Faysal Aziz

Training on .NET MAUI with Kafka

A Modern Development Approach

FA-0012 · 5-day

Software Development

Introduction

5-day training outline

This is a tailored and unique training program, ".NET MAUI with Kafka - A Modern Development Approach." This course is specially designed to bridge the gap between traditional application development and the latest trends in technology. Our trainers, boasting over 35 years of industry experience, are not just educators but pioneers who have witnessed and contributed to the evolution of software development. Their extensive experience will provide invaluable insights and practical knowledge, guiding you through this exciting learning journey.

In this course, we'll explore the robust capabilities of .NET MAUI for cross-platform development and introduce you to Kafka, an essential tool for modern developers. Kafka's role in building scalable, real-time applications is pivotal, and understanding it is crucial for today's tech landscape. This course is structured to cater to those new to Kafka, ensuring a comprehensive understanding of its principles and applications in conjunction with .NET MAUI.

Learning outcomes

- Understanding the architecture of .NET MAUI for cross-platform development.
- Mastery of SQL Lite for local data storage in a retail POS context.
- Implementing robust security and authentication mechanisms.
- Designing and navigating common UI/UX interfaces across platforms.
- Evaluating and choosing between Native, Hybrid, or other app development approaches.
- Establishing and managing connections to remote databases.

- Implementing and managing background tasks in .NET MAUI.
- Master the foundations of .NET MAUI for versatile app development.
- Gain a fundamental understanding of Kafka and its application in real-world scenarios.
- Learn to design and implement scalable, real-time applications using .NET MAUI and Kafka.
- Implementing effective synchronization of sales data with server-side systems.

Prerequisites

Knowledge:

- Basic understanding of C# and .NET framework.
- Familiarity with SQL and database concepts.
- Basic knowledge of web services and APIs.
- Basic usage experience on iOS ecosystem

Hardware:

- A computer with at least 32GB RAM and a modern processor (i7 or better).
- Windows 10 or higher,
- MacOS for iOS development with 16GB or higher
- Full administrative access
- Internet access

Software:

- Visual Studio 2022 or later with .NET MAUI installed.
- Android Studio for Android emulator.
- SQL Lite browser for database management.
- SSH Terminal
- Unrestricted IP accessibility (for remoting to sandbox server)

Training outline

1. Introduction to .NET MAUI and Kafka

1. Overview of .NET MAUI and its significance in cross-platform development.

2. Introduction to Kafka: Understanding its basics and importance in modern app development.

2. Building Blocks of Cross-Platform Development

1. Creating adaptable user interfaces for multiple platforms with .NET MAUI.
2. Integrating Kafka in the .NET environment: A step-by-step guide for beginners.

3. Kafka Fundamentals in Retail POS Systems

1. Kafka's architecture and its role in handling real-time data streams.
2. Transitioning from traditional data management to Kafka-based solutions.

4. Implementing Event-Driven Architecture

1. Principles of event-driven architecture and its advantages.
2. Practical exercises on using Kafka for event-driven data handling.

5. UI/UX Design with Real-Time Data

1. Crafting responsive interfaces in .NET MAUI.
2. Implementing real-time updates and interactions using Kafka.

6. Modernizing Data Operations with Kafka

1. Moving beyond CRUD operations: The role of Kafka in modern data processing.
2. Hands-on projects for implementing Kafka producers and consumers.

7. Security and Authentication in Kafka Integrated Systems

1. Ensuring robust security in Kafka-integrated applications.
2. Strategies for implementing secure authentication mechanisms.

8. Advanced Remote Data Handling with Kafka

1. Efficiently managing remote data synchronization using Kafka.
2. Best practices for handling large data sets and stream processing.

9. Managing Background Processes

1. Leveraging Kafka for effective background task management.
2. Techniques for handling data streams in the background.

10. Deploying and Maintaining Kafka-Integrated Applications

1. Comprehensive guide to deploying .NET MAUI applications with Kafka.
2. Best practices for maintaining and updating event-driven applications.

11. Capstone Project: Building a Kafka-Integrated POS System

1. Designing a complete retail POS system using .NET MAUI and Kafka.
2. Emphasizing real-time data processing and scalability.

Additional Advanced Topics

1. Kafka cluster management and optimization.
2. Debugging and performance tuning in Kafka and .NET MAUI applications.
3. Exploring the scalability and resilience of Kafka in distributed systems.

This course is more than just coding and technicalities. It's hand tailored for your specific requirement that sees beyond the code, understanding the user, the market, and the ever-evolving tech landscape. You will gain insights into choosing the right development approach, optimizing user experience, and ensuring your application thrives in the competitive digital world.

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