

DEVOPS TRAINING

CLASS ON-BOARDING & AMA SESSION

PRESENTER NAME: OLUWASEUN



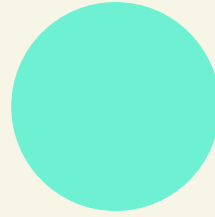
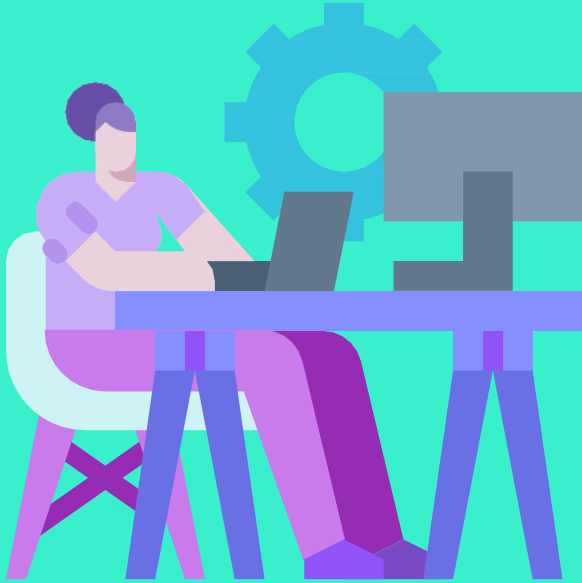
AGENDA

- INFORMATION TECHNOLOGY
- DEVOPS PHILOSOPHY, TOOLS, AND BEST PRACTICES
- LINUX OPERATING SYSTEM
- SCM - SOURCE CONTROL MANAGEMENT [GIT]
- IAAS - INFRASTRUCTURE AS A SERVICE [AWS]
- BUILD TOOLS [MAVEN] AND NEXUS ARTIFACT REPOSITORY
- CONTAINERS WITH DOCKER
- JENKINS CI/CD
- CONTAINER ORCHESTRATION WITH KUBERNETES & AWS EKS
- IAC - INFRASTRUCTURE AS CODE [TERRAFORM]
- AUTOMATION WITH PYTHON
- ANSIBLE - CONFIGURATION MANAGEMENT
- MONITORING AND OBSERVABILITY - PROMETHEUS & GRAFANA



LEARNING OBJECTIVES:

- Gain knowledge on DevOps Philosophy, Tools, and Practices.
- Understand how each DevOps tools are intertwined and how you can use them effectively and efficiently.
- Develop the capacity to Build, Interpret, and Deploy Cloud Architectures using recommended best practices.
- Gain mastery on building efficient pipeline from the commit phase to production.
- Build confidence by implementing different DevOps project and develop the ability to communicate your knowledge of DevOps at any level.



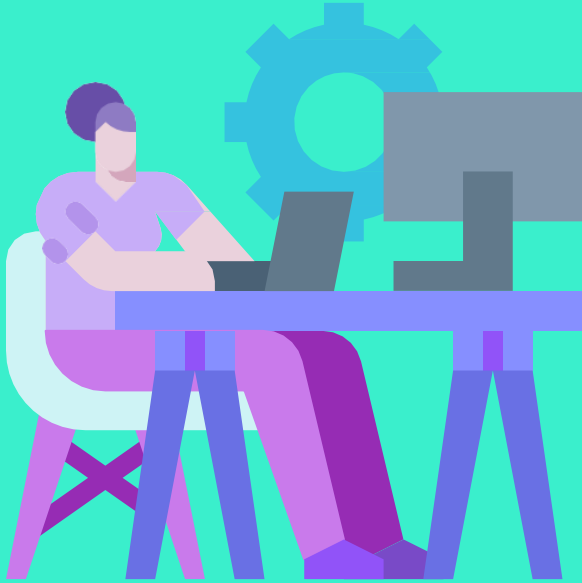
01

INFORMATION TECHNOLOGY

INFORMATION TECHNOLOGY

- Introduction to Software Development Lifecycle.
- The Open System Interconnect Model [7 Layers]
- Network Protocols and Port Numbers
- Webservers and DNS
- IP Addressing - CIDR and Subnets [IPv4]



