

# Proposal for Creating the Official MicroProfile Tutorial

## Technical Writer:

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I propose to develop the official MicroProfile Tutorial. I have extensive experience working with MicroProfile, and I am also passionate about sharing knowledge to others about how to use this powerful technology to build microservices applications. I have a proven track record in creating comprehensive technical documentation and tutorials. Please see the Author Profile section below for further details on my expertise.

## Approach

The tutorial will first start with an overview of the MicroProfile project, followed by detailed sections on each specification. The tutorial will be designed with modularity in mind, allowing for easy updates to incorporate additional specifications in the future. An online pet store or an ecommerce application example would be used to demonstrate development of microservices using the MicroProfile APIs to make this tutorial more engaging and relevant for real-world context.

Below would be the outline of various topics of this tutorial:

- **Chapter 1: Introduction to MicroProfile**

*Description:* This chapter will provide a comprehensive overview of the MicroProfile platform to ensure a deep understanding of its architecture, specifications, and key features. It provides a solid foundation for understanding the MicroProfile platform, its purpose, and its place in the broader context of Java enterprise development. It covers its benefits, its relationship with Jakarta EE, and how it supports cloud-native application development.

*Topics to be covered:*

- What is MicroProfile (Brief introduction)
- Need for MicroProfile (How it addresses the needs for microservices development)
- Benefits of MicroProfile (This section would focus on advantages of using MicroProfile, vendor-neutrality and standardization)

- Relationship with Jakarta EE specification (How MicroProfile complements Jakarta EE, and focuses on integration and interoperability of MicroProfile with Jakarta EE)
- Cloud-Native Development with MicroProfile (characteristics of cloud-native application, how microprofile facilitates cloud-native development)

- **Chapter 2: Getting started with microservices development with MicroProfile**

*Description:* This chapter will guide you through the initial steps of setting up your development environment and creating a simple MicroProfile-based microservices application. It covers setting up your development environment, creating a simple microservice, deploying it, and interacting with it.

*Topics to be covered:*

- Setting up your development environment
- Configuring build tools
- Initializing a new MicroProfile project
- Choosing right modules for your application
- Building a Simple Microservice
- Deploying the microservices
- Testing your microservices

- **Chapter 3: REST Client**

*Description:* This chapter provides a comprehensive understanding of the MicroProfile REST Client specification. It covers the basics of setting up and configuring the REST client, creating interfaces, handling requests and responses, and implementing error handling.

*Topics to be covered:*

- Overview of the REST Client Specification
- Setting up dependencies for REST Client
- Creating REST client interface
- Handling REST Request and Response
- Configuring Headers, Query and Path Parameters
- Working with various Data formats like JSON or XML
- Error Handling

- **Chapter 4: MicroProfile configuration**

*Description:* This chapter focuses on MicroProfile Configuration, a key feature that allows developers to externalize configuration properties from their code. It provides flexibility and adaptability for microservices in different environments.

*Topics to be covered:*

- Understanding MicroProfile Configuration
- Working with various Configuration Sources

- Defining Configuration Properties
- Dynamic Updates and Handling Configuration Change Events
- Securing Configuration
- Managing Configuration for Different Environments
- Integration with external configuration providers
- Handling Missing or Invalid configurations

- **Chapter 5: MicroProfile metrics**

*Description:* This chapter provides a deep dive into MicroProfile Metrics, a specification for monitoring microservices. It covers metric types, standard metrics provided by MicroProfile, instrumenting microservices, exposing endpoints, interpreting metric data, and integrating with monitoring solutions.

*Topics to be covered:*

- Introduction to MicroProfile Metrics
- Standard Metrics
- Metric Types
- Instrumenting Microservices with Metrics
- Exposing Metrics
- Integrating with Monitoring Solutions (e.g. Grafana or Prometheus)
- Aggregation and Reporting
- Setting Thresholds for Metric Values
- Configuring Alerts

- **Chapter 6: MicroProfile health checking**

*Description:* This chapter provides an in-depth exploration of MicroProfile Health Checks, a critical component for ensuring the reliability and availability of microservices. It covers types of health checks, standard health indicators provided by MicroProfile.

*Topics to be covered:*

- Introduction to MicroProfile Health Checks
- Types of Health Checks
- Standard Health Checks
- Implementing and Exposing Health Checks
- Logging and Reporting Health Checks
- Best Practices for Effective Health Checks

- **Chapter 7: MicroProfile fault tolerance**

*Description:* In this section, readers will learn about how to apply MicroProfile Fault Tolerance to their applications, demonstrating how to implement strategies like retries, circuit breakers, timeouts, and fallbacks to enhance the resilience and reliability of services.

*Topics to be covered:*

- Introduction to MicroProfile Fault Tolerance
- Fault Tolerance Strategies (Retry, Circuit Breaker, Timeout, Fallback)

- Implementing Retry Policies
- Avoiding Cascading Failures
- Configuring Circuit Breaker
- Setting Timeouts
- Implementing Fallback Logic
- Isolating Resources for Fault Tolerance

- **Chapter 8: MicroProfile OpenTelemetry**

*Description:* This chapter focuses on distributed tracing and observability in microservices architectures. It covers various topics about how to gain insights into the flow of requests and monitor the performance of services.

*Topics to be covered:*

- Introduction to MicroProfile OpenTelemetry
- Tracing Concepts (Spans, Traces and Context Propagation)
- Instrumenting OpenTelemetry
- Setting up Tracing Providers
- Context Propagation and Correlation
- Analyzing Traces
- Security Considerations for Tracing

- **Chapter 9: MicroProfile OpenAPI**

*Description:* This chapter focuses on MicroProfile OpenAPI, a powerful tool for defining and documenting APIs in a microservices architecture. It enables developers to create clear and standardized API specifications.

