Pre-Requisites for building Web api with asp.net core

Visual Studio 2022

We have to download .net sdk 8.0 version. Below is the link to download it

<https://dotnet.microsoft.com/en-us/download>

We have to download Sql server(SSMS). Below is the link to download the developer one

<https://www.microsoft.com/en-in/sql-server/sql-server-downloads>

Program.cs file is the entry point for the application and the code inside this file will be executed first when the application starts

Rest Principles are

Resources like Employee,Student classes are accessed through url’s and Http verbs like GET,POST will perform the actions on these resources.

Rest is a stateless client server model which means server should not store any client state between the request

.Net core supports Http Verbs, Routing, Model Binding, Content Negotiation and Response Types

Routing is the process of matching the incoming request to appropriate controller and the action method

Installing packages required for Entity framework core. To install the packages from nuget we have to right click on Dependencies in solution explorer and navigate to packages and download it.

We have to download Microsoft.EntityFrameworkCore.SqlServer and Microsoft.EntityFrameworkCore.Tools

DbContext Class It is responsible for maintaining a connection to db and tracking changes to data.It is a bridge between domain model class and the database

Using Dependency injection we can inject the Dbcontext class. DI containder is r4sponsible for creating and managing instances

EFCore Migration We will run EFCore migration so that we will create a new database and tables .

In Visual studio we have to goto Tools🡪Nuget Package Manager🡪Package Manage console. In this we have to execute below commands

Add-Migration “Name of migration” This command will gather all the information from DbContext class and will create a c# classes which will acts sql tables. To remove migration we have to execute Remove-Migration “Name”

Then we need to execute update-Database command which will create a database.This will read the migration file which is generated by above command and will creates a db objects

DTO are the Data transfer objects that are used to transfer the data between different layers

DTO is a subset of Domain model

Advantages of DTO’s

We do not want to expose some properties to client

Separation of concerns

It is not tightly coupled with API

Performance:It allows us to retrieve the data only which is needed as we will be sending only specific properties instead of sending all properties

In Synchronous programming the program execution is blocked while waiting for long operation to complete which can result in a poor performance.

So we use async programming which allows to continue executing other tasks and it will not wait for long running operations to be completed.

Return types for async programming method will be a Task

Repository pattern allows us to separate the data access layer form the application. It provides an interface without exposing the implementation. It is responsible for performing the CRUD operations

Auto Mapper is a object to object mapping library for .net applications. It maps between DTo’s and Domain model and viceversa.

To implement the auto mapper we have to install automapper package

Seeding will be performed inside the onModelCreating method. Seeding will be performed where data will not be changed over a period of time

After seeding then we have to run the migration commands then only data will be inserted into the database

USE [NZWalksDb]

GO

DELETE FROM [NZWalksDb].[dbo].[Regions];

GO

DELETE FROM [NZWalksDb].[dbo].[Difficulties];

GO

DELETE FROM [NZWalksDb].[dbo].[Walks];

GO

INSERT [dbo].[Difficulties] ([Id], [Name]) VALUES (N'f808ddcd-b5e5-4d80-b732-1ca523e48434', N'Hard')

GO

INSERT [dbo].[Difficulties] ([Id], [Name]) VALUES (N'54466f17-02af-48e7-8ed3-5a4a8bfacf6f', N'Easy')

GO

INSERT [dbo].[Difficulties] ([Id], [Name]) VALUES (N'ea294873-7a8c-4c0f-bfa7-a2eb492cbf8c', N'Medium')

GO

INSERT [dbo].[Regions] ([Id], [Code], [Name], [RegionImageUrl]) VALUES (N'906cb139-415a-4bbb-a174-1a1faf9fb1f6', N'NSN', N'Nelson', N'https://images.pexels.com/photos/13918194/pexels-photo-13918194.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1')

GO

INSERT [dbo].[Regions] ([Id], [Code], [Name], [RegionImageUrl]) VALUES (N'f7248fc3-2585-4efb-8d1d-1c555f4087f6', N'AKL', N'Auckland', N'https://images.pexels.com/photos/5169056/pexels-photo-5169056.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1')

