C# Web – MVC

PRO/PRW - C# Web 1

DE HOGESCHOOL
MET HET NETWERK

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Doel

- ASP.Net Core toepassing
  - MVC Web Application
    - Models
    - Views
    - Controllers
  - Custom Model Validation
  - Entity Framework Core

ASP.Net Core MVC

CUSTOM MODEL VALIDATION

Models & Data

```
namespace MVCModelValidation.Models
{
    public class TestData
    {
        public int? TestDataId { get; set; }
        [Required]
        [StringLength(10)]
        public string? Tekst { get; set; }
        //[CustomDate]
        public DateTime? Datum { get; set; }
    }
}
```

```
namespace MVCModelValidation.Data
{
    public class LocalData
    {
        public static List<TestData> TestDataList = new List<TestData>();
    }
}
```

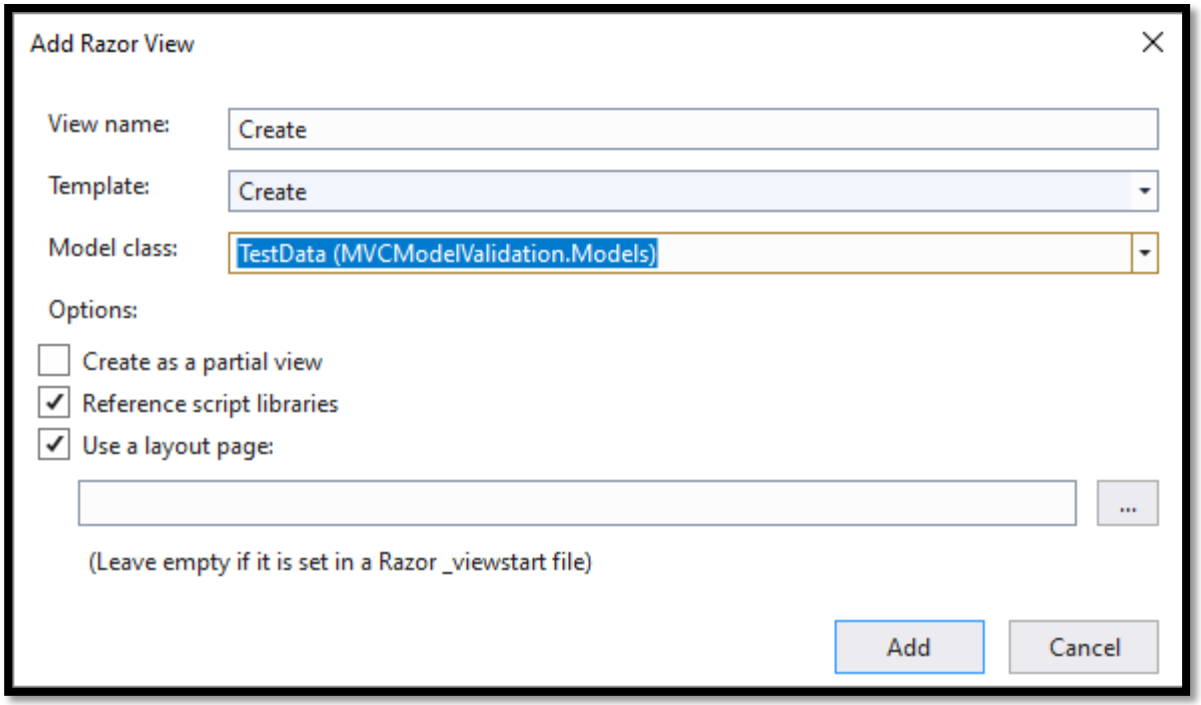
Add Folder

- CustomModelValidations
  - Add class
    - CustomDate.cs

```
using Microsoft.AspNetCore.Mvc.ModelBinding.Validation;
```

```
public class CustomDate : Attribute, IModelValidator
{
    public IEnumerable<ModelValidationResult> Validate(ModelValidationContext context)
    {
        var dtm = DateTime.Now;
        var lst = new List<ModelValidationResult>();
        if (DateTime.TryParse(context.Model.ToString(), out dtm))
        {
            if (dtm > DateTime.Now)
              lst.Add(new ModelValidationResult("", "Date of Birth cannot be in the future"));
          else if (dtm < new DateTime(1900, 1, 1))
              lst.Add(new ModelValidationResult("", "Date of Birth should not be before 1900"));
        }
        else
        {
            lst.Add(new ModelValidationResult("", "Not a valid date!"));
        }
        return lst;
    }
}
```

