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# Modelo de datos

Vamos a crear un sencillo sistema de ventas que va a utilizar el siguiente modelo de datos:

Diagrama

Descripción generada automáticamente

# Arquitectura del proyecto

SQL Server Azure

.NET Core 7 API

Blazor WEB Application



Crear proyectos

Vamos a crear esta estructura en Visual Studio (asegúrese de poner todos los proyectos en el mismo directorio C://Projects

Crear un nuevo repositorio GITHUB, usar gitignore, copiar ruta, debe ser privado

Clonar proyecto git desde Visual Studio C://Projects/StoresG8

* Nuevo proyecto solución blank llamada **StoresG8**. Dentro de C://Projects al final la .sln queda el ícono dentro de Projects🡪(StoresG8.sln)

Interfaz de usuario gráfica, Texto, Aplicación, Correo electrónico

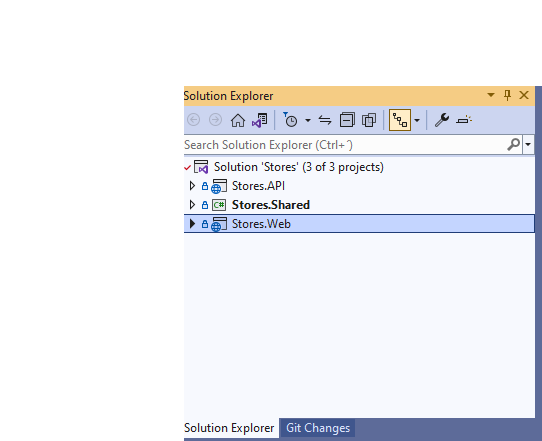
Descripción generada automáticamente

* Sobre el ícono StoresG8.sln del explorador de soluciones oprimimos click derecho y presionamos Open
* Click derecho sobre la solución y agregamos un nuevo proyecto tipo: **Class Library**, llamado **StoresG8.Shared**

Ubicación: C:\Projects/StoresG8

* Click derecho sobre la solución y agregamos un nuevo proyecto tipo: **ASP.NET Core Web API**, llamado **StoresG8.API**. Ubicación: C:\Projects/StoresG8
* Click derecho sobre la solución y agregamos un nuevo proyecto tipo: **Blazor WebAssembly App**, llamado **StoresG8.WEB**. Ubicación: C:\Projects/StoresG8

Así debe verse la estructura de los proyectos en el solution Explorer:

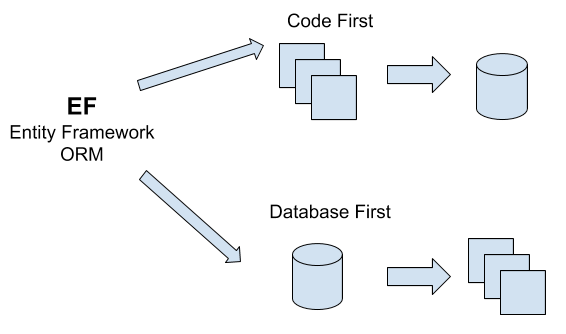


Hacemos el primer commit en nuestro repositorio. Pestaña Git Changes

\*(Si en Git Changes no se visualiza el árbol de carpetas de los proyectos, será necesario cerrar la solución, y abrirla de nuevamente)

Commit All and Sync

# Crear la BD con EF



Code First y Database First. En este curso trabajaremos con EF Code First,

Documentación: <https://docs.microsoft.com/en-us/ef/core/get-started/aspnetcore/existing-db>

1. Empecemos creando en el proyecto **StoresG8.Shared** la carpeta **Entities** y dentro de esta carpeta la entidad **Country**:

using System.ComponentModel.DataAnnotations;

namespace StoresG8.Shared.Entities

{

public class Country

{

public int Id { get; set; }

[Display(Name = "País")]

[MaxLength(100, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string Name { get; set; } = null!;

}

}

1. En el proyecto **API** creamos la carpeta **Data** y dentro de esta la clase **DataContext**:

using Microsoft.EntityFrameworkCore;

using StoresG8.Shared.Entities;

namespace StoresG8.API.Data

{

public class DataContext : DbContext

{

public DataContext(DbContextOptions<DataContext> options) : base(options)

{

}

public DbSet<Country> Countries { get; set; }

protected override void OnModelCreating(ModelBuilder modelBuilder)

{

base.OnModelCreating(modelBuilder);

modelBuilder.Entity<Country>().HasIndex(c => c.Name).IsUnique();

}

}

}

1. Configurar el string de conexión en el **appsettings.Development.json** y en **appsettings.json** del proyecto **API**:

{

"ConnectionStrings": {

"DefaultConnection": "Server= MyServer;Database=StoresG8;Encrypt=False;User Id=dba;Password=Abcd1234\*;"

},

"Logging": {

"LogLevel": {

"Default": "Information",

"Microsoft.AspNetCore": "Warning"

}

},

"AllowedHosts": "\*"

}

1. Agregar/verificar los paquetes al proyecto **API**:

Microsoft.EntityFrameworkCore.SqlServer

Microsoft.EntityFrameworkCore.Tools

1. Configurar la inyección del DataContext en la clase **Program** del proyecto **API**:

builder.Services.AddSwaggerGen();

builder.Services.AddDbContext<DataContext>(x => x.UseSqlServer("name=DefaultConnection"));

var app = builder.Build();

1. En el desplegable Startup Projects seleccionar StoresG8.API como proyecto de inicio, abrir Package Manager Console(Tool) , e igualmente elegir StoresG8.API ,como Default project
2. Correr los siguientes comandos en Package Manager Console:

add-migration InitialDb

update-database

1. Hacemos nuestro segundo **Commit**. All and Sync(Si en Git Changes no se visualiza el árbol de carpetas de los proyectos, será necesario cerrar la solución, y abrirla de nuevamente)

# Creando los primeros métodos en el primer controlador

1. En el proyecto **API** en la carpeta **Controllers** creamos la clase **CountriesController**:

using Microsoft.AspNetCore.Mvc;

using Microsoft.EntityFrameworkCore;

using StoresG8.API.Data;

using StoresG8.Shared.Entities;

namespace StoresG8.API.Controllers

{

[ApiController]

[Route("/api/countries")]

public class CountriesController : ControllerBase

{

private readonly DataContext \_context;

public CountriesController(DataContext context)

{

\_context = context;

}

[HttpPost]

public async Task<ActionResult> Post(Country country)

{

\_context.Add(country);

await \_context.SaveChangesAsync();

return Ok(country);

}

[HttpGet]

public async Task<ActionResult> Get()

{

return Ok(await \_context.Countries.ToListAsync());

}

}

}

1. Agregamos estas líneas al **Program** del proyecto **API** para habilitar su consumo:

app.MapControllers();

app.UseCors(x => x

.AllowAnyMethod()

.AllowAnyHeader()

.SetIsOriginAllowed(origin => true)

.AllowCredentials());

app.Run();

1. Borramos las clases de **WeatherForecast**.
2. Probamos la creación y listado de paises por el **swagger** y por **Postman**.
3. Hacemos el **commit** de lo que llevamos.

