Terraform

Terraform Setup and Deploying Infrastructure

1. Installation Process of Terraform
2. Document - Terraform Downloads Page
3. Installing Terraform (Init)-
4. Install & Setup Source Code Editor
5. Setting up Azure account
6. Understanding Terraform Commands (Plan)
7. Validating Terraform Configuration Files (Validate)
8. Authentication and Authorization
9. Create Azure Resource Group (Apply)
10. Create Storage Account
11. Create VNET/Subnet/NIC
12. Launch Virtual Machine through Terraform

Terraform Providers and State

13. Providers AzureAD, Random
14. Terraform Destroy
15. Understanding Terraform State files
16. Terraform Refresh
17. Dealing with Large Infrastructure

Terraform Variables and Modules

18. Terraform Variables
19. Approaches for Variable Assignment
20. Local Values
21. Terraform Output
22. Implementing module with Terraform
23. Variables and Terraform Modules
24. Using Locals with Modules

Managing Terraform

25. Terraform Backends
26. Implementing Azure Storage Backend
27. Terraform State Management
28. Implementing Remote States Connections
29. Overview of Terraform Import
30. Terraform Import Practical
31. Migrating resource in TF state file

Azure DevOps

Azure DevOps Introduction

1. Create Azure DevOps Account
2. Project Setup
3. Create Azure DevOps Project
4. Azure DevOps Board
5. Wiki page
6. DevOps Dashboard

Continuous Integration - Azure Repos

7. Source Control Management System
8. Types of Source Control Management System
9. Install Git - Windows
10. Performing First Commit
11. Create Azure DevOps Project
12. Connecting Local Git with Remote Git Repo
13. Performing Code Changes, Commit & Push
14. Introduction to Branches
15. Creating a New Branch
16. Publishing New Branch to Remote Repo
17. Branching Strategy
18. Branch Permissions - Disable Push
19. Creating and Publishing New Feature Branch
20. Azure DevOps Pull Requests
21. Local Repo - Pull Changes
22. Multi-Repo & Import Existing Project

Continuous Integration - Build Pipelines

23. Continuous Integration
24. Create Build Pipeline for Project
25. Enable Continuous Integration (Automated Builds)
26. Build Triggers
27. Build Agents
28. Working with Self Hosted Agents
29. Technical Debt
30. Integrate Code Analysis - SonarCloud -1
31. Create Build Pipeline
32. Creating Docker Build Pipeline
33. Pushing Container Images to Azure Container Registry

Continuous Deployment - Release Pipelines

34. Create Azure Web App
35. Create First Release Pipeline
36. Deploy to Azure Web App
37. Continuous Deployment Trigger
38. Pipeline Variable
39. Create Azure Key Vault
40. Link Key Vault with Variable Group
41. Access Variable Group in Release Pipeline
42. Deployment Group - Connect Target Servers
43. Deployment Group - Create Release Pipeline for Deployment Group
44. Release Pipeline - Stage Approvals
45. Blue-Green Deployment

Azure Kubernetes Service

Introduction Microservices and Docker

1. Introduction Microservices and Containerization
2. Introduction Docker
3. Docker Architecture or Docker Terminology
4. Docker Installation
5. Pull Docker Image from Docker Hub and Run it locally
6. Build Docker Image locally, Test and Push it to Docker Hub
7. Step-07: Docker - Essential Commands Overview

Kubernetes Fundamentals with kubectl

8. Understand Kubernetes Architecture
9. Introduction to Kubernetes Fundamentals
10. Introduction to Kubernetes Pods
11. Docker Images present on Docker Hub and GitHub Container Registry
12. Create a Pod, understand about it and delete pod
13. Load Balancer Service Introduction
14. Create Pod and LoadBalancer Service and Test
15. Interact with pods, logs, connect to pod and cleanup
16. Introduction to Kubernetes ReplicaSets
17. Create ReplicaSet and Test it
18. Expose ReplicaSet as Service, Test Scalability & High Availability
19. Introduction to Kubernetes Deployments
20. Create Deployment, expose with a Service, Scale Up and Down Replicas
21. Understand how to Update Deployments in Kubernetes
22. Understand how to rollback deployments in Kubernetes
23. Understand how to pause and resume deployments in kubernetes
24. Introduction to Services in Kubernetes
25. Services Demo with Cluster IP and Load Balancer Services

Kubernetes Fundamentals with YAML

26. Introduction to creating Kubernetes Resources using declarative path wi
27. YAML Basics
28. Create Pod Definition using YAML
29. Create Load Balancer Service using YAML
30. Create ReplicaSet and LoadBalancer Service with YAML and Test
31. Create Deployment and LoadBalancer Service with YAML and Test
32. Create Backend Application k8s Deployment and Service
33. Create frontend application k8s deployment and service and test

AKS Storage

34. Azure Files Introduction
35. Azure Disks for AKS Storage Introduction
36. Create Storage class Kubernetes Manifest
37. Create Persistent Volume Claim Manifest, Deploy SC, PVC and Test

Kubernetes Secrets and Ingress

38. Implement Kubernetes Secrets
39. Ingress Basics Introduction
40. Create Static Public IP in Azure dedicated for Ingress
41. Install Ingress
42. Create k8s Ingress Manifest, Review k8s App Manifests and Deploy
43. Deploy k8s Ingress and App manifests, Test and CleanUp