Azure Devops Syllabus

Introduction

- Software Development Life Cycle (SDLC)
- Waterfall Model
- Agile Methodology
- Scrum Model
- Sprints
- DevOps Principles and Practices
- Where DevOps fits in Software Development Process
- DevOps Tools and their functionality

Version Controlling: Git and GitHub

- Version Controlling, Centralized vs Distributed
- Installation and Configuration
- Initializing Git functionality on local servers
- Git SCM, Git Branching
- Git Merging, Git Tagging
- Git Rebase, Stashing, Squash, Rearranging Commit history
- Branching Strategies
- Git References
- SSH Key generation, Cloning Repositories
- Git Pull, Push and Fetch
- GIT Merge
- Real time Branching Design patterns
- Understand UseCases for GIT

Build Tools

1. Maven Tool
   - Maven Installation
   - Features and Requirements of Maven
   - Maven pom builds
   - Executing Some examples
   - Maven Build Lifecycle
   - Maven Plugins
2. Dotnet Tool

Azure Devops Repo

3. Azure Devops repo creation
4. Secure repo
5. Branch policies
6. Pull request validations
7. Using Azure Cli for repo operations
8. Managing repo tags

SonarQube

1. Intro to SonarQube
2. Architecture and Installation of SonarQube
3. Execute the projects in SonarQube and generate reports
4. Administration activities
5. User creation, Project creation configure email settings etc.,

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Introduction to CI Tools

1. Understand CI
2. Jenkins
3. Git Lab
4. Azure Devops
5. AWS

Azure Pipelines

1. Design pipelines
2. YAML pipelines Stages, Jobs & Steps
3. Service Principles & Service Connections
4. Secure Service Connections
5. Understand Environments
6. Classic Releases
7. Pipeline Libraries
8. pipelines for dotnet project
9. pipelines for java project

Azure Devops Artefacts

1. Feeds as artefacts
2. Creating feeds
3. Promoting feeds
4. Using feeds in CI/CD of azure pipelines
5. Secure feeds

Azure Devops CI CD

1. The Five stages of CICD in detail
a. Continuous Download
b. Continuous Build
c. Continuous Deployment
d. Continuous Testing e. Continuous Delivery
2. Azure Devops pipelines for CI/CD
3. Perform Build, configure multiple projects in Azure Devops
4. Multibranch pipeline projects
5. Azure Devops administration
6. Creating users, assigning Permissions in Azure Devops
7. Azure Devops Build Triggers
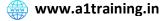**8.** Configuring Email Notifications

Azure Devops CI CD

1. Virtualization and Containerization – Differences
2. Docker Introduction – Architecture
3. Docker Installation and Administration
4. Creating Docker Containers (OS, Applications, Databases)
5. Multi Container Architecture in Docker
6. Docker Volumes
7. DockerBuilds

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8. Dockerfile concepts
9. Docker Networks
10. Creating customized Registr in Docker
11. Pushing images to Remote Repositories (Public and Private)
12. Docker Swarm (Container Orchestration)
13. Overlay Network
14. Docker Stack

Docker

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Azure

1. Microsfto Azure Compute Resources
2. Configure networks
3. Manage Storage
4. Azure Identities

IaC (Infrastructure as CODE)

Terraform for Azure
- Infrastructure as Code
- Why Terraform
- Variables in Terraform
- Local and Dynamic Blocks in Terraform
- Commands in Terraform
- Remote States in Terraform
- Connecting Local Machine to Terraform Cloud
- Modules in Terraform
- Creating Vnet on AWS
- Creating public and private subnets
- Creating VM instances
- Configuring Storage
- Terraform Plugins

ARM Templates
- Understand ARM templates
- Design ARM templates

Azure Devops Syllabus

- Variables
- Parameters
- Loops
- Pipelines Parameters
- Deploy ARM templates for CI
- Deploy ARM templates for CD
- Real time design patterns
- Deploying Azure Resources with ARM templates
- Nested ARM templates

Azure Kubernetes Service

1. Kubernetes Introduction, Architecture
2. Different approaches of Setting up Kubernetes Cluster
3. Kubernetes Namespaces
4. Kubernetes Objects
   - Pods
   - ReplicaSets
   - Replication Controllers
   - DaemonSet
   - Deployments
   - Rolling Updates
   - Services
   - Persistent Volumes
   - Dynamic Volumes
5. Kubernetes cluster setup in Azure using Azure Devops
6. Monitor AKS Dashboards

7. Kubernetes Cluster setup using Powershell
8. Integrate Kubernetes with Azure Devops
9. Helm Charts

Azure Keyvault Secrets Management Using Pipelines

1. Accesing secrets from Azure Keyvaults
2. Linking secrets using Azure Keyvault
3. AKS accessing Keyvault secrets
4. Undestand Application accessing Keyvault Secrets
5. Secure the secrets

Azure Devops Nodes

1. Understand Azure Devops Nodes
2. Self Hosted Nodes
3. Azure Hosted Nodes

Resume Preparation and Job Guidance

1. Interview Tips and Tricks
2. Explaining projects
3. Providing the recordings
4. German Cover Letter and CV
5. Agile and Scrum Methodologies
6. Entire Project workflow in Azure