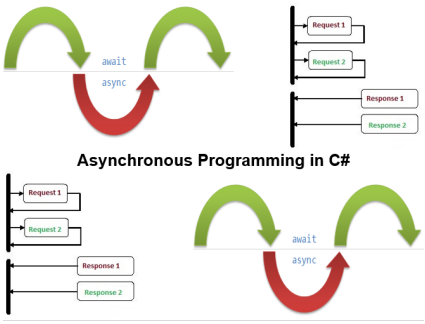
Asynchronous Programming in C#

Duration: 2 days **Price: € 1399**

Open Schedule



Asynchronous Programming in C#

Audience Course Asynchronous Programming in C#

The course Asynchronous Programming in C# course is designed for developers who want to learn how to implement asynchronous code with async await in .NET.

Prerequisites Course Asynchronous Programming in C#

Good knowledge of C# or a comparable language such as Java is required to participate in this course.

Realization Training Asynchronous Programming in C#

The concepts are explained using presentations and demos in Visual Studio.NET. There is ample opportunity to practice. The course times are from 9.30 to 16.30.

Certification Course Asynchronous Programming in C#

After successfully completing the course the participants will receive a certificate Asynchronous Programming in C#.

Content Course Asynchronous Programming in C#

The course Asynchronous Programming in C# focuses on how to use C# and the .NET Framework to write asynchronous code with the async and await mechanism.

Intro Asynchronous Programming

The course Asynchronous Programming in C# starts with a discussion of the differences between synchronous and asynchronous code. Covered are the disadvantages of blocking behavior and the advantages of parallelism and concurrency with threads and tasks.

Synchronous versus Asynchronous

It is explained how in synchronous code a thread that issues a blocking call waits for the result. Asynchronous code does not wait while another thread executes the call. The original thread is notified via a callback or other mechanism when the result is ready.

Async Programming in .NET

Next the implementation of asynchronous code in the .NET Framework and .NET Core is treated. Various patterns for writing asynchronous code are discussed. The benefits of using .NET Core are covered and asynchronous algorithms are explained.

Async Await

Then the async await mechanism is discussed. It is explained how a method preceded by the async keyword becomes an asynchronous method. In the body of the method the keyword await can then be used to wait for the result of an asynchronous call.

Synchronization

The prevention of data corruption by means of synchronization primitives such as locks, mutexes and semaphores is also on the program of the course Asynchronous Programming in C#. Attention is paid to race conditions and deadlock as well.

Exception Handling

Furthermore exception handling in an asynchronous environment is a topic of the course. The focus is set on faulted tasks and disposable objects. Finally asynchronous calls to services are discussed and the interaction between handling in the frontend and the backend.

Modules Course Asynchronous Programming in C#

Module 1 : Async Intro	Module 2 : Async in .NET	Module 3 : Async Await
Synchronous Code	Async in .NET	Async Keyword
Blocking Behavior	IAsyncResult	Async Method
Asynchronous Code	Asynchronous Patterns	Await Keyword
Callbacks	Event Based Pattern	Suspending Execution
Completion Events	Task Based Pattern	Yielding Control
Threads and Tasks	Async .NET Core	Awaitable Tasks
Parallelism and Concurrency	.NET Core Benefits	ConfigureAwait
IO Bound Tasks	Asynchronous Algorithms	GetAwaiter
CPU Bound Tasks	Thread Pools	Task Completion
Long Running Tasks	Thread Pool Starvation	Task Composition
Background Workers	Memory Consumption	Task Object
Module 4 : Synchronization	**Module 5 : Exceptions**	**Module 6 : Advanced Topics**
Race Conditions	Exception Handling	Async Services
Deadlock	Asynchronous Exceptions	Async Request
Need for Synchronization	Throwing Exceptions	Ajax Calls
Thread Safe Code	Task.Exception Property	Async Frontend
Lock Objects	Faulted Tasks	Async Backend
Mutexes	Catching Exceptions	Await Tasks Efficiently
Semaphores	Disposable Objects	WhenAll
Timing and Synchronization	AggregateException	WhenAny

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