# Creando nuestros primeros componentes en Blazor

1. Ahora vamos listar y crear países por la interfaz WEB. Primero configuramos en el proyecto **WEB** la dirección por la cual sale nuestra **API**.

Verificar en cada proyecto el puerto por el cual se despliega, pues el puerto cambia en cada solución.

En mi caso la uri es: https://localhost:7236

builder.Services.AddScoped(sp => new HttpClient { BaseAddress = new Uri("https://localhost:7236/") });

1. En el proyecto **WEB** creamos a carpeta **Repositories** y dentro de esta creamos la clase **HttpResponseWrapper** con el siguiente código:

using System.Net;

namespace StoresG8.WEB.Repositories {

public class HttpResponseWrapper<T>

{

public HttpResponseWrapper(T? response, bool error, HttpResponseMessage httpResponseMessage)

{

Error = error;

Response = response;

HttpResponseMessage = httpResponseMessage;

}

public bool Error { get; set; }

public T? Response { get; set; }

public HttpResponseMessage HttpResponseMessage { get; set; }

public async Task<string?> GetErrorMessage()

{

if (!Error)

{

return null;

}

var codigoEstatus = HttpResponseMessage.StatusCode;

if (codigoEstatus == HttpStatusCode.NotFound)

{

return "Recurso no encontrado";

}

else if (codigoEstatus == HttpStatusCode.BadRequest)

{

return await HttpResponseMessage.Content.ReadAsStringAsync();

}

else if (codigoEstatus == HttpStatusCode.Unauthorized)

{

return " Debes loguearte para realizar esta acción";

}

else if (codigoEstatus == HttpStatusCode.Forbidden)

{

return " No tienes permisos para ejecutar esta acción";

}

return "Ha ocurrido un error inesperado";

}

}

}

1. En la misma carpeta creamos la interfaz **IRepository**:

namespace StoresG8.WEB.Repositories{

public interface IRepository

{

Task<HttpResponseWrapper<T>> Get<T>(string url);

Task<HttpResponseWrapper<object>> Post<T>(string url, T model);

Task<HttpResponseWrapper<TResponse>> Post<T, TResponse>(string url, T model);

}

}

1. En la misma carpeta creamos la clase **Repository**:

using System.Text;

using System.Text.Json;

namespace StoresG8.WEB.Repositories

{

public class Repository : IRepository

{

private readonly HttpClient \_httpClient;

private JsonSerializerOptions \_jsonDefaultOptions => new JsonSerializerOptions

{

PropertyNameCaseInsensitive = true,

};

public Repository(HttpClient httpClient)

{

\_httpClient = httpClient;

}

public async Task<HttpResponseWrapper<T>> Get<T>(string url)

{

var responseHttp = await \_httpClient.GetAsync(url);

if (responseHttp.IsSuccessStatusCode)

{

var response = await UnserializeAnswer<T>(responseHttp, \_jsonDefaultOptions);

return new HttpResponseWrapper<T>(response, false, responseHttp);

}

return new HttpResponseWrapper<T>(default, true, responseHttp);

}

public async Task<HttpResponseWrapper<object>> Post<T>(string url, T model)

{

var mesageJSON = JsonSerializer.Serialize(model);

var messageContet = new StringContent(mesageJSON, Encoding.UTF8, "application/json");

var responseHttp = await \_httpClient.PostAsync(url, messageContet);

return new HttpResponseWrapper<object>(null, !responseHttp.IsSuccessStatusCode, responseHttp);

}

public async Task<HttpResponseWrapper<TResponse>> Post<T, TResponse>(string url, T model)

{

var messageJSON = JsonSerializer.Serialize(model);

var messageContet = new StringContent(messageJSON, Encoding.UTF8, "application/json");

var responseHttp = await \_httpClient.PostAsync(url, messageContet);

if (responseHttp.IsSuccessStatusCode)

{

var response = await UnserializeAnswer<TResponse>(responseHttp, \_jsonDefaultOptions);

return new HttpResponseWrapper<TResponse>(response, false, responseHttp);

}

return new HttpResponseWrapper<TResponse>(default, !responseHttp.IsSuccessStatusCode, responseHttp);

}

private async Task<T> UnserializeAnswer<T>(HttpResponseMessage httpResponse, JsonSerializerOptions jsonSerializerOptions)

{

var respuestaString = await httpResponse.Content.ReadAsStringAsync();

return JsonSerializer.Deserialize<T>(respuestaString, jsonSerializerOptions)!;

}

}

}

8

1. En el Program del proyecto WEB configuramos la inyección del **Repository**:

builder.Services.AddScoped(sp => new HttpClient { BaseAddress = new Uri("https://localhost:7236/") });

builder.Services.AddScoped<IRepository, Repository>();

await builder.Build().RunAsync();

1. En la carpeta **Shared** creamos el componente genérico **GenericList**:

@typeparam Titem

@if(MyList is null)

{

@if(Loading is null)

{

<div class="align-items-center">

<img src=" https://img.pikbest.com/png-images/20190918/cartoon-snail-loading-loading-gif-animation\_2734139.png!bw700 " />

</div>

}

else

{

@Loading

}

}

else if(MyList.Count == 0)

{

@if(NoRecords is null)

{

<p>No hay registros para mostrar...</p>

}

else

{

@NoRecords

}

}

else

{

@Body

}

@code {

[Parameter]

public RenderFragment? Loading { get; set; }

[Parameter]

public RenderFragment? NoRecords { get; set; }

[Parameter]

[EditorRequired]

public RenderFragment Body { get; set; } = null!;

[Parameter]

[EditorRequired]

public List<Titem> MyList { get; set; } = null!;

}

1. En el proyecto **WEB** Dentro de **Pages** creamos la carpeta **Countries** y dentro de esta carpeta creamos la página **CountriesIndex**:

@page "/countries"

@inject IRepository repository

<h3>Paises</h3>

<div class="mb-3">

<a class="btn btn-primary" href="/countries/create">Nuevo País</a>

</div>

<**GenericList** **MyList**="Countries">

<**Body**>

<table class="table table-striped">

<thead>

<tr>

<th>País</th>

<th></th>

</tr>

</thead>

<tbody>

@foreach (var country in Countries!)

