VIRAJE TECH

SPRING APACHE KAFKA COURSE

- Access to Interview Opportunities with Top Companies
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Choosing a Microservices course in the IT industry is essential for staying at the forefront of modern software development practices. Microservices architecture, characterized by small, independent, and loosely coupled services, offers agility and scalability. By opting for a Microservices course, you equip yourself with the skills needed to design, deploy, and manage these distributed systems efficiently. This course enables you to understand the principles of decoupling, resilience, and continuous delivery, fostering the development of modular, easily maintainable applications. In an industry where rapid innovation and adaptability are key, mastering Microservices empowers you to build scalable and resilient software solutions, making you a valuable asset in the dynamic landscape of IT.

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LEARNING PLAN

SPRING APACHE KAFKA

Module1: Introduction to Spring and Apache Kafka Integration

1.1. Introduction to Spring and Kafka

- 1.1.1. Overview of Apache Kafka

- 1.1.2. Use Cases for Kafka in Spring Applications

1.2. Setting Up the Development Environment

- 1.2.1. Installing Kafka and Zoo Keeper

- 1.2.2. Configuring Spring Framework

Module 2: Kafka Fundamentals

2.1. Kafka Architecture

- 2.1.1. Topics, Producers, and Consumers

- 2.1.2. Partitions and Brokers

2.2. Kafka Command-Line Tools

- 2.2.1. Kafka CLI for Basic Operations

- 2.2.2. Kafka Configuration Files

Module 3: Spring Kafka Basics

3.1. Spring Kafka Overview

- 3.1.1. Spring Kafka vs. Native Kafka Clients

- 3.1.2. Key Concepts in Spring Kafka

3.2. Configuring Kafka Templates and Producers

- 3.2.1. Creating Kafka Templates

- 3.2.2. Sending Messages with Producers

Module 4: Kafka Consumers with Spring

4.1. Spring Kafka Consumers

- 4.1.1. Consuming Kafka Messages

- 4.1.2. Message Listener Containers

4.2. Error Handling and Offset Management

- 4.2.1. Handling Exceptions in Consumers

- 4.2.2. Managing Offsets and Consumer Groups

Module 5:Spring Kafka Advanced Topics

5.1. Custom Serialization and Deserialization

- 5.1.1. Implementing Custom Serdes

- 5.1.2. JSON and Avro Serialization

5.2. Batch Processing with Kafka

- 5.2.1. Consuming Messages in Batches

- 5.2.2. Configuring Batch Listeners

Module 6: Kafka Streams with Spring

6.1. Introduction to Kafka Streams

- 6.1.1. Stream Processing with Kafka

- 6.1.2. Stateful vs. Stateless Processing

6.2. Building Kafka Stream Applications with Spring

- 6.2.1. Configuring Kafka Streams

- 6.2.2. Stream Processing Topologies

Module 7:Spring Kafka and Microservices

7.1. Microservices and Event-Driven Architecture

- 7.1.1. Event Sourcing and CQRS

- 7.1.2. Decoupling Microservices with Kafka

7.2. Spring Cloud Stream for Kafka

- 7.2.1. Implementing Event-Driven Microservices

- 7.2.2. Spring Cloud Stream Binders

Module 8:Kafka Connect and Integration

8.1. Kafka Connect Overview

- 8.1.1. Connectors and Tasks

- 8.1.2. Source and Sink Connectors

8.2. Configuring Kafka Connect with Spring

- 8.2.1. Creating Connect Configurations

- 8.2.2. Sink Connectors for Data Sync

Module 9:Testing and Debugging Spring Kafka Applications

9.1. Unit Testing with Embedded Kafka

- 9.1.1. Testing Kafka Components

- 9.1.2. Setting Up Embedded Kafka

9.2. Debugging Kafka Consumer Issues

- 9.2.1. Troubleshooting Kafka Consumers

- 9.2.2. Monitoring and Metrics

Module 10:Kafka Security and Scalability

10.1. Securing Kafka with Spring Security

- 10.1.1. Authentication and Authorization

- 10.1.2. SSL Encryption for Kafka

10.2. Scaling Kafka and Spring Applications

- 10.2.1. Horizontal Scaling Strategies

- 10.2.2. Load Balancing Kafka Consumers

Module 11: Real-World Kafka Use Cases

11.1. Log Aggregation with Kafka

- 11.1.1. Centralized Logging with Kafka

- 11.1.2. Log Ingestion and Analysis

11.2. Event Sourcing and Data Pipelines

- 11.2.1. Building Event-Driven Data Pipelines

- 11.2.2. Event Sourcing for Stateful Applications

Module- 12: Best Practices and Optimization

12.1. Kafka Best Practices

- 12.1.1. Design and Configuration Recommendations

- 12.1.2. Handling High Throughput

Module- 13: Final Project and Course Review

13.1. Project Proposal and Planning

- 13.1.1. Designing a Kafka-Integrated Application

- 13.1.2. Project Development Phases

13.2. Implementation and Presentation

- 13.2.1. Building the Kafka-Integrated Project

- 13.2.2. Final Project Presentation

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