- Add Controller TestDataController
- Add Folder Views/TestData
  - Add Razor View (Model TestData)
    - Index – Template(List)
    - Create – Template(Create)



```
public class TestDataController : Controller
{
    public IActionResult Index()
    {
        return View(LocalData.TestDataList);
    }
    [HttpGet]
    public IActionResult Create()
    {
        var testData = new TestData();
        return View(testData);
    }
    [HttpPost]
    public IActionResult Create(TestData testData)
    {
        if (ModelState.IsValid)
        {
            LocalData.TestDataList.Add(testData);
            return RedirectToAction("Index");
        }
        return View(testData);
    }
}
```

Views/Home/Index.cshtml

```
@{
    ViewData["Title"] = "Home Page";
}

<div class="text-center">
    <h1 class="display-4">Custom Model validation</h1>
    <a asp-controller="TestData" asp-action="Index">
        Test Data - Custom Model Validation</a>
</div>
```

ASP.NET CORE

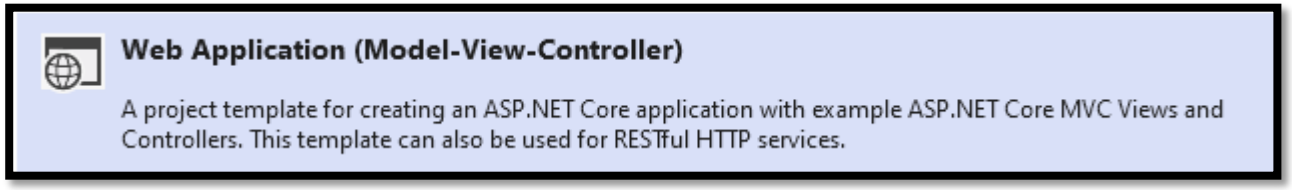
MVC Web Application – Oefening07

ASP.NET CORE

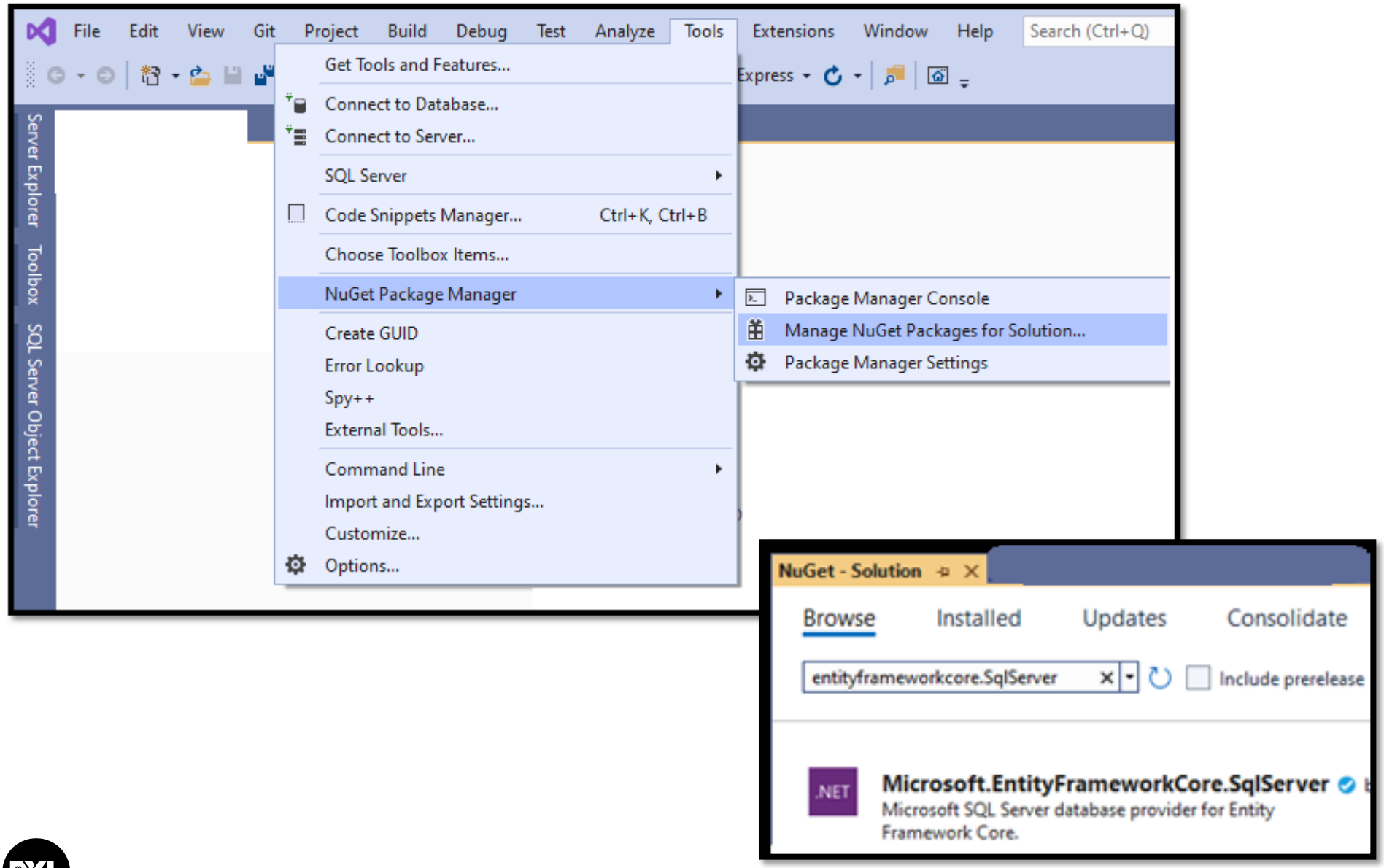