{

<tr>

<td>

@country.Name

</td>

<td>

<a class="btn btn-warning">Editar</a>

<button class="btn btn-danger">Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</**Body**>

</**GenericList**>

@code {

public List<Country>? Countries { get; set; }

protected async override Task OnInitializedAsync()

{

var responseHppt = await repository.Get<List<Country>>("api/countries");

Countries = responseHppt.Response!;

}

}

\*Importante:

Agregamos una referencia al proyecto Web para que obtenga comunicación con el proyecto Shared (Click derecho sobre el proyecto StoresG8.WEB Add reference>

StoresG8.Shares

1. Agregamos los problemas de los using y luego movemos esos using al **\_Imports.razor**:

@using StoresG8.WEB.Shared

@using StoresG8.Shared.Entities

@using StoresG8.WEB.Repositories

1. Cambiamos el menú en el **NavMenu.razor**:

<div class="nav-item px-3">

<NavLink class="nav-link" href="counter">

<span class="oi oi-plus" aria-hidden="true"></span> Counter

</NavLink>

</div>

<div class="nav-item px-3">

<NavLink class="nav-link" href="countries">

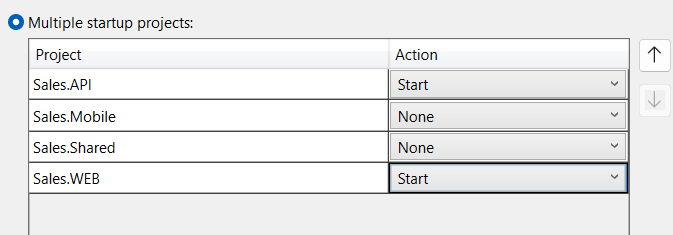
<span class="oi oi-list-rich" aria-hidden="true"></span> Países

</NavLink>

</div>

1. Configuramos nuestra solucion para que inicie al mismo tiempo el proyecto **API** y el proyecto **WEB**:

Vamos a las Solution StoresG8, click derecho properties:



1. Probamos y hacemos nuestro commit.

# Completando las acciones de crear, editar y borrar países

1. En el proyecto **API** vamos adicionar estos métodos al **CountriesController**:

[HttpGet("{id:int}")]

public async Task<ActionResult> Get(int id)

{

var country = await \_context.Countries.FirstOrDefaultAsync(x => x.Id == id);

if (country is null)

{

return NotFound();

}

return Ok(country);

}

[HttpPut]

public async Task<ActionResult> Put(Country country)

{

\_context.Update(country);

await \_context.SaveChangesAsync();

return Ok(country);

}

[HttpDelete("{id:int}")]

public async Task<ActionResult> Delete(int id)

{

var afectedRows = await \_context.Countries

.Where(x => x.Id == id)

.ExecuteDeleteAsync();

if (afectedRows == 0)

{

return NotFound();

}

return NoContent();

}

1. Probamos estos métodos por **Swagger** o por **Postman**.
2. Agregamos estos métodos a la interfaz **IRepository**.

Task<HttpResponseWrapper<object>> Delete(string url);

Task<HttpResponseWrapper<object>> Put<T>(string url, T model);

Task<HttpResponseWrapper<TResponse>> Put<T, TResponse>(string url, T model);

1. Luego los implementamos en el **Repository**.

public async Task<HttpResponseWrapper<object>> Delete(string url)

{

var responseHTTP = await \_httpClient.DeleteAsync(url);

return new HttpResponseWrapper<object>(null, !responseHTTP.IsSuccessStatusCode, responseHTTP);

}

public async Task<HttpResponseWrapper<object>> Put<T>(string url, T model)

{

var messageJSON = JsonSerializer.Serialize(model);

var messageContent = new StringContent(messageJSON, Encoding.UTF8, "application/json");

var responseHttp = await \_httpClient.PutAsync(url, messageContent);

return new HttpResponseWrapper<object>(null, !responseHttp.IsSuccessStatusCode, responseHttp);

}

public async Task<HttpResponseWrapper<TResponse>> Put<T, TResponse>(string url, T model)

{

var messageJSON = JsonSerializer.Serialize(model);

var messageContent = new StringContent(messageJSON, Encoding.UTF8, "application/json");

var responseHttp = await \_httpClient.PutAsync(url, messageContent);

if (responseHttp.IsSuccessStatusCode)

{

var response = await UnserializeAnswer<TResponse>(responseHttp, \_jsonDefaultOptions);

return new HttpResponseWrapper<TResponse>(response, false, responseHttp);

}

return new HttpResponseWrapper<TResponse>(default, !responseHttp.IsSuccessStatusCode, responseHttp);

}

1. Vamos agregarle al proyecto **WEB** el nugget **CurrieTechnologies.Razor.SweetAlert2**, que nos va a servir para mostrar alertas muy bonitas.
2. Vamos a la página de Sweet Alert 2 ([Basaingeal/Razor.SweetAlert2: A Razor class library for interacting with SweetAlert2 (github.com)](https://github.com/Basaingeal/Razor.SweetAlert2) y copiamos el script que debemos de agregar al **index.html** que está en el **wwwroot** de nuestro proyecto **WEB**.

<script src="\_framework/blazor.webassembly.js"></script>

<script src="\_content/CurrieTechnologies.Razor.SweetAlert2/sweetAlert2.min.js"></script>

</body>

1. En el proyecto **WEB** configuramos la inyección del servicio de alertas:

builder.Services.AddScoped<IRepository, Repository>();

builder.Services.AddSweetAlert2();

Insertar lo siguiente en el archivo imports del proyecto Web

@using Currie.Technologies.Razor.sweetAlert2

1. En la carpeta **Countries** agregar el componente **CountryForm**:

<EditForm Model="country" OnValidSubmit="OnSubmit">

<DataAnnotationsValidator />

<div class="mb-3">

<label>País:</label>

<div>

<InputText class="form-control" @bind-Value="@Country.Name" />

<ValidationMessage For="@(() => Country.Name)" />

</div>

</div>

<button class="btn btn-primary" type="submit">Guardar Cambios</button>

<button class="btn btn-success" @onclick="ReturnAction">Regresar</button>

</EditForm>

@code {

[EditorRequired]

[Parameter]

public Country Country { get; set; } = null!;

[EditorRequired]

[Parameter]

public EventCallback OnValidSubmit { get; set; }

[EditorRequired]

[Parameter]

public EventCallback ReturnAction { get; set; }

}

1. En la carpeta **Countries** agregar el componente **CountryCreate**:

@page "/countries/create"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

<h3>Crear País</h3>

<CountryForm Country="country" OnSubmit="Create" ReturnAction="Return"/>

@code {

private Country country = new();

private async Task Create()

{

var responseHttp = await repository.Post("/api/countries", country);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message);

return;

}

navigationManager.NavigateTo("/countries");

}

private void Return()

{

navigationManager.NavigateTo("/countries");

