

# Entity Framework Core

## Description

Entity Framework Core (EF Core) is the latest version of the Entity Framework from Microsoft. It has been designed to be lightweight, extensible and to support cross platform development as part of Microsoft's .NET Core framework. It has also been designed to be simpler to use, and to offer performance improvements over previous versions of Entity Framework.

EF Core is an object-relational mapper (ORM). Object-relational mapping is a technique that enables developers to work with data in object-oriented way by performing the work required to map between objects defined in an application's programming language and data stored in relational datasources.

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.

### **At the end of course The attendees will:**

- 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**

## **Prerequisites**

Knowledge of Object Oriented Programming