ASP.Net Core MVC

ENTITY FRAMEWORK

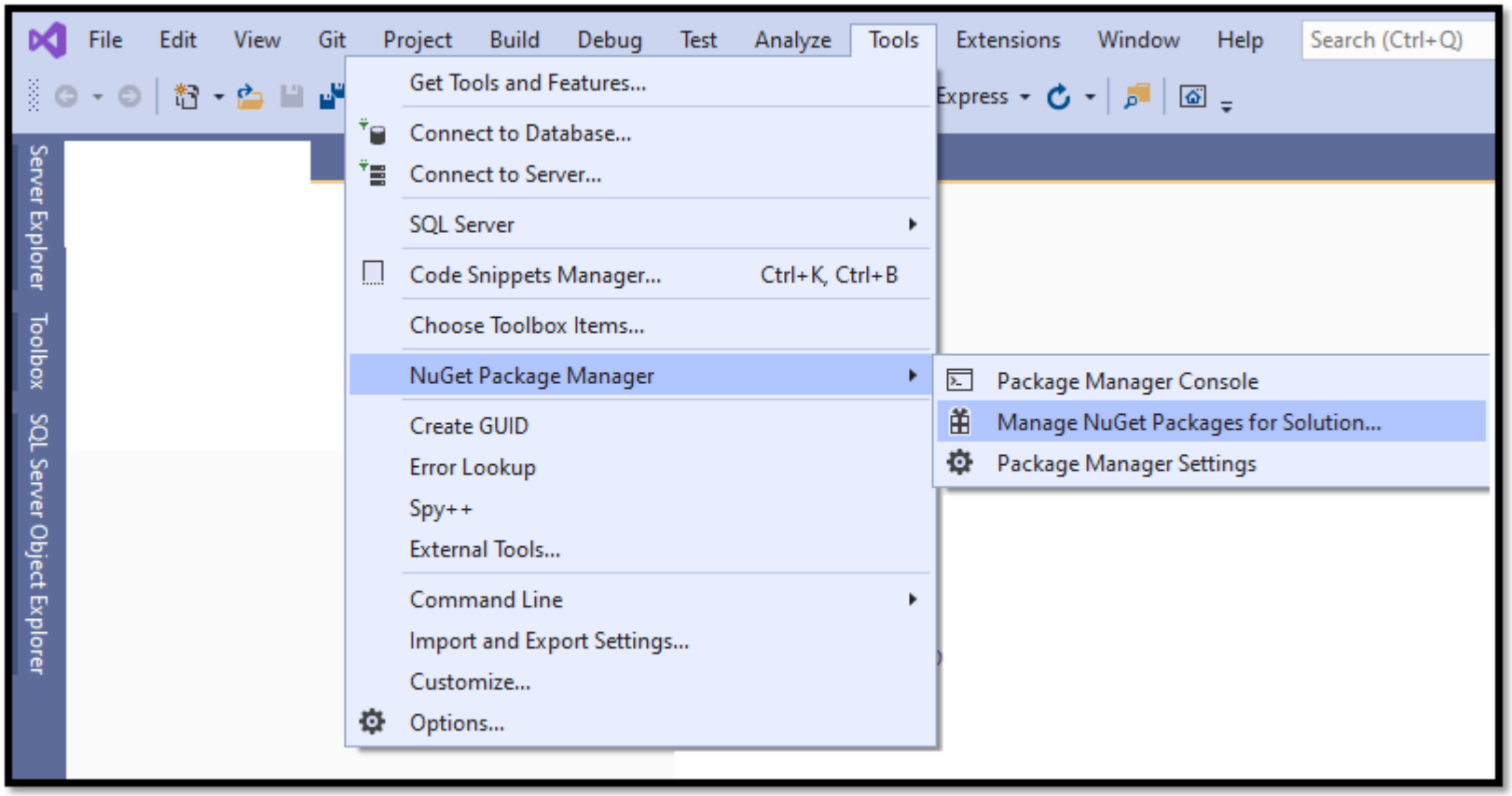
MVCTestEFCore

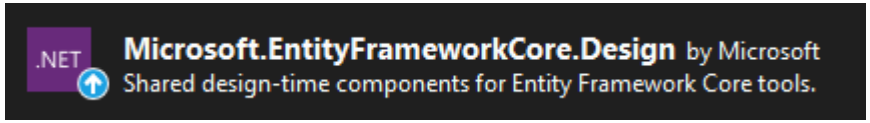


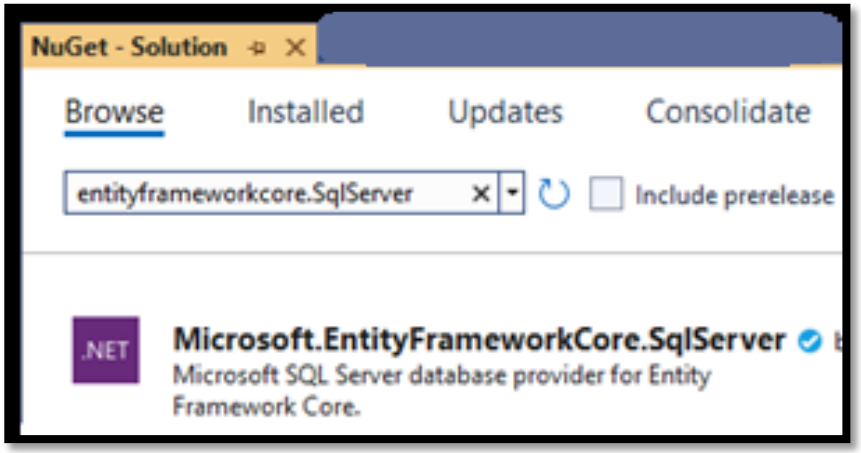
Entity Framework Core – SQL Server – Nuget Package Manager

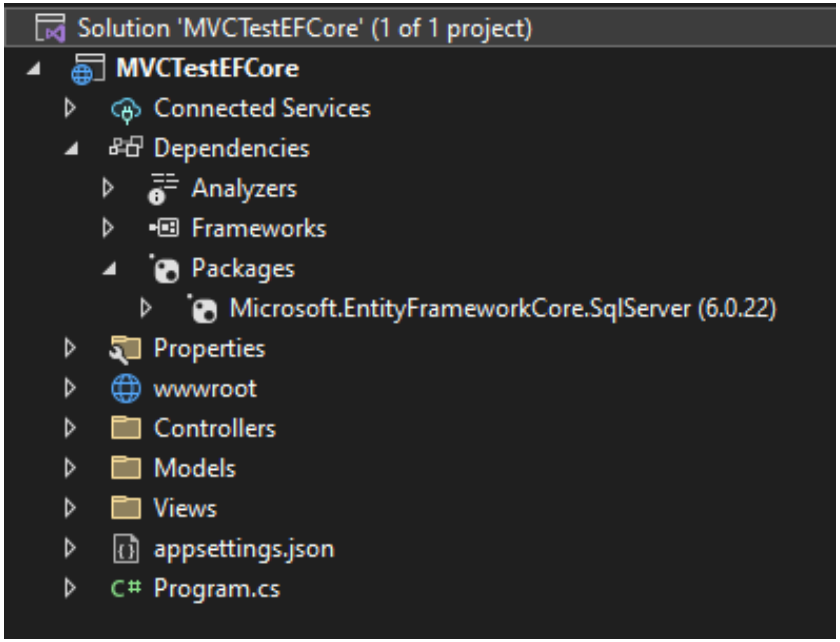


Entity Framework Core – SQL Server – Nuget Package Manager






NuGet - Solution
Browse
Installed
Updates
Consolidate
entityframeworkcore.SqlServer
Include prerelease
.NET
Microsoft.EntityFrameworkCore.SqlServer
Microsoft SQL Server database provider for Entity Framework Core.