}

}

1. Agregamos el boton de crear país en **CountriesIndex**:

<h3>Países</h3>

<a class="btn btn-primary" href="/countries/create">Nuevo País</a>

<GenericList MyList="Countries">

1. Probamos la creación de países por interfaz.
2. Mejoremos el formulario previniendo que el usuario salga y deje el formulario incompleto, modificamos nuestro componente **CountryForm**:

@inject SweetAlertService swal

<NavigationLock OnBeforeInternalNavigation="OnBeforeInternalNavigation"></NavigationLock>

<EditForm EditContext="editContext" OnValidSubmit="OnValidSubmit">

<DataAnnotationsValidator />

<div class="mb-3">

<label>País:</label>

<div>

<InputText class="form-control" @bind-Value="@Country.Name" />

<ValidationMessage For="@(() => Country.Name)" />

</div>

</div>

<button class="btn btn-primary" type="submit">Guardar Cambios</button>

<button class="btn btn-success" @onclick="ReturnAction">Regresar</button>

</EditForm>

@code {

private EditContext editContext = null!;

protected override void OnInitialized()

{

editContext = new(Country);

}

[EditorRequired]

[Parameter]

public Country Country { get; set; } = null!;

[EditorRequired]

[Parameter]

public EventCallback OnValidSubmit { get; set; }

[EditorRequired]

[Parameter]

public EventCallback ReturnAction { get; set; }

public bool FormPostedSuccessfully { get; set; } = false;

private async Task OnBeforeInternalNavigation(LocationChangingContext context)

{

var formWasEdited = editContext.IsModified();

if (!formWasEdited)

{

return;

}

if (FormPostedSuccessfully)

{

return;

}

var result = await swal.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Deseas abandonar la página y perder los cambios?",

Icon = SweetAlertIcon.Warning,

ShowCancelButton = true

});

var confirm = !string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

context.PreventNavigation();

}

}

1. Y hacemos este cambio en **CountryCreate**:

@page "/countries/create"

@inject NavigationManager navigationManager

@inject IRepository repository

@inject SweetAlertService swal

<h3>Crear País</h3>

<CountryForm @ref="countryForm" Country="country" OnValidSubmit="Create" ReturnAction="Return" />

@code {

private Country country = new();

private CountryForm? countryForm;

private async Task Create()

{

var httpResponse = await repository.Post("api/countries", country);

if (httpResponse.Error)

{

var mensajeError = await httpResponse.GetErrorMessageAsync();

await swal.FireAsync("Error", mensajeError, SweetAlertIcon.Error);

}

else

{

countryForm!.FormPostedSuccessfully = true;

navigationManager.NavigateTo("countries");

}

}

private void Return()

{

navigationManager.NavigateTo("countries");

}

}

1. Probamos la creación de países por interfaz y luego hacemos nuestro **commit**. **Asegúrate de presionar Ctrl + F5, para que te tome los cambios**.
2. Ahora creamos el componente **CountryEdit**:

@page "/countries/edit/{Id:int}"

@inject NavigationManager navigationManager

@inject IRepository repository

@inject SweetAlertService swal

<h3>Editar País</h3>

@if (country is null)

{

<p>Cargando...</p>

}

else

{

<CountryForm @ref="countryForm" Country="country" OnValidSubmit="Edit" ReturnAction="Return" />

}

@code {

private Country? country;

private CountryForm? countryForm;

[Parameter]

public int Id { get; set; }

protected override async Task OnInitializedAsync()

{

var responseHTTP = await repository.Get<Country>($"api/countries/{Id}");

if (responseHTTP.Error)

{

if (responseHTTP.HttpResponseMessage.StatusCode == System.Net.HttpStatusCode.NotFound)

{

navigationManager.NavigateTo("countries");

}

else

{

var messageError = await responseHTTP.GetErrorMessage();

await swal.FireAsync("Error", messageError, SweetAlertIcon.Error);

}

}

else

{

country = responseHTTP.Response;

}

}

private async Task Edit()

{

var responseHTTP = await repository.Put("api/countries", country);

if (responseHTTP.Error)

{

var mensajeError = await responseHTTP.GetErrorMessage();

await swal.FireAsync("Error", mensajeError, SweetAlertIcon.Error);

}

else

{

countryForm!.FormPostedSuccessfully = true;

navigationManager.NavigateTo("countries");

}

}

private void Return()

{

navigationManager.NavigateTo("countries");

}

}

1. Luego modificamos el componente **CountriesIndex**:

@page "/countries"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService swal

<h3>Paises</h3>

<div class="mb-3">

<a class="btn btn-primary" href="/countries/create">Nuevo País</a>

</div>

<GenericList MyList="Countries">

<Body>

<table class="table table-striped">

<thead>

<tr>

<th>País</th>

<th></th>

</tr>

</thead>

<tbody>

@foreach (var country in Countries!)

{

<tr>

<td>

@country.Name

</td>

<td>

<a href="/countries/edit/@country.Id" class="btn btn-warning">Editar</a>

<button class="btn btn-danger" @onclick=@(() => Delete(country))>Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</Body>

</GenericList>

@code {

public List<Country>? Countries { get; set; }

protected async override Task OnInitializedAsync()

{

await Load();

}

private async Task Load()

{

var responseHppt = await repository.Get<List<Country>>("api/countries");

Countries = responseHppt.Response!;

}

private async Task Delete(Country country)

{

var result = await swal.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Esta seguro que quieres borrar el registro?",

Icon = SweetAlertIcon.Question,

ShowCancelButton = true

});

var confirm = string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

var responseHTTP = await repository.Delete($"api/countries/{country.Id}");

if (responseHTTP.Error)

{

if (responseHTTP.HttpResponseMessage.StatusCode == System.Net.HttpStatusCode.NotFound)

{

navigationManager.NavigateTo("/");

}

else

{

var mensajeError = await responseHTTP.GetErrorMessageAsync();

await swal.FireAsync("Error", mensajeError, SweetAlertIcon.Error);

}

}

else

{

await Load();

}

}

}

1. Y probamos la edición y eliminación de países por interfaz. No olvides hacer el **commit**.

# Solucionando el problema de países con el mismo nombre y adicionando un Seeder a la base de datos

1. Si intentamos crear un país con el mismo nombre, sale un error no muy claro para el cliente. Vamos a solucionar esto, lo primero que vamos hacer es corregir el **Post** y el **Put** en el controlador de países:

[HttpPost]

public async Task<ActionResult> Post(Country country)

{

\_context.Add(country);

try

{

await \_context.SaveChangesAsync();

return Ok(country);

}

catch (DbUpdateException dbUpdateException)

{

if (dbUpdateException.InnerException!.Message.Contains("duplicate"))

{

return BadRequest("Ya existe un país con el mismo nombre.");

