

**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