



TRAINING TRAINS

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IT Services and IT Consultancy \ Internship-Implant Training \ Software Training Institute

உங்கள் கடை மற்றும் வியாபாரத்திற்கு ஏற்ற **Website & Andriod App** மற்றும் **Software** மிகச்சிறந்த முறையில் செய்து கொடுக்கப்படும்.

Expertise : **AI, Machine Learning & Data Science \ Cybersecurity & Ethical Hacking**
IoT, Blockchain & Cloud Computing \ Full Stack Web & Mobile Development
Digital Marketing & SEO

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DevOps Lab Exercises (100+)

📖 Basic Level (30+ Exercises)

Objective: Learn fundamental DevOps concepts, tools setup, and basic automation.

Version Control with Git

- Initialize a Git repository and commit files.
- Create and switch between Git branches.
- Merge branches and resolve conflicts.
- Use Git stash and rebase commands.
- Collaborate using GitHub repositories.

Linux & Shell Scripting

- Write a shell script to create user accounts.
- Schedule tasks using cron jobs.
- Create scripts to monitor disk usage.
- Archive and compress logs with shell scripts.
- Set file permissions and ownership using chmod and chown.

Basic CI/CD Concepts

- Set up a basic Jenkins pipeline.
- Trigger builds on GitHub commit.
- Install and configure Jenkins plugins.
- Use Jenkins to build and deploy a static website.
- Send email notifications on build status.

Container Basics (Docker)

- Install Docker and run a Hello World container.
- Build a Docker image from a Dockerfile.
- Create and run multi-container apps using Docker Compose.
- Push and pull images from Docker Hub.
- Inspect logs and container stats.



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📖 Intermediate Level (40+ Exercises)

Objective: Implement container orchestration, advanced CI/CD workflows, infrastructure as code, and monitoring.

Advanced Jenkins Pipelines

- Create multi-branch pipelines.
- Integrate Jenkins with SonarQube for code analysis.
- Use shared libraries in Jenkins.
- Deploy to multiple environments (dev/stage/prod).
- Secure credentials using Jenkins secrets.

Infrastructure as Code (IaC)

- Write a basic Terraform script for EC2 instance.
- Create a VPC with subnets and routing using Terraform.
- Use Ansible to install packages across multiple servers.
- Automate Apache server configuration using Ansible.
- Integrate Ansible with Jenkins pipeline.

Docker and Kubernetes

- Deploy a multi-tier app on Kubernetes.
- Create and manage Pods, Services, and Deployments.
- Set up Kubernetes ConfigMaps and Secrets.
- Scale applications using kubectl.
- Use Helm to install and manage packages.

Monitoring & Logging

- Install and configure Prometheus and Grafana.
- Monitor container metrics with cAdvisor.
- Use ELK stack for centralized logging.
- Create alerts based on CPU/Memory thresholds.
- Set up application logging in Docker containers.



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📖 Advanced Level (40+ Exercises)

Objective: Design production-grade systems with CI/CD, automation, security, and resilience.

Cloud and Multi-Cloud

- Provision EC2, S3, and RDS using Terraform.
- Set up CI/CD pipeline on AWS CodePipeline.
- Deploy a Kubernetes cluster using EKS.
- Integrate AWS IAM roles in deployments.
- Deploy a web app across AWS and Azure using Terraform.

Security and Compliance

- Scan Docker images for vulnerabilities.
- Use HashiCorp Vault for secret management.
- Enable 2FA in Jenkins and GitHub.
- Audit Kubernetes cluster using kube-bench.
- Configure firewall rules using Terraform.

Advanced CI/CD Workflows

- Create canary deployment pipeline in Jenkins.
- Implement blue-green deployment strategy.
- Configure GitOps using ArgoCD.
- Use CircleCI to deploy serverless functions.
- Trigger rollback on failed deployment automatically.

Site Reliability & Scaling

- Implement auto-scaling in Kubernetes.
- Set up service mesh using Istio.
- Use chaos engineering tools like Gremlin or Chaos Mesh.
- Simulate load testing with JMeter.
- Create a disaster recovery plan with backups and replication.

Performance & Optimization

- Measure API latency and throughput with Prometheus.
- Optimize Docker images for size and speed.



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- Enable caching for build and deployment pipelines.
- Tune Kubernetes HPA and resource limits.
- Use CI/CD matrix builds for parallel testing.