
AGENDA

Java Training: Virtual Threads & Structured Concurrency

1 day · Individual date · On-site or online · German / English · Customizable agenda · Certificate of completion

We'll cover the topics with a practical focus and a balanced mix of theory and hands-on exercises – so you can immediately understand and apply the concepts to your own applications.

Introduction to Project Loom:

- Motivation and goals of Project Loom
- Limitations of the traditional thread model
- Downsides of existing solutions like `CompletableFuture` or reactive frameworks

Virtual Threads:

(Background knowledge: Virtual Threads in Java – Deep Dive with Examples)

- What are virtual threads?
- Differences from platform threads
- Scalability and resource usage
- Limitations
- Best practices, tools (e.g., thread dumps), and useful use cases
- Practical examples with Spring and Jakarta EE

Structured Concurrency:

(Background knowledge: Structured Concurrency with `StructuredTaskScope`)

- From unstructured to structured concurrency
- Implementing structured concurrency with `StructuredTaskScope`
- Error handling, join strategies, cancellation
- Nesting and reusability

Scoped Values:

(Background knowledge: Scoped Values in Java)

- Passing contextual data in a safe and thread-safe way
- How scoped values differ from `ThreadLocal`
- Integration with `StructuredTaskScope`

Conclusion & Outlook:

- When and how to make the most of Loom in your projects
- Future developments in the field of concurrency