (Dec 1, Sunday)

- **Introduction to Terraform**: Basics, providers, syntax, and state.

Weekdays (Dec 2–6)

- **Dec 2 (Monday)**: Write a Terraform configuration to provision an AWS EC2 instance.
- **Dec 3 (Tuesday)**: Use variables and outputs in Terraform for reusable configurations.
- **Dec 4 (Wednesday)**: Introduction to Ansible: YAML basics and ad-hoc commands.
- **Dec 5 (Thursday)**: Write an Ansible playbook to configure a server (e.g., install Apache).
- **Dec 6 (Friday)**: Combine Terraform and Ansible for provisioning and configuration.

Weekend (Dec 7, Saturday)

- Practice: Deploy infrastructure and configure it using Terraform and Ansible.

Week 3: Dec 8–14

Weekend (Dec 8, Sunday)

- **AWS Basics**: Core services like EC2, S3, and IAM.

Weekdays (Dec 9–13)

- **Dec 9 (Monday)**: AWS CLI: Basic commands for EC2, S3, and IAM.
- **Dec 10 (Tuesday)**: AWS security best practices and IAM roles.
- **Dec 11 (Wednesday)**: Python Boto3: Automate S3 and EC2 tasks.
- **Dec 12 (Thursday)**: Create and deploy a Python app on AWS EC2.
- **Dec 13 (Friday)**: Hands-on: Set up and configure VPC, subnets, and security groups.

Weekend (Dec 14, Saturday)

- Review AWS concepts and practice tasks for EC2, S3, and IAM.

Week 4: Dec 15–21

Weekend (Dec 15, Sunday)

- Mock test: AWS Cloud Practitioner concepts.

Weekdays (Dec 16–20)

- **Dec 16 (Monday)**: AWS databases: RDS and DynamoDB basics.
- **Dec 17 (Tuesday)**: Introduction to CloudWatch and monitoring basics.
- **Dec 18 (Wednesday)**: Practice CloudFormation for AWS automation.
- **Dec 19 (Thursday)**: Take an AWS Cloud Practitioner mock test.
- **Dec 20 (Friday)**: Review weak areas and key concepts.

Weekend (Dec 21, Saturday)

- Final preparation for AWS Cloud Practitioner exam.

Week 5: Dec 22–27

Weekdays (Dec 22–26)

- Review AWS services, exam tips, and take practice tests.

Dec 27 (Friday)

- **Take AWS Cloud Practitioner Exam.**

Month 2: December 28, 2024 – January 26, 2025

Focus: Docker, Kubernetes, GitHub Actions, Jenkins

Week 6: Dec 28–Jan 4

Weekend (Dec 28, Saturday)

- Introduction to Docker: Install Docker, containers vs. VMs.

Weekdays (Dec 30–Jan 3)

- **Dec 30 (Monday)**: Docker commands: Create, run, and manage containers.
- **Dec 31 (Tuesday)**: Write Dockerfiles and build custom images.
- **Jan 1 (Wednesday)**: Use Docker Compose for multi-container apps.
- **Jan 2 (Thursday)**: Docker networking and volumes.
- **Jan 3 (Friday)**: Dockerize a Python web app.

Weekend (Jan 4, Saturday)

- Practice: Deploy and manage a multi-container app.

Week 7: Jan 5–11

Weekend (Jan 5, Sunday)

- Introduction to Kubernetes: Install Minikube/Kubectl, and create a cluster.

Weekdays (Jan 6–10)

- **Jan 6 (Monday)**: Kubernetes basics: Pods, Deployments, and Services.
- **Jan 7 (Tuesday)**: Persistent Volumes and ConfigMaps.
- **Jan 8 (Wednesday)**: Kubernetes auto-scaling and load balancing.
- **Jan 9 (Thursday)**: Helm for Kubernetes package management.

- **Jan 10 (Friday)**: Deploy a multi-container app in Kubernetes.

Weekend (Jan 11, Saturday)

- Kubernetes hands-on practice and review.

Week 8: Jan 12–18

Weekend (Jan 12, Sunday)

- Introduction to CI/CD concepts and tools overview.

Weekdays (Jan 13–17)

- **Jan 13 (Monday)**: Set up GitHub Actions for a Python testing workflow.
- **Jan 14 (Tuesday)**: Build a CI/CD pipeline using GitHub Actions.
- **Jan 15 (Wednesday)**: Jenkins basics: Install, configure, and create jobs.
- **Jan 16 (Thursday)**: Automate CI/CD pipelines with Jenkins for containerized apps.
- **Jan 17 (Friday)**: Integrate Jenkins and GitHub Actions for advanced CI/CD workflows.

Weekend (Jan 18, Saturday)

- Practice: Create CI/CD pipelines using Jenkins and GitHub Actions.

Month 3: January 27 – February 15, 2025

Focus: AWS AI Practitioner, Advanced Automation, and Portfolio Project

---

Weeks 9–10: Jan 27–Feb 1

Weekend (Jan 27, Sunday)

- Introduction to AWS AI/ML services: Rekognition, Polly, Comprehend.

Weekdays (Jan 28–31)

- Study AWS AI services, hands-on labs, and take mock exams.

Feb 1 (Saturday)

- **Take AWS AI Practitioner Exam.**

Weeks 11–12: Feb 2–15

Portfolio Project:

- **Feb 2–14 (Weekdays and weekends)**:
    - Build a **complete CI/CD pipeline**:
        - Automate deployments using GitHub Actions, Jenkins, and Terraform.
        - Deploy Dockerized applications on Kubernetes.
        - Use Ansible to configure infrastructure.
        - Monitor with Prometheus and Grafana.
        - Integrate alerts into Slack or email.

Feb 15 (Saturday)

- Finalize your project and prepare a **portfolio presentation**.