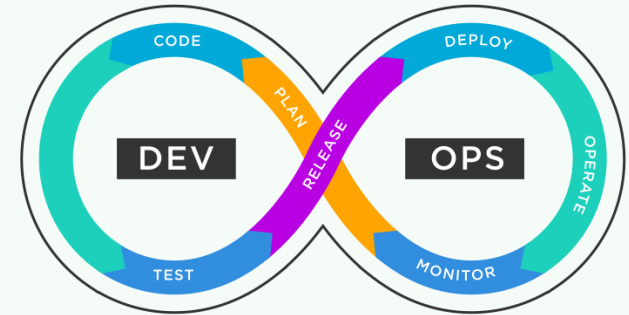


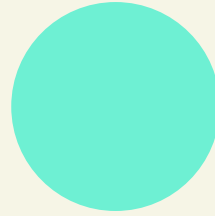
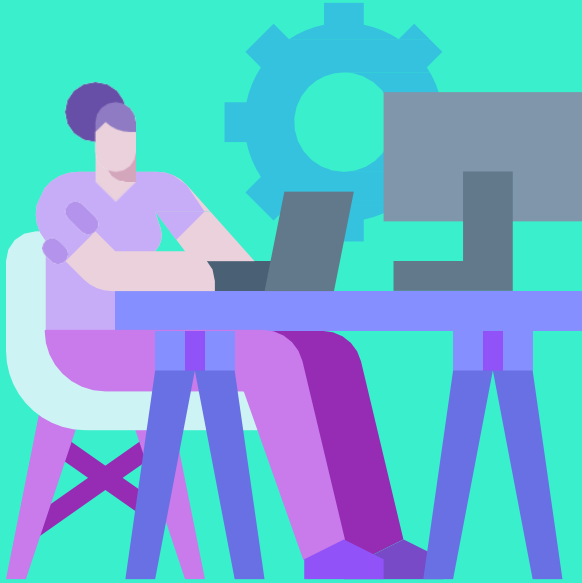
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DEVOPS PHILOSOPHY, TOOLS, & BEST PRACTICIES

DEVOPS PHILOSOPHY, TOOLS, & BEST PRACTICES

- What is DevOps
- Roles and Responsibility of a DevOps Engineer
- DevOps and Software Development Lifecycle [Agile]
- Continuous Integration and Continuous Deployment
- Different CI/CD Tools [Jenkins|GitLab CI/CD|GitHub Actions]
- Automation [Terraform|Ansible|Python]





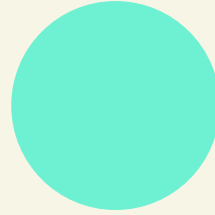
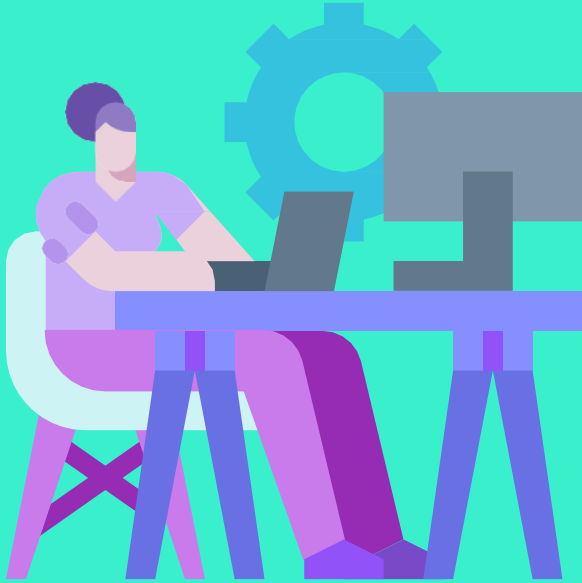
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LINUX OPERATING SYSTEM

LINUX OPERATING SYSTEM

- Introduction to Linux Operating System
- Setting Up a Linux Virtual Machine [Vagrant].
- Linux Package Managers [APT|SNAP|YUM|DNF]
- Editors in Linux [Nano|VIM]
- Users & Permissions | Linux File System
- Linux Commands & Shell Scripting
- SSH - Secure Shell