}

else

{

return BadRequest(dbUpdateException.InnerException.Message);

}

}

catch (Exception exception)

{

return BadRequest(exception.Message);

}

}

[HttpPut]

public async Task<ActionResult> Put(Country country)

{

\_context.Update(country);

try

{

await \_context.SaveChangesAsync();

return Ok(country);

}

catch (DbUpdateException dbUpdateException)

{

if (dbUpdateException.InnerException!.Message.Contains("duplicate"))

{

return BadRequest("Ya existe un registro con el mismo nombre.");

}

else

{

return BadRequest(dbUpdateException.InnerException.Message);

}

}

catch (Exception exception)

{

return BadRequest(exception.Message);

}

}

1. Probamos. Ahora vamos a adicionar un alimentador de la base de datos. Para esto primero creamos en el proyecto **API** dentro de la carpeta **Data** la clase **SeedDb**:

using StoresG8.Shared.Entities;

namespace StoresG8.API.Data

{

public class SeedDb

{

private readonly DataContext \_context;

public SeedDb(DataContext context)

{

\_context = context;

}

public async Task SeedAsync()

{

await \_context.Database.EnsureCreatedAsync();

await CheckCountriesAsync();

}

private async Task CheckCountriesAsync()

{

if (!\_context.Countries.Any())

{

\_context.Countries.Add(new Country { Name = "Colombia" });

\_context.Countries.Add(new Country { Name = "USA" });

}

await \_context.SaveChangesAsync();

}

}

}

1. Luego modificamos el **Program** del proyecto **API** para llamar el alimentador de la BD:

builder.Services.AddDbContext<DataContext>(x => x.UseSqlServer("name=DockerConnection"));

builder.Services.AddTransient<SeedDb>();

var app = builder.Build();

SeedData(app);

void SeedData(WebApplication app)

{

IServiceScopeFactory? scopedFactory = app.Services.GetService<IServiceScopeFactory>();

using (IServiceScope? scope = scopedFactory!.CreateScope())

{

SeedDb? service = scope.ServiceProvider.GetService<SeedDb>();

service!.SeedAsync().Wait();

}

}

1. Borramos la base de datos con el comando **drop-database**.
2. Probamos y hacemos el **commit**.

# Relación uno a muchos e índice compuesto

1. Creamos la entidad **State**:

using System.ComponentModel.DataAnnotations;

namespace StoresG8.Shared.Entities

{

public class State

{

public int Id { get; set; }

[Display(Name = "Departamento/Estado")]

[MaxLength(100, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string Name { get; set; } = null!;

public int CountryId { get; set; }

public Country? Country { get; set; }

}

}

1. Modificamos la entidad **Country**:

public string Name { get; set; } = null!;

public ICollection<State>? States { get; set; }

[Display(Name = "Estados/Departamentos")]

public int StatesNumber => States == null ? 0 : States.Count;

1. Creamos la entidad **City**:

using System.ComponentModel.DataAnnotations;

namespace StoresG8.Shared.Entities

{

public class City

{

public int Id { get; set; }

[Display(Name = "Ciudad")]

[MaxLength(100, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string Name { get; set; } = null!;

public int StateId { get; set; }

public State? State { get; set; }

}

}

1. Modificamos la entidad **State**:

public Country Country { get; set; } = null!;

public ICollection<City>? Cities { get; set; }

[Display(Name = "Ciudades")]

public int CitiesNumber => Cities == null ? 0 : Cities.Count;

1. Modificamos el **DataContext**:

public DataContext(DbContextOptions<DataContext> options) : base(options)

{

}

public DbSet<City> Cities { get; set; }

public DbSet<Country> Countries { get; set; }

public DbSet<State> States { get; set; }

protected override void OnModelCreating(ModelBuilder modelBuilder)

{

base.OnModelCreating(modelBuilder);

modelBuilder.Entity<Country>().HasIndex(c => c.Name).IsUnique();

modelBuilder.Entity<State>().HasIndex("CountryId","Name",).IsUnique();

modelBuilder.Entity<City>().HasIndex("StateId","Name").IsUnique();

}

1. Para evitar la redundancia cíclica en la respuesta de los JSON vamos a agregar la siguiente configuración, modificamos el **Program** del **API**:

builder.Services.AddControllers()

.AddJsonOptions(x => x.JsonSerializerOptions.ReferenceHandler = ReferenceHandler.IgnoreCycles);

1. Modificamos el Seeder:

private async Task CheckCountriesAsync()

{

if (!\_context.Countries.Any())

{

\_context.Countries.Add(new Country

{

Name = "Colombia",

States = new List<State>()

{

new State()

{

Name = "Antioquia",

Cities = new List<City>() {

new City() { Name = "Medellín" },

new City() { Name = "Itagüí" },

new City() { Name = "Envigado" },

new City() { Name = "Bello" },

new City() { Name = "Rionegro" },

}

},

new State()

{

Name = "Bogotá",

Cities = new List<City>() {

new City() { Name = "Usaquen" },

new City() { Name = "Champinero" },

new City() { Name = "Santa fe" },

new City() { Name = "Useme" },

new City() { Name = "Bosa" },

}

},

}

});

\_context.Countries.Add(new Country

{

Name = "Estados Unidos",

States = new List<State>()

{

new State()

{

Name = "Florida",

Cities = new List<City>() {

new City() { Name = "Orlando" },

new City() { Name = "Miami" },

new City() { Name = "Tampa" },

new City() { Name = "Fort Lauderdale" },

new City() { Name = "Key West" },

}

},

new State()

{

Name = "Texas",

Cities = new List<City>() {

new City() { Name = "Houston" },

new City() { Name = "San Antonio" },

new City() { Name = "Dallas" },

new City() { Name = "Austin" },

new City() { Name = "El Paso" },

}

},

}

});

}

await \_context.SaveChangesAsync();

}

1. Modificamos los **Get** del controlador de países:

[HttpGet]

public async Task<ActionResult> Get()

{

return Ok(await \_context.Countries

.Include(x => x.States)

.ToListAsync());

}

[HttpGet("{id:int}")] ///api/countries/1

public async Task<ActionResult> Get(int id)

{

var country = await \_context.Countries

.Include (x => x.States!)

.ThenInclude(x => x.Cities!)

.FirstOrDefaultAsync(x => x.Id == id);

if (country is null)

{

return NotFound();

}

return Ok(country);

}

[HttpGet("full")]

public async Task<ActionResult> GetFull()

{

return Ok(await \_context.Countries

.Include(x => x.States!)

