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MICROSERVICES ARCHITECTURE TRAINING

Course Curriculum : Your 6 module Learning Plan

https://www.edureka.co/microservices-architecture-training

About Edureka

Edureka is a leading e-learning platform providing live instructor-led interactive online training. We cater to professionals and students across the globe in categories like Big Data & Hadoop, Business Analytics, NoSQL Databases, Java & Mobile Technologies, System Engineering, Project Management and Programming. We have an easy and affordable learning solution that is accessible to millions of learners. With our students spread across countries like the US, India, UK, Canada, Singapore, Australia, Middle East, Brazil and many others, we have built a community of over 1 million learners across the globe.

About Course

Microservices Architecture is one of the methods for implementing a service-oriented architecture. Edureka's Microservices Architecture training helps you gain expertise in developing a Microservices Architecture-based solution. Apply Microservices principles to specific business requirements to build a scalable & performing solution. After completing this training, you will have gained the knowledge about various Microservices architectural styles, how to select the appropriate architecture design and how Netflix has used Microservices to scale.

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Curriculum

Evolution of Microservices

Learning Objectives: In this Module, you will learn how Microservices have evolved over time and how different is Microservices from SOA. In addition, you will get to know about different architectures and where does Microservices architecture fit.

Topics:

- Monolithic Architecture
- Service oriented Architecture
- Microservices in nutshell
- SOA vs. Microservice
- Distributed Architecture
- Microservice and API Ecosystem
- Point of considerations
- Microservice & API

Skills:

- Architecture styles
- Limitations of Architectures
- Advantages of different architecture styles
- What is Microservices

Microservices Architecture

Learning Objectives: Learn the various principles of REST, the various characteristics of Microservices, the importance of messaging in Microservices architecture, and the concept of distributed transactions.

Topics:

- REST Architecture principles
- Inter-Process Communications
- Microservice Characteristics
- Microservice Transaction Management

Skills:

- Considerations while building microservices
- How the transaction management is
- How the services communicate with each other

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done in microservice.

Microservices - Design

Learning Objectives: This Module gives you an insight into Domain Driven Design, the approach called Big Ball of Mud, the approaches and their strategies that can be used while moving from Monolithic to Microservices.

Topics:

- Domain Driven Design
- Untangling the Ball of MUD
- Repackaging/Refactoring
- MUD Ball to Services
- Microservice Architecture Decisions
- Big Mud Ball to Sweet Gems
- Kill the MUD Ball growth
- Decouple the User interface and Backend Business Logic
- Microservice Design Patterns

Hands-on:

- Setting up the root project
- Returning json entity as response
- Intro to Lombok
- Querying Mongo
- Spring Data Rest and HATEOAS
- Searching our Elasticsearch Server
- Spring Boot - Hello World
- Spring Boot dev tools
- Adding Items to Mongo DB
- Accessing an SQL database
- Connecting to an Elasticsearch Server

Skills:

- Architecture Decisions
- Learn to identify and design microservices.
- Monolithic to Microservices redesign.

Microservices - Security

Learning Objectives: Know why security is an important factor to be considered in Microservices.

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Learn what are the various best practices in Microservice security design, and what techniques can be used to implement security.

Topics:

- Why is Security important?
- Microservice Security techniques
- Oauth 2.0
- Microservice Security Principles
- Access Tokens
- How to secure a Microservice using OAuth 2.0

Hands-on:

- Spring Boot Security Setup
- Moving to Oauth2
- Implementing Authorization Server
- Basic Spring security
- Implementing Single Sign On
- Implementing Resource Server

Skills:

- Oauth 2.0
- Secure by design
- Security tokens

Microservices - Testing

Learning Objectives: Learn the different testing strategies that can be implemented in Microservices, how Spring Boot features help in testing Microservices, and the various testing tools that are available to be used.

Topics:

- Testing scenarios and strategy
- Testing Best Practice for Microservices
- Test at Different Levels

Skills:

- Testing methodology
- How to test Microservices

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Microservices Reference Architecture

Learning Objectives: Get an insight into Microservices reference architecture, what are the key Microservice enablers and how do DevOps and Microservice go hand in hand. In addition, know what features an API system provide to Microservices, and how Netflix has benefited by implementing Microservices.

Topics:

- Reference Architecture
- Microservices @ Netflix
- Microservice Enablerc

Hands-on:

- Reading properties in various ways
- Setting up Discovery Server
- Overview of Actuator Endpoints
- IDeclarative Rest Client
- Distributed Caching
- Need for Event Driven Systems
- Implementing Distributed Tracing
- Monitoring Microservices
- Implementing config server
- Setting up Discovery Client
- API Gateway and Dynamic Routing
- Hystrix Fault Tolerance
- Distributed Sessions
- Building Event Driven Systems
- Understanding Metrics
- Spring Boot Admin

Skills:

- Scalable Architecture
- How cloud and DevOps enables Microservice architecture
- How Netflix uses Microservices

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Project

What are the system requirements for this Microservices Architecture Training?

- A system with 4GB RAM and i3 or above processor
- Eclipse IDE
- Java and Spring Boot Framework

How will I execute the Practicals in this Microservices Architecture Training

For your practical work, we will help you set-up the Java environment on your system along with Eclipse IDE and the Spring Boot framework. This will be a local access for you. The detailed step by step installation guides will be present in your LMS which will help you to install and set-up Java, Spring Boot, and Eclipse IDE.

Which Projects are a part of this Microservices Architecture Training?

A fictional Company named GOODs, which is an e-commerce company, provides online purchasing services and operates its business using a traditional Java EE-based Web Application called Customer Order Service. Although the application has been serving the business well, Company GOODs, started struggling with responding to new business.

Requirements:

The current customer order service application is not designed to enable changes in business domain and is not open for applying recent technologies for accelerating innovation with the current monolithic architecture. Company GOODs wants to transform the customer order service application to embrace and better handle changes in both business and technical perspectives and has a list of major business Requirements:

- The new system must be evolutionary, meaning it must be flexible for changes.
- The new application must be able to scale on demand, or automatically, based on
- No down time is allowed in moving traffic from the current system to the newly built system.
- The new system must be open for leveraging emerging technologies to

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the payload sent to the system, so that it can react to dynamic shopping behavior patterns.

embrace innovation.

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