*Topics to be covered:*

- Introduction to MicroProfile OpenAPI
- API Specification using MicroProfile Open API
- Generating API Documentation
- Managing API Versions and Categories
- Documenting Authentication and Authorization Requirements
- Enabling Interactive API Testing and Exploration using Swagger UI
- Describing Security Schemes and Protocols
- Adding Tags for Improved Documentation Navigation
- Integration with API Gateways and Tools
- Best Practices for Effective API Documentation

- **Chapter 10: JWT Authentication**

*Description:* This chapter focuses on JSON Web Token (JWT) Authentication in the context of MicroProfile, providing a secure and efficient method for authenticating and authorizing users in microservices architectures. It covers JWT basics, user authentication, claims, scopes, token expiration, role-based access control, endpoint security, integration with identity providers, token revocation, and best practices.

*Topics to be covered:*

- Introduction to JWT Authentication
- Understanding JSON Web Tokens
- Request Flow
- Obtaining and Validating JWT Tokens
- Defining User Claims and Scopes in JWT
- Role-Based Access Control (RBAC)
- Setting Token Expiry Times for Security
- Implementing Token Refresh for Long-Lived Sessions
- Integration with Identity Providers (e.g. OAuth, OpenID)
- Security Considerations
- Best Practices for JWT Authentication

- **Chapter 11: Jakarta EE 10 Core Profile**

*Description:* This chapter delves into the Jakarta EE 10 Core Profile, which forms the foundational framework for building enterprise-grade applications in the Java ecosystem. It covers the essential components and features provided by Jakarta EE.

*Topics to be covered:*

- Introduction to Jakarta EE 10 Core Profile
- Key Specifications in Core Profile (Jakarta Annotations, CDI, Interceptors, JSON-P, JSON-B, Restful WebServices)
- Managing Component Dependencies
- Handling HTTP Methods and Resources
- Best Practices for Building Robust and Scalable Applications

## Approach

The tutorial will be written in a clear and concise style, and it will be accompanied by code snippets and examples to help readers learn by doing. The tutorial would be written in a modular way, so that it can be easily updated and expanded in the future. It would be written for a variety of audiences, including beginners, experienced Java developers, and microservices architects.

The code samples and exercises in the tutorial would be thoroughly tested to ensure that they work correctly. I would also get it reviewed by other MicroProfile experts to provide feedback and ensure accuracy. I would also make sure to keep the tutorial up-to-date with the latest changes to MicroProfile.

## Timeline

The tutorial will take 8 weeks to complete allowing for thorough research, content creation, review, and revisions. I can start on this from 1st December 2023 and complete it by 31st January 2024. A detailed timeline with milestones is as below:

<b>Milestones</b>	<b>Deliverables</b>	<b>Date</b>
Design	Final Content Outline and Structure.	December 8th, 2023 (Week 1)
First Milestone	Draft Completion of 25% of Tutorial chapters (Chapters 1,2, & 3)	December 5th, 2023 (Week 2)
Second Milestone	Draft Completion of 50% of Tutorial chapters (Chapters 4, 5, & 6)	December 22th, 2023 (Week 3)
Third Milestone	Draft Completion of 75% of Tutorial chapters (Chapters 7, 8, & 9)	January 5th, 2024 (Week 5)
Fourth Milestone	Draft Completion of 100% of Tutorial chapters (Chapters 10 & 11)	January 12th, 2024 (Week 6)
Project Completion	Revised and Finalized Tutorial	31st January, 2024 (Week 8)

## Cost

My bid for this project is \$11,000.

## Deliverables

The deliverables for this project will be:

- A complete MicroProfile tutorial in web format
- All code snippets and examples, packaged as Maven projects

To demonstrate that the work has been completed, I will provide a live walk through of the documentation and code examples prepared.

## Qualifications

I have over 10+ years of experience developing microservices including 5+ years with MicroProfile. I have worked in the world renowned software firms including Microsoft, Oracle and SAP as Java developer, architect and prolific author. I am a skilled writer and educator, and I have a strong passion for teaching others about Cloud Native Development using Jakarta EE and MicroProfile. I have many publications covering the latest and the greatest Java technologies.

Below is the list of my publications:



- [Beginning Cloud-Native Application Development using MicroProfile, Jakarta EE, and Kubernetes/Docker, Apress \(New York\), Dec 22](#)
- [Java EE to Jakarta EE 10 Recipes: A Problem-Solution Approach for Enterprise Java, Apress \(New York\), Jul 22](#)
- [Learn Microservices with Spring Boot 3, Apress \(New York\), Sep 23](#)
- [Building High-Performance Java 17 Applications: Using GraalVM Native Image and OpenJDK 17" - O'Reilly Media, Aug 21](#)
- [Introducing Java 17 Fundamentals: Using Oracle Java SE Development Kit 17 LTS and OpenJDK 17](#)
- [Introducing Jakarta EE Fundamentals: Building Java-based Enterprise Quality Systems - O'Reilly Media, Mar 22](#)

I am confident that I have the skills and experience necessary to develop the official MicroProfile Tutorial. I am committed to delivering a high-quality product that will be a valuable resource for the MicroProfile community.

**Bank Details for Payment:**

Account Name: Lets Practice Academy Pvt. Ltd.

Bank Name: [AU Small Finance Bank](#)

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