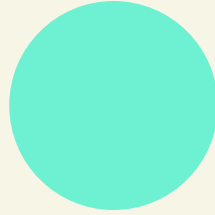
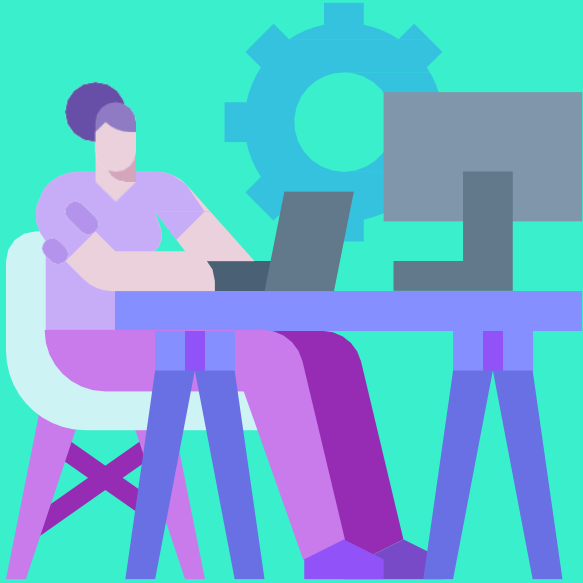
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SCM - SOURCE CONTROL MANAGEMENT [GIT]

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- Basic Concepts of GIT
- Setting Up GIT Repository [Remote & Local]
- Concept of Branching
- Merge Request | Merge Commits
- GIT Commands [git push|git pull|git add|git commit|git init]
- Merging Branches
- GIT Checkout | Logs





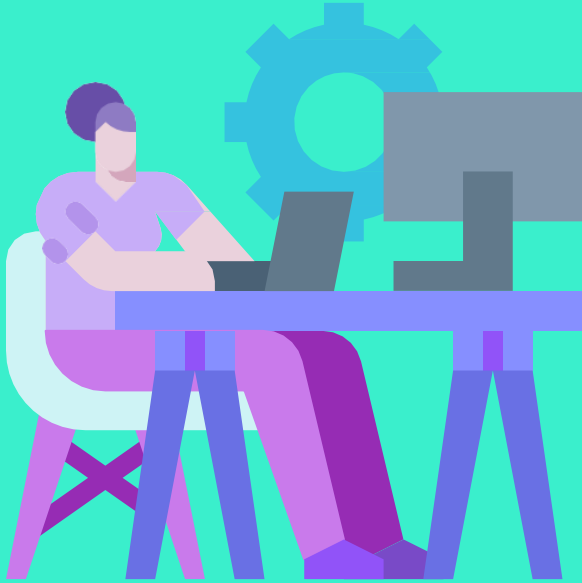
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IaaS - INFRASTRUCTURE AS A SERVICE [AWS]

IAAS – INFRASTRUCTURE AS A SERVICE [AWS]

- Amazon Web Services Overview
- IAM - Identity and Access Management
- VPC - Virtual Private Cloud [Networking on AWS]
- EC2 - Elastic Compute Cloud [Servers on AWS]
- Security Group [Stateful Firewall]
- AWS CLI - Command Line Tool





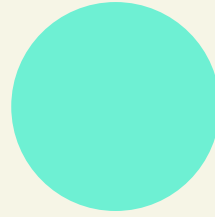
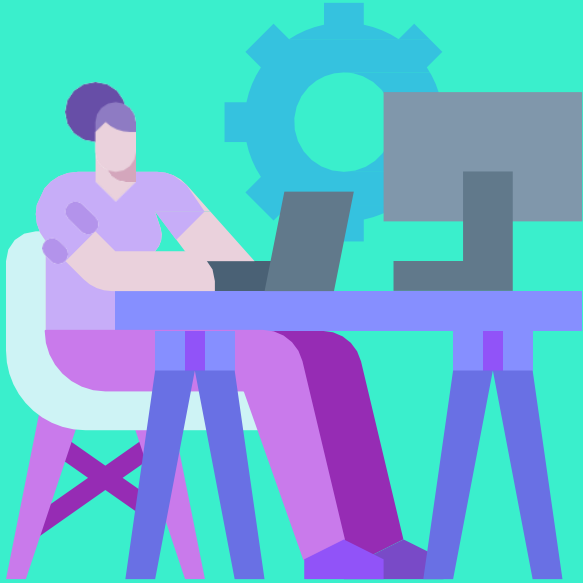
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BUILD TOOL [MAVEN] & NEXUS ARTIFACT REPO

BUILD TOOL [MAVEN] & NEXUS ARTIFACT REPO

- What is Maven & POM.XML Structure
- How to Build an Artifact
- Nexus Repository Overview
- Install and RUN Nexus on AWS
- Storage on Nexus - Blob Stores
- Publish Artifact to Nexus Repo [Maven]