GO

INSERT [dbo].[Regions] ([Id], [Code], [Name], [RegionImageUrl]) VALUES (N'14ceba71-4b51-4777-9b17-46602cf66153', N'BOP', N'Bay Of Plenty', NULL)

GO

INSERT [dbo].[Regions] ([Id], [Code], [Name], [RegionImageUrl]) VALUES (N'6884f7d7-ad1f-4101-8df3-7a6fa7387d81', N'NTL', N'Northland', NULL)

GO

INSERT [dbo].[Regions] ([Id], [Code], [Name], [RegionImageUrl]) VALUES (N'f077a22e-4248-4bf6-b564-c7cf4e250263', N'STL', N'Southland', NULL)

GO

INSERT [dbo].[Regions] ([Id], [Code], [Name], [RegionImageUrl]) VALUES (N'cfa06ed2-bf65-4b65-93ed-c9d286ddb0de', N'WGN', N'Wellington', N'https://images.pexels.com/photos/4350631/pexels-photo-4350631.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1')

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('327aa9f7-26f7-4ddb-8047-97464374bb63', 'Mount Victoria Loop', 'This scenic walk takes you around the top of Mount Victoria, offering stunning views of Wellington and its harbor.', 3.5, 'https://images.pexels.com/photos/4350631/pexels-photo-4350631.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', '54466F17-02AF-48E7-8ED3-5A4A8BFACF6F','CFA06ED2-BF65-4B65-93ED-C9D286DDB0DE');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('1cc5f2bc-ff4b-47c0-a475-1add56c6497b', 'Makara Beach Walkway', 'This walk takes you along the wild and rugged coastline of Makara Beach, with breathtaking views of the Tasman Sea.', 8.2, 'https://images.pexels.com/photos/4350631/pexels-photo-4350631.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', 'EA294873-7A8C-4C0F-BFA7-A2EB492CBF8C','CFA06ED2-BF65-4B65-93ED-C9D286DDB0DE');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('09601132-f92d-457c-b47e-da90e117b33c', 'Botanic Garden Walk', 'Explore the beautiful Botanic Garden of Wellington on this leisurely walk, with a wide variety of plants and flowers to admire.', 2, 'https://images.pexels.com/photos/4350631/pexels-photo-4350631.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', '54466F17-02AF-48E7-8ED3-5A4A8BFACF6F','CFA06ED2-BF65-4B65-93ED-C9D286DDB0DE');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('30d654c7-89ac-4704-8333-5065b740150b', 'Mount Eden Summit Walk', 'This walk takes you to the summit of Mount Eden, the highest natural point in Auckland, with panoramic views of the city.', 2, 'https://images.pexels.com/photos/5342974/pexels-photo-5342974.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', '54466F17-02AF-48E7-8ED3-5A4A8BFACF6F','F7248FC3-2585-4EFB-8D1D-1C555F4087F6');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('f7578324-f025-4c86-83a9-37a7f3d8fe81', 'Cornwall Park Walk', 'Explore the beautiful Cornwall Park on this leisurely walk, with a wide variety of trees, gardens, and animals to admire.', 3, 'https://images.pexels.com/photos/5342974/pexels-photo-5342974.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', '54466F17-02AF-48E7-8ED3-5A4A8BFACF6F','F7248FC3-2585-4EFB-8D1D-1C555F4087F6');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('bdf28703-6d0e-4822-ad8b-e2923f4e95a2', 'Takapuna to Milford Coastal Walk', 'This coastal walk takes you along the beautiful beaches of Takapuna and Milford, with stunning views of Rangitoto Island.', 5, 'https://images.pexels.com/photos/5342974/pexels-photo-5342974.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', 'EA294873-7A8C-4C0F-BFA7-A2EB492CBF8C','F7248FC3-2585-4EFB-8D1D-1C555F4087F6');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('43132402-3d5e-467a-8cde-351c5c7c5dde', 'Centre of New Zealand Walkway', 'This walk takes you to the geographical centre of New Zealand, with stunning views of Nelson and its surroundings.', 1.0 , 'https://images.pexels.com/photos/808466/pexels-photo-808466.