Spring Boot Microservices

Course code: JSPRINGBOOT1

The aim of this course is to familiarize students with the design and development of distributed applications deployable in a cloud environment. The course will familiarize you with the microservices architecture, the advantages and disadvantages of this approach, with the procedures and tools for successfully managing and implementing microservices on the popular Spring Boot and Spring Cloud platforms, including deploying and running this type of application.

What we teach you:

- Understand architecture and microservice modeling
- You will learn how to implement microservices using Spring Boot and Spring Cloud
- You will learn how to integrate, deploy, test, and operate microservices

Who the course is for:

- The course is designed for developers on the Java

Required skills:

- Basic knowledge of Java SE and Spring Framework

Teaching methods:

- Professional explanation with practical samples and examples.

Teaching materials:

- Powerpoint handouts and module printouts.

Course syllabus:

Introduction to Microservices

- Basic principles
- Advantages and disadvantages

Modeling microservices

- Functional and Modular Decomposition
- Basics of Domain Driven Design
- What is a domain model?
- Bounded context
- Entities, Aggregates, Repositories, Events and Services
- Principles and Patterns

Implementation of Microservices - Introduction to Spring Boot

- Fundamentals and Purpose of Spring Boot
- Spring Boot starters
- Web application and embedded web server
- Data persistence

Implementation of Microservices - Introduction to Spring Cloud

- Spring cloud sub-projects and Netflix OSS
- Configuration server for centralized configuration
- Service register, server, client - Netflix Eureka
- Load balancing on client side - Netflix Ribbon
- Circuit breaker - Netflix Hystrix
- Declined REST Client - Feign

Integration of Microservices

- Styles of communication between services
- RestAPI - Swagger

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- Messaging, Spring Cloud Streams, RabbitMQ and Apache Kafka
- Gateway API - Netflix Zuul

Deploying Microservices

- Virtualization and containers
- Docker
- Overview of Runtime Platforms
- DevOps, CI / CD and automation
- Scalability of services

Testing of Microservices

Operation of Microservices

- Centralized logging
- Monitoring
- Spring Actuator and Spring Admin Server
- Distributed tracing - Spring Sleuth, Zipkin

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