Solution 'MVCTestEFCore' (1 of 1 project)
MVCTestEFCore
Connected Services
Dependencies
Analyzers
Frameworks
Packages
Microsoft.EntityFrameworkCore.SqlServer (6.0.22)
Properties
wwwroot
Controllers
Models
Views
appsettings.json
Program.cs

Project MVCEFCore

- Create Folder Data
  - Add class AppDbContext.cs

```
namespace MVCTestEFCore.Data
{
    public class AppDbContext
    {
    }
}
```

DbContext

```
using Microsoft.EntityFrameworkCore;
```

```
using Microsoft.EntityFrameworkCore;
namespace MVCTestEFCore.Data
{
    public class AppDbContext : DbContext
    {
        public AppDbContext(DbContextOptions<AppDbContext> options) :
                base(options)
        {
        }
    }
}
```

Project MVCEFCore

- Folder Data
  - Add class LocalConnectionString.cs

```
namespace MVCTestEFCore.Data
{
    public static class LocalConnectionString
    {
        public static string ConnectionString =>
                CreateLocalConnectionString();

        private static string CreateLocalConnectionString()
        {
            var sb = new StringBuilder();
            sb.Append(@"Server=(localdb)\mssqllocaldb;");
            sb.Append("Database=mvcefcoreDb;");
            sb.Append("Trusted_Connection=true;");
            sb.Append("MultipleActiveResultSets=true");
            return sb.ToString();
        }
    }
}
```

Program.cs

```
using Microsoft.EntityFrameworkCore;
using MVCTestEFCore.Data;

var builder = WebApplication.CreateBuilder(args);

builder.Services.AddControllersWithViews();

var connString = LocalConnectionString.ConnectionString;

builder.Services.AddDbContext<AppDbContext>(
    options => options.UseSqlServer(connString));

var app = builder.Build();
```

Models folder

- Add FirstTable.cs

```
using System.ComponentModel.DataAnnotations;

namespace MVCTestEFCore.Models
{
    public class FirstTable
    {
        public int FirstTableId { get; set; }
        [Required]
        public string TextColumn { get; set; }
    }
}

// FirstTableId = primary key
```

