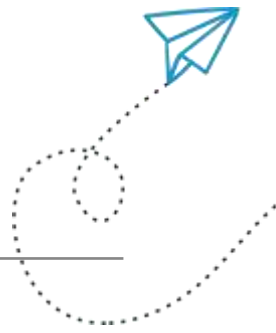


## ✂ DevOps Bootcamp – Git, Terraform, Ansible (4 Daysx8 Hours)

---



### Day 1: Git, GitHub & GitOps (4 Hours) + Terraform Introduction (4 Hours)

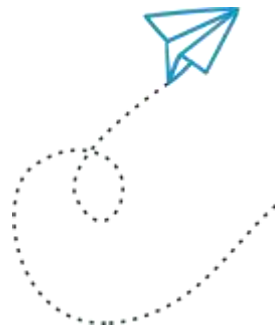
#### Module 1: Git, GitHub & GitOps (4 Hours)

- **1.1 Git Basics & Local Workflows**
    - Init, Clone, Add, Commit, Push, Pull
    - Branching and merging
    - Hands-on: Git workflow with branching and merge conflict resolution
  - **1.2 GitHub Collaboration**
    - Forking, Pull Requests (PR), Code Reviews
    - .gitignore, Git tags, Releases
  - **1.3 GitOps Fundamentals**
    - What is GitOps?
    - Git as a source of truth for infra/config
    - GitOps in practice with Terraform/Ansible
  - **Hands-on:** Setup GitHub repo, push infra config, simulate GitOps workflow trigger
- 

#### Module 2: Terraform Basics (4 Hours)

- **2.1 Introduction to Terraform**
    - IaC Concepts, Terraform workflow
    - Providers, Resources, State file overview
  - **2.2 Writing Your First Terraform Config**
    - HCL Syntax
    - Resource block (e.g., VM, storage)
    - Variables and Outputs
    - Hands-on: Create a VM or simple infra
- 

### Day 2: Terraform Deep Dive (8 Hours)



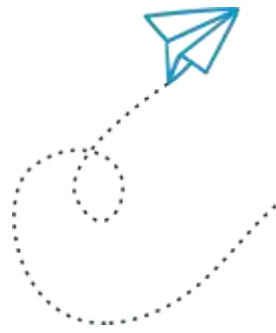
## **Module 3: Terraform Intermediate to Advanced**

- **3.1 State Management**
    - Local vs remote backend (e.g., S3/Azure/GCP)
    - Locking and consistency
    - Terraform state commands
    - Hands-on: Configure remote backend
  - **3.2 Terraform CLI and Workspaces**
    - plan, apply, destroy
    - refresh, taint
    - Workspaces for multi-env
  - **3.3 Modules and Reusability**
    - Creating and using modules
    - Inputs/outputs
    - Module best practices
    - Hands-on: Modularize existing infra config
  - **3.4 Data Sources & Dependencies**
    - Using datablocks
    - Resource dependency resolution
  - **3.5 Provisioners and External Providers**
    - local-exec, remote-exec
    - file provisioner
    - Dynamic blocks and complex structures
  - **Hands-on Lab:** Full infra deployment using modules and remote backend
- 

## **Day 3: Terraform Real-world Usage & Ansible Basics (8 Hours)**

## **Module 4: Terraform Advanced & Real-World Integration (4 Hours)**

- **4.1 Terraform Cloud & Workflows**
  - Terraform Cloud/Enterprise overview
  - Remote execution & VCS integration (GitHub)



- **4.2 Best Practices**
    - Folder structure, env separation
    - Secrets management (Vault, SSM, environment vars)
  - **4.3 CI/CD Integration**
    - Terraform with GitHub Actions/GitLab CI
    - Hands-on: Simulate CI/CD with Terraform Plan/Apply
  - **Hands-on Lab:** Git commit → Terraform apply with GitHub Actions (mocked)
- 

## **Module 5: Ansible Essentials (4 Hours)**

- **5.1 Introduction to Ansible**
    - Agentless model
    - Inventory (static/dynamic)
    - Ad-hoc commands
  - **5.2 Writing Playbooks**
    - Tasks, Modules, YAML structure
    - Variables, Facts, Handlers
  - **5.3 Templates & Conditionals**
    - Jinja2 templates
    - Loops and when conditions
  - **Hands-on:** Write playbooks to install and configure Apache/nginx
- 

## **Day 4: Ansible Deep Dive (8 Hours)**

### **Module 6: Ansible Advanced Use (8 Hours)**

- **6.1 Roles & Reusability**
  - Creating and structuring roles
  - Role dependencies and defaults
- **6.2 Secrets and Secure Configuration**

- Ansible Vault (encrypting secrets)
- Group vars and host vars
- Inventory best practices

- **6.3 Error Handling, Tags, and Debugging**

- Block/rescue, assert, fail
- Using **tags** for selective runs
- Logging and verbosity levels

- **6.4 Dynamic Inventory**

- AWS EC2/GCP/Azure plugin
- Custom scripts

- **6.5 End-to-End Integration Lab**

- Use Terraform to provision VM
- Use Ansible to configure it
- Simulate GitOps with GitHub commit triggering config

---

✓ **Outcomes:**

- GitOps-ready DevOps engineer
- Hands-on Terraform (IaC) expert
- Ansible automation pro for real-world infra config

