

Module 10:

"New C# 8.0 Async Features"



TEKNOLOGISK
INSTITUT

New C# 8.0 Async Features

- ▶ Use new types only in .NET Core 3.x!
- ▶ Async Enumerables a.k.a. "Async Streams"
- ▶ **await foreach** keyword
- ▶ Async Disposables
- ▶ **await using** keyword

IEnumerable<T>

- ▶ The traditional **IEnumerable<T>** designates a sequence for use with **foreach** or LINQ.

```
namespace System.Collections.Generic
{
    interface IEnumerable<out T> : IEnumerable
    {
        IEnumerator<T> GetEnumerator();
    }
}
```

```
interface IEnumerator<T>
{
    T Current { get; }
    bool MoveNext();
    void Reset();
}
```

IAsyncEnumerable<T>

- ▶ **IAsyncEnumerable<T>** designates an asynchronous sequence for use with **await foreach**

```
namespace System.Collections.Generic
{
    interface IAsyncEnumerable<out T>
    {
        IAsyncEnumerator<T> GetEnumerator(CancellationToken cts = default);
    }
}
```

```
interface IAsyncEnumerator<T>
{
    T Current { get; }
    ValueTask<bool> MoveNextAsync();
}
```

IDisposable

- ▶ Traditionally, .NET has **IDisposable** interface built-in for implementing Dispose Pattern

```
public interface IDisposable
{
    void Dispose();
}
```

- ▶ The **using** keyword can be applied to ensure **Dispose()** is always invoked.

IAsyncDisposable

- ▶ Now, for asynchronous disposal .NET Core 3.x has **IDisposableAsync** interface built-in for implementing Dispose Pattern

```
public interface IAsyncDisposable
{
    ValueTask DisposeAsync();
}
```

- ▶ The **await using** keyword can be applied to ensure **DisposeAsync()** is always invoked.



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