

**Entity Framework Core**

**Course Number:** ADO-406  
**Duration:** 3 days

**Overview**

Accelebrate's Entity Framework (EF) Core training course teaches attendees how to get maximum value from using Microsoft’s latest Object Relational Mapping framework. Real-world issues such as performance, error handling, and concurrency will be explored in depth.

**Prerequisites**

* All attendees should have extensive experience developing .NET-based applications with C#
* All attendees should have experience building applications that access a relational database and some knowledge of SQL
* Experience with a previous version of Entity Framework is not required

**Materials**

All Entity Framework training students receive a printed handout that contains all of the material presented as well as step-by-step instructions for each lab exercise.

**Software Needed on Each Student PC**

* Windows 10 or later
* Visual Studio 2019 or later
* LocalDB or another version of SQL Server

**Objectives**

* Understand the architecture and evolution of Entity Framework
* Learn how to properly define model object for use with EF
* Gain experience working with various database relationships
* Use the DbContext type while supporting maintainability and testability
* Understand how to query entities using generated SQL, raw SQL, and Stored Procedures
* Learn how to properly handle errors, transactions, and concurrency issues
* Gain experience using EF Migrations to effectively handle model and database changes

**Outline**

* Introduction
  + Goals and Benefits of EF
  + Evolution of EF
  + EF Core vs. EF 6
  + Code First Workflow
  + Referencing EF in a Project
  + Configuration
* Defining Model Objects
  + Table and Column Mapping
  + Primary Keys
  + Sequences
  + Default Values
  + Nullable Properties
  + One-to-Many Relationships
  + Many-to-Many Relationships
  + Inheritance
  + Shadow Properties
* DbContext
  + Construction
  + DbSet Type
  + Object Tracking
  + Eager Loading
  + Dependency Injection
  + In-Memory Contexts
  + Unit Testing
  + Logging
* Querying Entities
  + Using LINQ
  + Deferred Execution
  + Error Handling
  + Data Projection
  + Measuring Performance
  + Disabling Object Tracking
  + Viewing Generated SQL
  + Executing Raw SQL
  + Using Stored Procedures
  + Using Database Views
  + Asynchronous Queries
* Modifying Entities
  + Inserts, Updates, and Deletes
  + Related Entities
  + Cascading Updates and Deletes
  + Transactions
  + Attaching Entities
  + Concurrency Conflicts
  + Concurrency Tokens
* EF Migrations
  + CLI and Package Manager Console
  + Creating a Database from a Model
  + Handling Model Changes
  + Handling Database Changes
  + Generating SQL Scripts
  + Use with Source Control
  + Importing Data
* Conclusion