.ThenInclude(x => x.Cities)

.ToListAsync());

}

1. Borramos la base de datos con el comando **drop-database** para que el Seeder vuelva a ejecutarse
2. Adicionamos la nueva migración de la base de datos con el comando: **add-migration AddStatesAndCities** y aunque el Seeder corre automáticamente el Update Database, prefiero correrlo manualmente para asegurarme que no genere ningun error: **update-database**.
3. Cambiemos el **CountryIndex** para ver el número de departamentos/estados de cada país y adicionar el botón de detalles:

<GenericList MyList="Countries">

<RecordsComplete>

<table class="table table-striped">

<thead>

<tr>

<th>País</th>

<th>Departamentos/Estados</th>

<th></th>

</tr>

</thead>

<tbody>

@foreach (var country in Countries!)

{

<tr>

<

<td>

@country.Name

</td>

<td>

@country.StatesNumber

</td>

td>

<a href="/countries/details/@country.Id" class="btn btn-info">Detalles</a>

<a href="/countries/edit/@country.Id" class="btn btn-warning">Editar</a>

<button class="btn btn-danger" @onclick=@(() => Delete(country))>Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</RecordsComplete>

</GenericList>

1. Probamos y hacemos el **commit**.

# Creando un CRUD multinivel

1. Vamos ahora a tener la posibilidad de crear, editar, borrar estados y ciudades. Empecemos creando el **StatesController**

using Microsoft.AspNetCore.Mvc;

using Microsoft.EntityFrameworkCore;

using StoresG8.API.Data;

using StoresG8.Shared.Entities;

namespace StoresG8.API.Controllers

{

[ApiController]

[Route("/api/states")]

public class StatesController : ControllerBase

{

private readonly DataContext \_context;

public StatesController(DataContext context)

{

\_context = context;

}

[HttpGet]

public async Task<IActionResult> GetAsync()

{

return Ok(await \_context.States

.Include(x => x.Cities)

.ToListAsync());

}

[HttpGet("{id:int}")]

public async Task<IActionResult> GetAsync(int id)

{

var state = await \_context.States

.Include(x => x.Cities)

.FirstOrDefaultAsync(x => x.Id == id);

if (state == null)

{

return NotFound();

}

return Ok(state);

}

[HttpPost]

public async Task<ActionResult> PostAsync(State state)

{

try

{

\_context.Add(state);

await \_context.SaveChangesAsync();

return Ok(state);

}

catch (DbUpdateException dbUpdateException)

{

if (dbUpdateException.InnerException!.Message.Contains("duplicate"))

{

return BadRequest("Ya existe un estado/departamento con el mismo nombre.");

}

return BadRequest(dbUpdateException.Message);

}

catch (Exception exception)

{

return BadRequest(exception.Message);

}

}

[HttpPut]

public async Task<ActionResult> PutAsync(State state)

{

try

{

\_context.Update(state);

await \_context.SaveChangesAsync();

return Ok(state);

}

catch (DbUpdateException dbUpdateException)

{

if (dbUpdateException.InnerException!.Message.Contains("duplicate"))

{

return BadRequest("Ya existe un estado/departamento con el mismo nombre.");

}

return BadRequest(dbUpdateException.Message);

}

catch (Exception exception)

{

return BadRequest(exception.Message);

}

}

[HttpDelete("{id:int}")]

public async Task<IActionResult> DeleteAsync(int id)

{

var state = await \_context.States.FirstOrDefaultAsync(x => x.Id == id);

if (state == null)

{

return NotFound();

}

\_context.Remove(state);

await \_context.SaveChangesAsync();

return NoContent();

}

}

}

1. Luego creamos el **CitiesController**

using Microsoft.AspNetCore.Mvc;

using Microsoft.EntityFrameworkCore;

using StoresG8.API.Data;

using StoresG8.Shared.Entities;

namespace StoresG8.API.Controllers

{

[ApiController]

[Route("/api/cities")]

public class CitiesController : ControllerBase

{

private readonly DataContext \_context;

public CitiesController(DataContext context)

{

\_context = context;

}

[HttpGet]

public async Task<IActionResult> GetAsync()

{

return Ok(await \_context.Cities.ToListAsync());

}

[HttpGet("{id:int}")]

public async Task<IActionResult> GetAsync(int id)

{

var city = await \_context.Cities.FirstOrDefaultAsync(x => x.Id == id);

if (city == null)

{

return NotFound();

}

return Ok(city);

}

[HttpPost]

public async Task<ActionResult> PostAsync(City city)

{

try

{

\_context.Add(city);

await \_context.SaveChangesAsync();

return Ok(city);

}

catch (DbUpdateException dbUpdateException)

{

if (dbUpdateException.InnerException!.Message.Contains("duplicate"))

{

return BadRequest("Ya existe una ciudad con el mismo nombre.");

}

return BadRequest(dbUpdateException.Message);

}

catch (Exception exception)

{

return BadRequest(exception.Message);

}

}

[HttpPut]

public async Task<ActionResult> PutAsync(City city)

{

try

{

\_context.Update(city);

await \_context.SaveChangesAsync();

return Ok(city);

}

catch (DbUpdateException dbUpdateException)

{

if (dbUpdateException.InnerException!.Message.Contains("duplicate"))

{

return BadRequest("Ya existe una ciudad con el mismo nombre.");

}

return BadRequest(dbUpdateException.Message);

}

catch (Exception exception)

{

return BadRequest(exception.Message);

}

}

[HttpDelete("{id:int}")]

public async Task<IActionResult> DeleteAsync(int id)

{

var city = await \_context.Cities.FirstOrDefaultAsync(x => x.Id == id);

if (city == null)

{

return NotFound();

}

\_context.Remove(city);

await \_context.SaveChangesAsync();

return NoContent();

}

}

}

1. En el proyecto **WEB** en la carpeta **Pages/Countries** vamos a crear la página **CountryDetails**

@page "/countries/details/{Id:int}"

@using StoresG8.Shared.Entities;

@using System.Net;

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

@if(country is null)

{

<p>Cargando...</p>

} else

{

<h3>@country.Name</h3>

<div class="mb-2">

<a class="btn btn-primary" href="/states/create/@country.Id">Nuevo Estado/Departamento</a>

<a class="btn btn-success" href="/countries">Regresar</a>

</div>

<GenericList MyList="states">

<Body>

<table class="table table-striped">

<thead>

<tr>

<th>Estado / Departamento</th>

<th>Ciudades</th>

<th></th>

</tr>

</thead>

<tbody>

@foreach (var state in states!)

