Certified Kubernetes Application Developer (CKAD)

Duration: 5 Days

Hands-On Format: This hands-on class is approximately 80/20 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

Module 1 – Core Concepts

Overview of Container Orchestration
Introduction to Kubernetes
Kubernetes Architecture
Design a Kubernetes Cluster

Module 2 – Configuration

Discover and Use Resources that Extend Kubernetes (CRD)
Understand Authentication, Authorization and Admission Control
Understand ConfigMaps
Understand Security Contexts
Define an application's resource requirements
Create and consume Secrets
Understand Service Accounts

Module 3 – Multi Container Pods

Understanding Multi-Container Pods
Creating Multi-Container Pods

Module 4 – Observability

Understand API Deprecations
Understand Liveness Probes and Readliness Probes
Understand container logging
Understand how to monitor applications in Kubernetes
Understand debugging in Kubernetes

Module 5 – Pod Design

Define, Build and Modify Container Images
Use Kubernetes Primitives to Implement Common Deployment Strategies (e.g. Blue/Green or Canary)
Understand Deployments and how to perform rolling updates
Understand Deployments and how to perform rollbacks
Understand Jobs and CronJobs
Understand how to use Labels, Selectors, and Annonations
Use the Helm Package Manager to Deploy Existing Packages

Module 6 – Services & Networking

Understand Services
ClusterIP

Ingress Networking
Basic understanding of NetworkPolicies

Module 7 – State Persistence

Volumes
Persistent Volumes
Persistent Volume Claims
Using PV and PVC in PODs
Storage Classes
Stateful Sets
Storage in Stateful Sets