Advanced Spring Boot Microservices with Spring Cloud- 5 days

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Day 1

Breaking Up Monoliths – Pros and Cons

Traditional Monolithic Applications and Their Place • Disadvantages of Monoliths

Developer's Woes

Architecture Modernization

Architecture Modernization Challenges

Microservices Architecture is Not a Silver Bullet! • What May Help?

Twelve-factor Applications

Twelve Factors, Microservices, and App Modernization

The Twelve Factors

Categorizing the 12 Factors

12-Factor Microservice Codebase

12-Factor Microservice Dependencies

12-Factor Microservice Config

12-Factor Microservice Backing Services

12-Factor Microservice Build, Release, Run

12-Factor Microservice Processes

12-Factor Microservice Port Binding

12-Factor Microservice Concurrency

12-Factor Microservice Disposability

12-Factor Microservice Dev/Prod Parity

12-Factor Microservice Logs

12-Factor Microservice Admin Processes

Microservice Development

What are Microservices?

Microservices vs Classic SOA

Principles of Microservices Architecture Design • Domain-Driven Design

Domain-Driven Design - Benefits
Microservices and Domain-Driven Design
Designing for failure
Microservices Architecture – Pros
Microservices Architecture – Cons
Docker and Microservices
Microservice Deployment with Docker – Workflow • Writing
Dockerfile

Spring Introduction

DI and IOC

Auto wiring

Spring configuration using external files

Java Configuration

Bean Lifecycle

MVC (does not cover Spring UI)

Configuration for MVC and their disadvantages

AOP (Demo Program)

Spring Boot

Working on STS

Autoconfiguration

Command Line Runner

RestController

Application. properties and YML support.

@Configuration , @Service, @Bean

Creating REST API in Spring Boot

Postman as REST client.

Profiling

Service Layer

Day 2

ORM introduction

JPA Introduction

JPA repository/MongoRepository

CRUD operations using in Memory H2 DB.

Connecting to MySQL

DML in JPA Repository

Connecting to Cassandra DB

CRUD application

Class Relations

One to one and one to many.

Cascade , Lazy/Early Initialization

Tools like Lombok and Swagger

Spring Security

LDAP overview

Authentication and Authorisation using Open LDAP and spring boot

Day 3

Form Based Authentication and Authorization.

In Memory authentication and JDBC authentication

JWT introduction and Demo program

Spring Batch

Messaging Systems

JMS

Kafka Introduction

Implementation using Spring Boot

Microservices Introduction

Pros and Cons of MS.

Day 4

Introduction to Netflix Patterns to address MS Challenges.

Spring Cloud Config and Client.

Using Actuator

Creating GIT Repository and testing config server and config client.

Design Patterns Introduction and relevance to Microservices

Netflix Eureka Naming and Discovery Service.

Creating a Consumer Service using Feign Client

Client Load Balancing using Ribbon

Day 5

Hystrix/Resilience4J for Circuit Breaker Pattern

Zuul API Gateway

Containerization

Docker Introduction

Executing Spring Boot application using docker

Kubernetes – Orchestration - Introduction

ELK and Microservices