{

<tr>

<td>

@state.Name

</td>

<td>

@state.CitiesNumber

</td>

<td>

<a class="btn btn-info" href="/states/details/@state.Id">Detalles</a>

<a class="btn btn-warning" href="/states/edit/@state.Id">Editar</a>

<button class="btn btn-danger" @onclick=@(() => DeleteAsync(state.Id))>Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</Body>

</GenericList>

}

@code {

private Country? country;

private List<State>? states;

[Parameter]

public int Id { get; set; }

protected override async Task OnInitializedAsync()

{

await LoadAsync();

}

private async Task LoadAsync()

{

var responseHttp = await repository.Get<Country>($"/api/countries/{Id}");

if (responseHttp.Error)

{

if (responseHttp.HttpResponseMessage.StatusCode == HttpStatusCode.NotFound)

{

navigationManager.NavigateTo("/countries");

return;

}

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

country = responseHttp.Response;

states = country!.States!.ToList();

}

private async Task DeleteAsync(int id)

{

var result = await sweetAlertService.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Realmente deseas eliminar el registro?",

Icon = SweetAlertIcon.Question,

ShowCancelButton = true,

CancelButtonText = "No",

ConfirmButtonText = "Si"

});

var confirm = string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

var responseHttp = await repository.Delete($"/api/states/{id}");

if (responseHttp.Error)

{

if (responseHttp.HttpResponseMessage.StatusCode != HttpStatusCode.NotFound)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

}

await LoadAsync();

}

}

1. Modificamos CountriesController para agregar el **.Include** con States y Cities

[HttpGet("{id:int}")] ///api/countries/1

public async Task<ActionResult> Get(int id)

{

var country = await \_context.Countries

.Include (x => x.States!)

.ThenInclude(x => x.Cities!)

.FirstOrDefaultAsync(x => x.Id == id);

if (country is null)

{

return NotFound();

}

return Ok(country);

}

1. Probamos lo que llevamos hasta el momento.
2. Ahora vamos a implementar la creación de estados. En el proyecto **WEB** en la carpeta **Pages** la carpeta **States** y dentro de esta creamos el componente **StateForm**

@inject SweetAlertService sweetAlertService

@using StoresG8.Shared.Entities;

<NavigationLock OnBeforeInternalNavigation="OnBeforeInternalNavigation" />

<EditForm EditContext="editContext" OnValidSubmit="OnValidSubmit">

<DataAnnotationsValidator/>

<div class="mb-3">

<label>Estado/Departamento:</label>

<div>

<InputText class="form-control" @bind-Value="@State.Name"/>

<ValidationMessage For="@(() => State.Name)" />

</div>

</div>

<button class="btn btn-primary" type="submit">Guardar Cambios</button>

<button class="btn btn-success" type="button" @onclick="ReturnAction">Regresar</button>

</EditForm>

@code {

private EditContext editContext = null!;

[Parameter]

[EditorRequired]

public State State { get; set; } = null!;

[Parameter]

[EditorRequired]

public EventCallback OnValidSubmit { get; set; }

[Parameter]

[EditorRequired]

public EventCallback ReturnAction { get; set; }

public bool FormPostedSuccessfully { get; set; }

protected override void OnInitialized()

{

editContext = new(State);

}

private async Task OnBeforeInternalNavigation(LocationChangingContext context)

{

var formWasMofied = editContext.IsModified();

if (!formWasMofied || FormPostedSuccessfully)

{

return;

}

var result = await sweetAlertService.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Deseas abandonar la página y perder los cambios?",

Icon = SweetAlertIcon.Question,

ShowCancelButton = true,

CancelButtonText = "No",

ConfirmButtonText = "Si"

});

var confirm = !string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

context.PreventNavigation();

}

}

1. En el proyecto **WEB** en la carpeta **Pages** la carpeta **States** y dentro de esta creamos el componente **StateCreate**

@using StoresG8.Shared.Entities;

@page "/states/create/{CountryId:int}"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

<h3>Crear Estado/Departamento</h3>

<StateForm @ref="stateForm" State="state" OnValidSubmit="CreateAsync" ReturnAction="Return" />

@code {

private State state = new();

private StateForm? stateForm;

[Parameter]

public int CountryId { get; set; }

private async Task CreateAsync()

{

state.CountryId = CountryId;

var httpResponse = await repository.Post("/api/states", state);

if (httpResponse.Error)

{

var message = await httpResponse.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

Return();

}

private void Return()

{

stateForm!.FormPostedSuccessfully = true;

navigationManager.NavigateTo($"/countries/details/{CountryId}");

}

}

1. En el proyecto **WEB** en la carpeta **Pages** la carpeta **States** y dentro de esta creamos el componente **EditState**

@using StoresG8.Shared.Entities;

@page "/states/edit/{StateId:int}"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

@inject NavigationManager navigationManager

@using System.Net;

<h3>Editar Estado/Departamento</h3>

@if (state is null)

{

<p>Cargando...</p>

}

else

{

<StateForm @ref="stateForm" State="state" OnValidSubmit="EditAsync" ReturnAction="Return" />

}

@code {

private State? state;

private StateForm? stateForm;

[Parameter]

public int StateId { get; set; }

protected override async Task OnInitializedAsync()

{

var responseHttp = await repository.Get<State>($"/api/states/{StateId}");

if (responseHttp.Error)

{

if (responseHttp.HttpResponseMessage.StatusCode == HttpStatusCode.NotFound)

{

navigationManager.NavigateTo("/countries");

return;

}

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

state = responseHttp.Response;

}

private async Task EditAsync()

{

var responseHttp = await repository.Put("/api/states", state);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

Return();

}

private void Return()

{

stateForm!.FormPostedSuccessfully = true;

navigationManager.NavigateTo($"/countries/details/{state!.CountryId}");

}

}

1. En el proyecto **WEB** en la carpeta **Pages** la carpeta **States** y dentro de esta creamos el componente **StateDetails**

@page "/states/details/{StateId:int}"

@using System.Net;

@using StoresG8.Shared.Entities;

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

@if (state is null)

{

<p>Cargando...</p>

}

else

{

<h3>@state.Name</h3>

<div class="mb-2">

<a class="btn btn-primary" href="/cities/create/@state.Id">Nueva Ciuadad</a>

<a class="btn btn-success" href="/countries/details/@state.CountryId">Regresar</a>

</div>

<GenericList MyList="cities">

<Body>

<table class="table table-striped">

<thead>

<tr>

<th>Ciudad</th>

<th></th>

</tr>

</thead>

<tbody>

@foreach (var city in cities!)