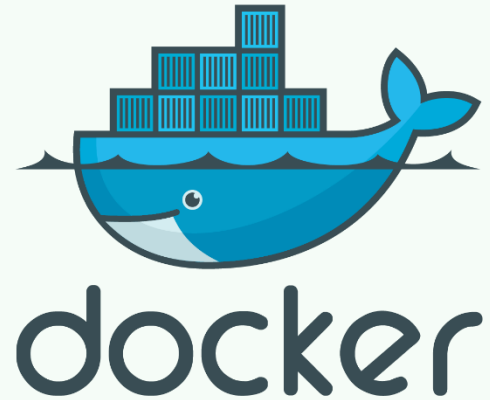


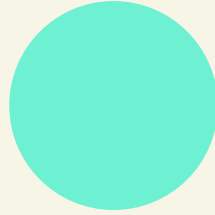
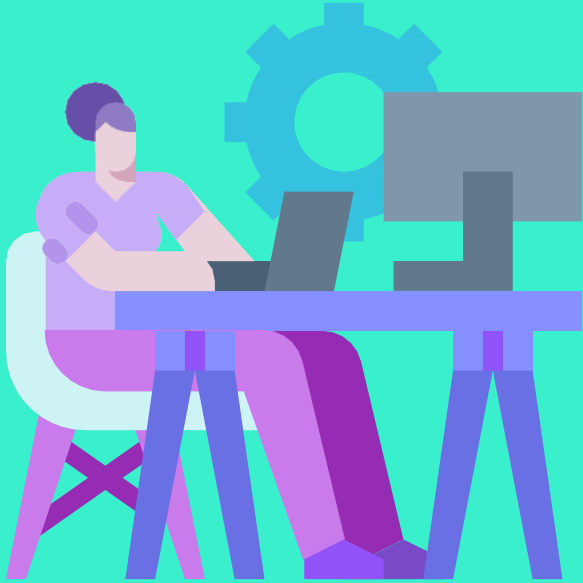
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CONTAINERS WITH DOCKER

CONTAINERS WITH DOCKER

- Docker Container explained
- Docker Components and Architecture
- Docker Commands [docker ps|docker run|docker logs]
- Dockerfile - Build Docker Image
- Docker Compose - Run Multiple Containers
- Docker Volumes
- Push Docker Image to AWS ECR
- Docker Best Practices





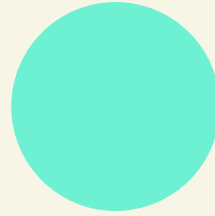
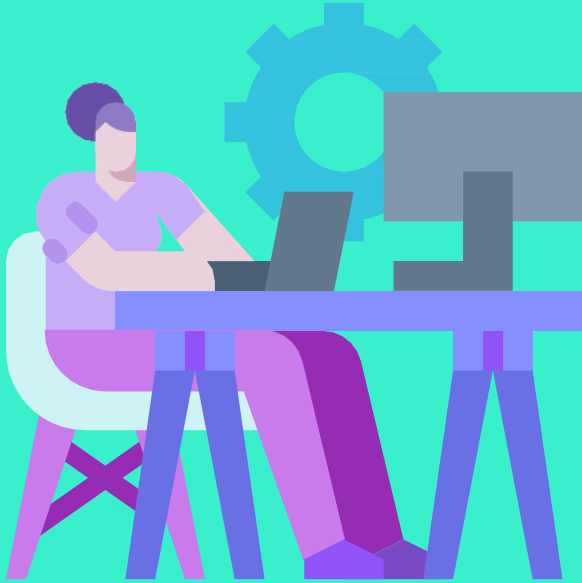
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JENKINS CICD

JENKINS CICD

- Build Automation - What is Jenkins
- Jenkins Install [Docker vs Server]
- Jenkins Plugins
- Jenkins Basic Demo
- Configure GIT in Jenkins
- Configure Docker in Jenkins
- Jenkins Pipeline [Single Branch Pipeline | Multi-Branch Pipeline]
- Jenkins Shared Library & Webhooks