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', 'EA294873-7A8C-4C0F-BFA7-A2EB492CBF8C','906CB139-415A-4BBB-A174-1A1FAF9FB1F6');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('1ea0b064-2d44-4324-91ee-6dd86c91b713', 'Maitai Valley Walk', 'Explore the picturesque Maitai Valley on this easy walk, with a tranquil river and native bush to enjoy.', 5.0 , 'https://images.pexels.com/photos/808466/pexels-photo-808466.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', 'EA294873-7A8C-4C0F-BFA7-A2EB492CBF8C','906CB139-415A-4BBB-A174-1A1FAF9FB1F6');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('04ab77f0-e145-4fbf-b641-989df24e5573', 'Boulder Bank Walkway', 'This coastal walk takes you along the unique Boulder Bank, a long narrow bar of rocks that extends into Tasman Bay.', 8.0 , 'https://images.pexels.com/photos/808466/pexels-photo-808466.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', 'F808DDCD-B5E5-4D80-B732-1CA523E48434','906CB139-415A-4BBB-A174-1A1FAF9FB1F6');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('b5aa2791-3616-4db6-ab33-c54d03d17f62', 'Mount Maunganui Summit Walk', 'This walk takes you to the summit of Mount Maunganui, with stunning views of the ocean and surrounding landscape.', 3.0 , 'https://images.pexels.com/photos/808466/pexels-photo-808466.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', 'EA294873-7A8C-4C0F-BFA7-A2EB492CBF8C','14CEBA71-4B51-4777-9B17-46602CF66153');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('2d9d6604-bef9-4b0a-805d-630240a29595', 'The Papamoa Hills Regional Park Walk', 'Enjoy panoramic views of Tauranga and Mount Maunganui on this walk through the Papamoa Hills, with a mix of bush and open farmland.', 5.0 , 'https://images.pexels.com/photos/808466/pexels-photo-808466.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', 'EA294873-7A8C-4C0F-BFA7-A2EB492CBF8C','14CEBA71-4B51-4777-9B17-46602CF66153');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('135a6e58-969f-47e1-8278-d7fbf2b3bd69', 'The White Pine Bush Track', 'Explore the lush and peaceful White Pine Bush on this easy walk, with a variety of native flora and fauna to discover.', 2.0 , 'https://images.pexels.com/photos/808466/pexels-photo-808466.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', 'EA294873-7A8C-4C0F-BFA7-A2EB492CBF8C','14CEBA71-4B51-4777-9B17-46602CF66153');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('24ef9346-17e2-467e-bfc0-d062a9042bf1', 'The Bluff Hill Walkway', 'This walk takes you to the top of Bluff Hill, with panoramic views of Bluff and the surrounding coastline.', 6.0 , 'https://images.pexels.com/photos/2226900/pexels-photo-2226900.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', 'EA294873-7A8C-4C0F-BFA7-A2EB492CBF8C','F077A22E-4248-4BF6-B564-C7CF4E250263');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('f2b56c63-eb99-475a-881c-278f3da03e3d', 'The Kepler Track', 'One of New Zealand s most famous walks, the Kepler Track offers stunning alpine vistas and takes you through a range of landscapes from peaceful beech forests to open tussock lands.', 32.0 , 'https://images.pexels.com/photos/2226900/pexels-photo-2226900.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', 'F808DDCD-B5E5-4D80-B732-1CA523E48434','F077A22E-4248-4BF6-B564-C7CF4E250263');

GO

Insert into [NZWalksDb].[dbo].[Walks]

(Id, Name, Description, LengthInKm, WalkImageUrl, DifficultyId, RegionId)

values

('a7796ab6-5426-46af-b755-65d9b9e12978', 'The Hump Ridge Track', 'Experience the stunning scenery of the southern Fiordland and the coast on this challenging multi-day walk, with beautiful forest and alpine views.', 60.0 , 'https://images.pexels.com/photos/2226900/pexels-photo-2226900.jpeg?auto=compress&cs=tinysrgb&w=1260&h=750&dpr=1', 'F808DDCD-B5E5-4D80-B732-1CA523E48434','F077A22E-4248-4BF6-B564-C7CF4E250263');