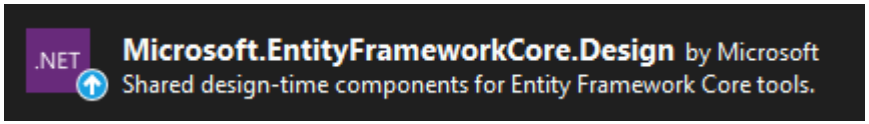
Controllers folder

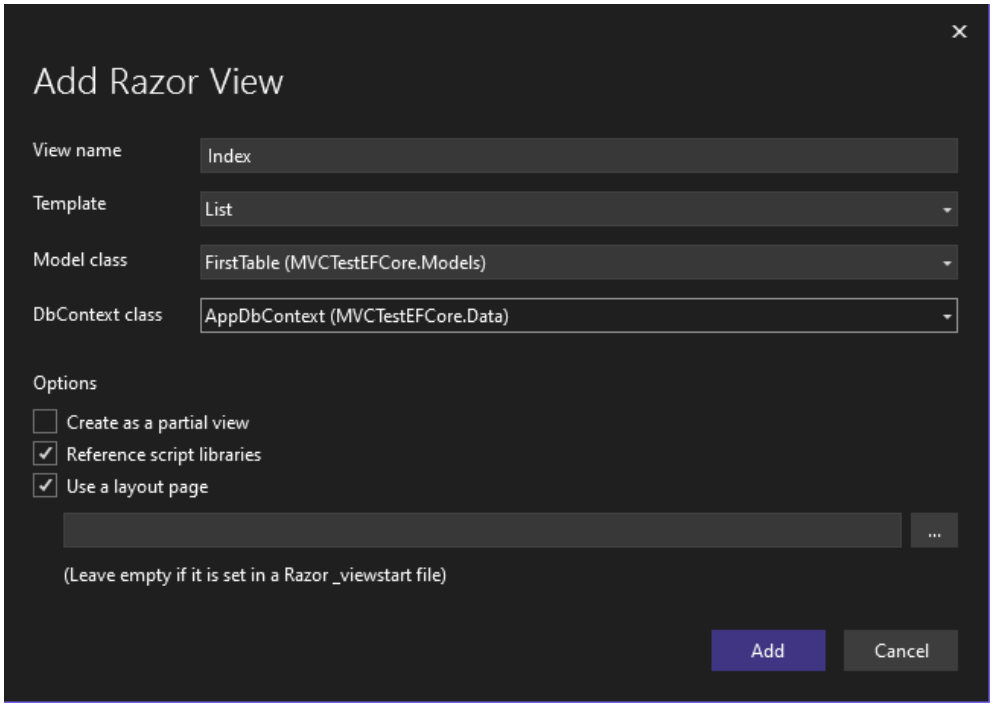
- Add empty MVC controller
  - FirstTableController

```
namespace MVCTestEFCore.Controllers
{
    public class FirstTableController : Controller
    {
        public IActionResult Index()
        {
            return View();
        }
    }
}
```

Views folder

- Add folder FirstTable
  - Add Razor View
    - Index.cshtml
      - based on model FirstTable
        - List template

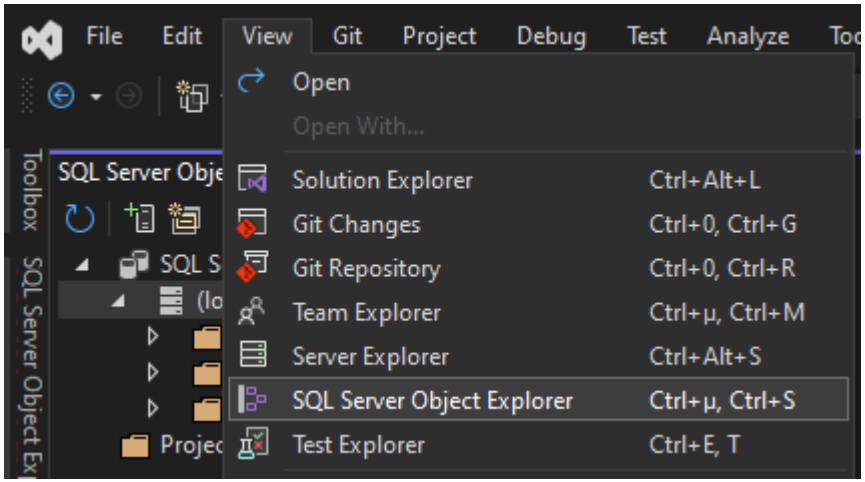


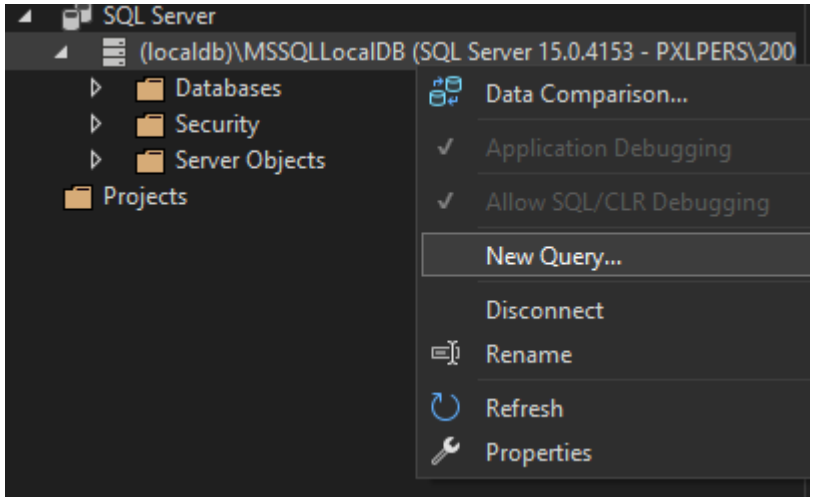



```
@model IEnumerable<MVCTestEFCore.Models.FirstTable>
@{
    ViewData["Title"] = "Index";
}
<h1>Index</h1>
<p>
    <a asp-action="Create">Create New</a>
</p>
<table class="table">
…
```