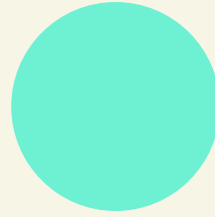
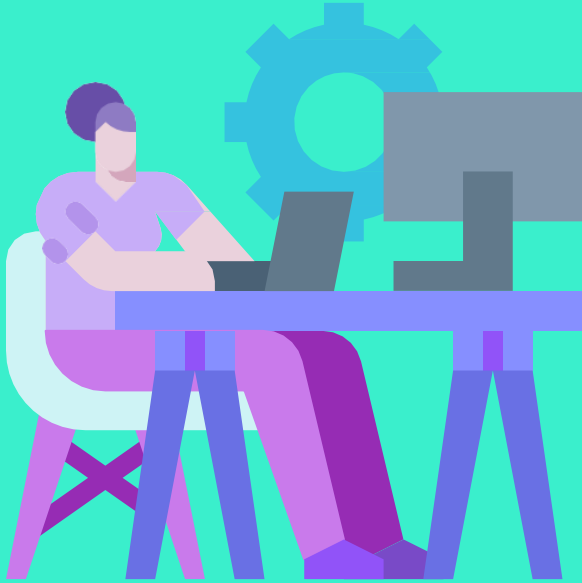
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CONTAINER ORCHESTRATION WITH KUBERNETES

CONTAINER ORCHESTRATION WITH KUBERNETES

- Introduction Kubernetes
- Kubernetes Architecture and Components
- Kubectl Commands
- Kubernetes YAML Configuration File
- Organizing Components with K8s Namespaces
- Service Types in Kubernetes
- Microservices & HEML Charts
- AWS EKS





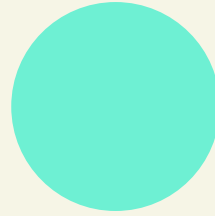
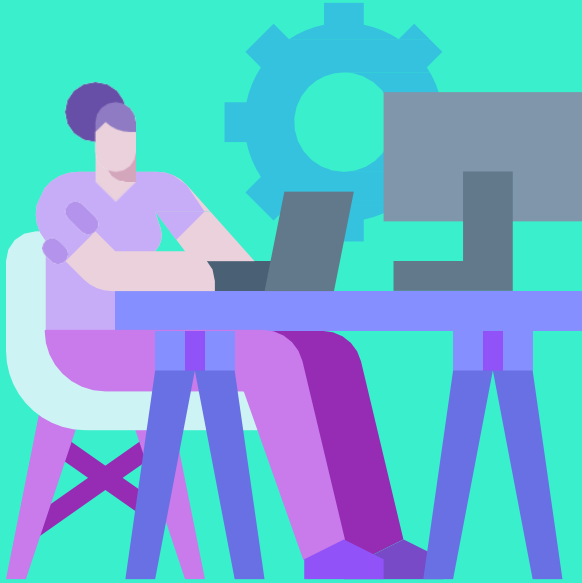
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laC -
INFRASTRUCTURE AS
CODE [TERRAFORM]

IAC – INFRASTRUCTURE AS CODE [TERRAFORM]

- What is Terraform
- Terraform Architecture & Providers
- Terraform Modules & Remote State
- Terraform & AWS
- Terraform [AWS & Kubernetes]
- Terraform [AWS & Jenkins]
- Terraform Workspaces
- Terraform Best Practices





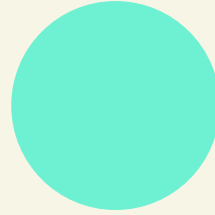
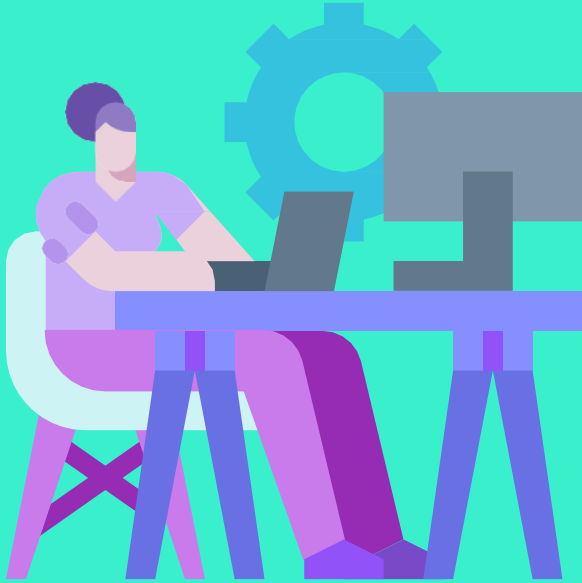
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AUTOMATION WITH PYTHON

