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Docker and Kubernetes Development (3 days)

Course overview

Containerisation has revolutionised the way organisations build, deploy, and operate solutions in the cloud and on-premise. Docker knowledge has become indispensable, and Kubernetes has quickly emerged as the de-facto standard way to manage and orchestrate Docker containers.

This course provides a thorough grounding in both Docker and Kubernetes. We explain how to create lean and mean containers and how to ensure they operate in a resilient and responsive fashion. We explain how to enforce best practices by applying the principles laid out in the Twelve Factor App methodology.

What you'll learn

- Understand Docker images and containers
- Create lean and mean Docker images
- Use Kubernetes to orchestrate Docker containers
- Adopt best practices as described by the Twelve Factor App methodology

Prerequisites

- This course is aimed at developers with experience in any contemporary language, e.g. Java, C++, C#, Python, etc.

Course details

- Docker Images and Containers: Introduction to Containerization and Docker; Understanding Docker Images; A Closer Look at Images and Containers; Working with Containers; Containerizing a Spring Boot Application; Automating Dockerization via Maven
- A Closer Look at Docker Images: The Layered Filesystem of Docker Images; A Closer Look at Dockerfile Instructions; Parameterizing Docker Containers; Multi-Stage Builds; Layered Jar Files
- Docker Persistence and Orchestration: Running a Database in a Container; Interacting with the Containerized Database; Persisting Data in a Volume; Linking Containers; Linking Containers using Docker Compose
- Getting Started with Kubernetes: Microservices and Orchestration; Setting up a Kubernetes Cluster; Kubernetes Pods; Kubernetes Volumes
- Additional Kubernetes Techniques: Kubernetes Deployments; Services
- The Twelve-Factor App: Intro to the Twelve-Factor Methodology; Coding Factors; Deployment Factors; Operational Factors

- Kubernetes and Twelve-Factor Apps, Part One: Setting the Scene; Environment Variables; ConfigMaps; Secrets
- Kubernetes and Twelve-Factor Apps, Part Two: Liveness and Readiness Probes; Jobs; CronJobs