ADVANCED MICROSERVICES

Objective:

To provide complete knowledge and skills on microservices with their technology and languages used, design and decomposition patterns and the environment for microservices application deployment.

Pre-requisites:

Basic understandings on software development, containerization and Spring Boot

Theory of Contents:

Chapter 1: Introduction to Microservices

- Understandings of microservices and differences between monolithic to microservices
- Design principles of microservices with developers and admin in mind

Chapter 2: Microservices Technologies and Languages

- Understandings of microservices architecture
- Overview of familiar Technologies and languages

Chapter 3: Integration and Decomposition Patterns

- Learn about the integration patterns
- Learn about the decomposition patterns from monolith to microservices

Chapter 4: Containerization using Docker and Kubernetes

- Overview about the containerization
- Learn about the Docker Container Runtime Engine
- Learn about the architecture and benefits of Kubernetes Orchestration

Chapter 5: Kubernetes Cluster and its objects

- Learn about the cluster formation of Kubernetes
- Deep dive on the Kubernetes objects

Chapter 6: Istio Fundamentals

- Introducing service mesh with its architecture and features
- Learn about the installation procedure of Istio for microservices
- Learn how to reviewing the service requirements and adding services to the mesh

Chapter 7: Securing Communication within Istio and controlling traffic

- Learn about the Istio Security
- Review how to enable the mTLS communication between services and secure inbound traffic
- Learn about Canary Testing, resiliency and chaos testing

Chapter 8: Jenkins

- Introducing the Jenkins and Jenkins CI/CD Pipeline
- Learn how to install, manage and secure the Jenkins
- Learn about diagnosing the errors and troubleshooting

Chapter 9: GIT

- Introducing GIT and how to get started
- Learn about the GIT Devops Methodology

Chapter 10: Monitoring Patterns

- Learn about the monitoring and observability patterns of microservices
- Understand what is Prometheus and Grafana.
- Learn how to work with Prometheus and Grafana for monitoring and alerting