AUTOMATION WITH PYTHON

- Why Learn Python as a DevOps Engineer
- Installation & IDE Setup
- Python Data Types & Variables
- Loops & Conditionals
- Lists & Dictionaries
- Sets & Built-in Functions
- Four Cloud Automation Task with Python





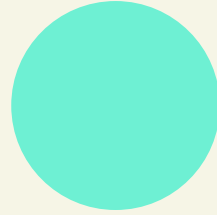
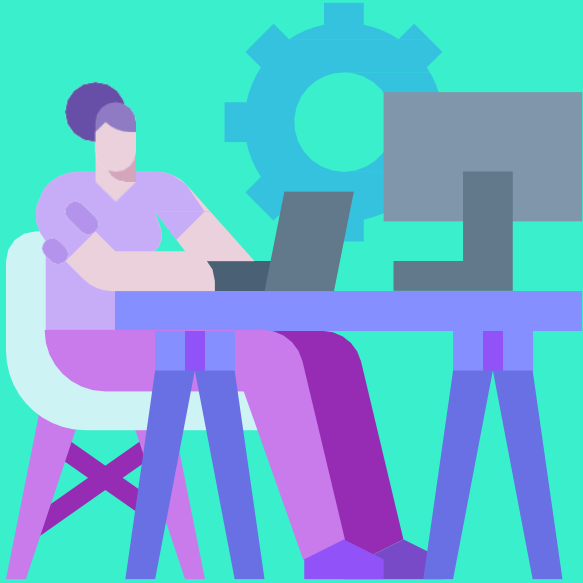
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ANSIBLE - CONFIGURATION MANAGEMENT

ANSIBLE – CONFIGURATION MANAGEMENT

- Introduction to Ansible
- Ansible Installation & Configuration
- Ansible Inventory
- Ansible Task, Play, and Playbook
- Ansible Modules & Collections & Galaxy
- Ansible Integrations [Docker | Terraform | Kubernetes | Jenkins]





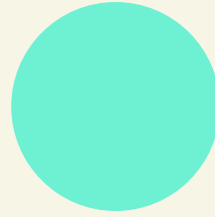
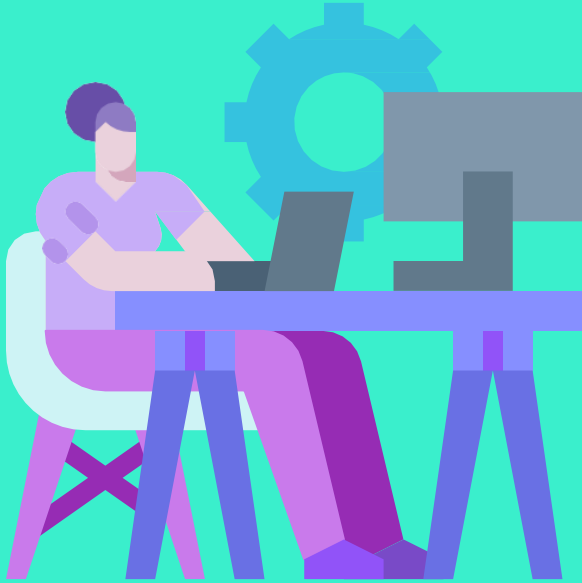
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MONITORING & OBSERVABILITY

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- Introduction to Monitoring with Prometheus
- Install Prometheus Stack in Kubernetes
- Introduction to Grafana
- Data Visualization with Prometheus UI
- Alert Rules in Prometheus & Grafana
- Configure Alert manager with Email Receiver
- Monitor Third-Party Applications
- Collect & Expose Metrics with Prometheus Client Library





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BONUS MODULE:
GITLAB CICD

BONUS MODULE: GITLAB CICD

- Intro: GitLab CICD in Comparison
- Core Concepts: Jobs, Stages, and Variables
- GitLab Architecture: Runners, Executors
- Real Life Pipeline: CD with Docker & Compose
- Advanced Pipeline: Versioning, Cache, Multi-Stage
- Deploy Microservices App (Mono & Polyrepo)
- Deploy to Kubernetes Cluster



TIMELINE



JUN
2023

MODULES [1-4]

JUL
2023

MODULES [5-7]

AUG
2023

MODULES [8-9]
INTERVIEW PREP & RESUME REVIEW

SEP
2023

MODULES [10-11]
JOB APPLICATION

OCT
2023

MODULES [12-14]
OFFER LETTERS



THANK YOU!