Database script (SQL Server Object Explorer)

- Create database
  - (connection string)






```
Create Database mvcefcoreDb;
```

Database script

- Create Table
  - Insert record

```
Use mvcefcoreDb;

CREATE TABLE FirstTable (
    FirstTableId int IDENTITY(1,1) PRIMARY KEY,
    TextColumn varchar(15) NOT NULL);

Insert into FirstTable (TextColumn)
    values ('TestColumn1');

Insert into FirstTable (TextColumn)
    values ('TestColumn2');

Select * from FirstTable;
```

DbContext

- Table FirstTable

```
using Microsoft.EntityFrameworkCore;
namespace MVCTestEFCore.Data
{
    public class AppDbContext : DbContext
    {
        public AppDbContext(DbContextOptions<AppDbContext> options) :
               base(options)
        {
        }

        public DbSet<FirstTable>? FirstTable { get; set; }

    }
}
```

Controllers folder

- FirstTableController
  - Dependency Injection

```
namespace MVCTestEFCore.Controllers
{
    public class FirstTableController : Controller
    {
        AppDbContext _context;
        public FirstTableController(AppDbContext context)
        {
            _context = context;
        }

        public IActionResult Index()
        {
            return View();
        }
    }
}
```

Controllers folder

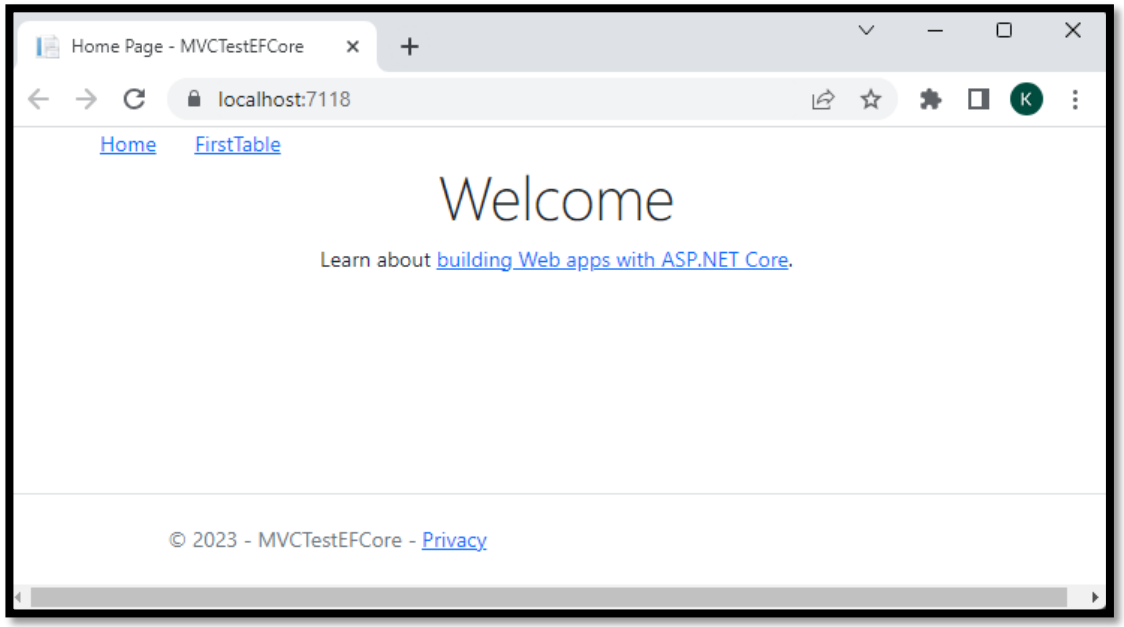
- FirstTableController
  - Select * from FirstTable

```
namespace MVCTestEFCore.Controllers
{
    public class FirstTableController : Controller
    {
        AppDbContext _context;
        public FirstTableController(AppDbContext context)
        {
            _context = context;
        }

        public IActionResult Index()
        {
            return View(_context.FirstTable);
        }
    }
}
```

Layout

- Views/Shared/_Layout.cshtml




```
<header>
  <div class="row">
    <div class="col-1"></div>
    <div class="col-1">
       <a asp-controller="Home" asp-action="Index">Home</a>
    </div>
    <div class="col-1">
       <a asp-controller="FirstTable" asp-action="Index">FirstTable</a>
    </div>
  </div>
</header>
```