Accessing data from .NET

Course code: ASPNET_DATA

This course will teach you how to access different types of data in .NET applications. We will talk about more advanced use of the Entity Framework Core, but also about storing binary data, cloud storage for blobs, queues or semi-structured data and so on. The course will be taught primarily from a web application development perspective, but the technologies discussed have general applications for other kinds of applications as well.

Participant requirements
- Knowledge of C# programming at the GOC2125 course level
- Knowledge at ASPNET_INTRO, ASPNET_ADV or DOTNET_DB course level

Teaching methods
- Expert commentary with practical demonstrations, computer exercises.

Study materials
- Presentation of the material covered in printed or online form.

Course outline
- .NET and relational databases
- Entity Framework Core - model creation
- Code First
- Database First
- Code second - taking an existing model into EF
- Migration
- Migration from command line and Visual Studio
- Migration at application startup, generation of migration SQL batch
- Migration editing, data transformation
- Seeding data, populating dials
- EF Core as database abstraction
- Introduction to embedded database Sqlite, when to use it and when not to use it
- Database independence - applications working against MS SQL and Sqlite
- Backing up Sqlite database files
- More advanced use of EF Core
- Mapping to JSON structures
- Mapping to stored procedures
- General use of stored procedures from EF
- Full-text search in Microsoft SQL Server
- General operation of fulltext indexes in MS SQL
- Query language for fulltext
- Google-like syntax translator
- Connection to Entity Framework
- .NET and non-relational data
- Binary data storage
- Storing binary data in a database
- Storing binary data in the file system
- Storing binary data in Azure Blob Storage
- Using SAS (Shared Access Signatures)
- FluentStorage - an abstraction for storing binary data and why to use it
- Storing semistructured data - Azure Table Storage
- Working with queues - Azure Queue Storage