{

<tr>

<td>

@city.Name

</td>

<td>

<a class="btn btn-warning" href="/cities/edit/@city.Id">Editar</a>

<button class="btn btn-danger" @onclick=@(() => DeleteAsync(city.Id))>Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</Body>

</GenericList>

}

@code {

private State? state;

private List<City>? cities;

[Parameter]

public int StateId { get; set; }

protected override async Task OnInitializedAsync()

{

await LoadAsync();

}

private async Task LoadAsync()

{

var responseHttp = await repository.Get<State>($"/api/states/{StateId}");

if (responseHttp.Error)

{

if (responseHttp.HttpResponseMessage.StatusCode == HttpStatusCode.NotFound)

{

navigationManager.NavigateTo("/countries");

return;

}

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

state = responseHttp.Response;

cities = state!.Cities!.ToList();

}

private async Task DeleteAsync(int cityId)

{

var result = await sweetAlertService.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Realmente deseas eliminar el registro?",

Icon = SweetAlertIcon.Question,

ShowCancelButton = true,

CancelButtonText = "No",

ConfirmButtonText = "Si"

});

var confirm = string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

var responseHttp = await repository.Delete($"/api/cities/{cityId}");

if (responseHttp.Error)

{

if (responseHttp.HttpResponseMessage.StatusCode != HttpStatusCode.NotFound)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

}

await LoadAsync();

}

}

1. En el proyecto **WEB** en la carpeta **Pages** creamos la carpeta **Cities** y dentro de esta creamos el componente **CityForm**

@inject SweetAlertService sweetAlertService

@using StoresG8.Shared.Entities;

<NavigationLock OnBeforeInternalNavigation="OnBeforeInternalNavigation" />

<EditForm EditContext="editContext" OnValidSubmit="OnValidSubmit">

<DataAnnotationsValidator />

<div class="mb-3">

<label>Cuidad:</label>

<div>

<InputText class="form-control" @bind-Value="@City.Name" />

<ValidationMessage For="@(() => City.Name)" />

</div>

</div>

<button class="btn btn-primary" type="submit">Guardar Cambios</button>

<button class="btn btn-success" @onclick="ReturnAction">Regresar</button>

</EditForm>

@code {

private EditContext editContext = null!;

[Parameter]

[EditorRequired]

public City City { get; set; } = null!;

[Parameter]

[EditorRequired]

public EventCallback OnValidSubmit { get; set; }

[Parameter]

[EditorRequired]

public EventCallback ReturnAction { get; set; }

public bool FormPostedSuccessfully { get; set; }

protected override void OnInitialized()

{

editContext = new(City);

}

private async Task OnBeforeInternalNavigation(LocationChangingContext context)

{

var formWasMofied = editContext.IsModified();

if (!formWasMofied || FormPostedSuccessfully)

{

return;

}

var result = await sweetAlertService.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Deseas abandonar la página y perder los cambios?",

Icon = SweetAlertIcon.Question,

ShowCancelButton = true,

CancelButtonText = "No",

ConfirmButtonText = "Si"

});

var confirm = !string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

context.PreventNavigation();

}

}

1. En el proyecto **WEB** en la carpeta **Pages** en la carpeta **Cities** y dentro de esta creamos el componente **CityCreate**

@page "/cities/create/{StateId:int}"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

@using StoresG8.Shared.Entities;

<h3>Crear Ciudad</h3>

<CityForm @ref="cityForm" City="city" OnValidSubmit="CreateAsync" ReturnAction="Return" />

@code {

private City city = new();

private CityForm? cityForm;

[Parameter]

public int StateId { get; set; }

private async Task CreateAsync()

{

city.StateId = StateId;

var httpResponse = await repository.Post("/api/cities", city);

if (httpResponse.Error)

{

var message = await httpResponse.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

Return();

}

private void Return()

{

cityForm!.FormPostedSuccessfully = true;

navigationManager.NavigateTo($"/states/details/{StateId}");

}

}

1. En el proyecto **WEB** en la carpeta **Pages** en la carpeta **Cities** y dentro de esta creamos el componente **CityEdit**

@page "/cities/edit/{CityId:int}"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

@inject NavigationManager navigationManager

@using StoresG8.Shared.Entities;

@using System.Net;

<h3>Editar Ciudad</h3>

@if (city is null)

{

<p>Cargando...</p>

}

else

{

<CityForm @ref="cityForm" City="city" OnValidSubmit="EditAsync" ReturnAction="Return" />

}

@code {

private City? city;

private CityForm? cityForm;

[Parameter]

public int CityId { get; set; }

protected override async Task OnInitializedAsync()

{

var responseHttp = await repository.Get<City>($"/api/cities/{CityId}");

if (responseHttp.Error)

{

if (responseHttp.HttpResponseMessage.StatusCode == HttpStatusCode.NotFound)

{

navigationManager.NavigateTo("/countries");

return;

}

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

city = responseHttp.Response;

}

private async Task EditAsync()

{

var responseHttp = await repository.Put("/api/cities", city);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

Return();

}

private void Return()

{

cityForm!.FormPostedSuccessfully = true;

navigationManager.NavigateTo($"/states/details/{city!.StateId}");

}

}

1. Probamos y hacemos el **commit**.

# Poblar los Países, Estados y Ciudades con un API externa

1. Para llenar la información de todos, o al menos la mayoría de países, estados y ciudades del mundo. Vamos a utilizar esta API: <https://countrystatecity.in/docs/api/all-countries/> Para poderla utilizar vas a necesitar un token, puedes solicitar tu propio token en: <https://docs.google.com/forms/d/e/1FAIpQLSciOf_227-3pKGKJok6TM0QF2PZhSgfQwy-F-bQaBj0OUgMmA/viewform> llena el formulario y en pocas horas te lo enviarán , luego de tener tu token has los siguientes cambios al proyecto:
2. Al proyecto **API** agrega al **appstettings.json** los siguientes parámetros. No olvides cambiar el valor del **TokenValue** que ha recibido:

{

"ConnectionStrings": {

"DefaultConnection": "Server= OALARCON;Database=StoresG8;Encrypt=False;User Id=dba;Password=Abcd1234\*;"

},

"CountriesAPI": {

"urlBase": "https://api.countrystatecity.in",

"tokenName": "X-CSCAPI-KEY",

"tokenValue": "T29KVmZZUTIyVkRmVVF5OXV2b0tNSnBxNERvY2cyQ295YmhHT0dzQQ=="

},

"Logging": {

"LogLevel": {

"Default": "Information",

"Microsoft.AspNetCore": "Warning"

}

},

"AllowedHosts": "\*"

}

1. Dentro del proyecto **Shared** creamos la carpeta **Responses** Empecemos primero con la clase genérica para todas las respuestas , creamos dentro la clase **Response**

namespace StoresG8.Shared.Responses

{

public class Response

{

public bool IsSuccess { get; set; }

public string? Message { get; set; }

public object? Result { get; set; }

}

}

1. Luego continuamos con **CountryResponse**

**Instalamos el Nugget** Newtonsoft.Json dentro del proyecto **Shared**

using Newtonsoft.Json;

namespace StoresG8.Shared.Responses

{

public class CountryResponse

{

[JsonProperty("id")]

public long Id { get; set; }

[JsonProperty("name")]

public string? Name { get; set; }

[JsonProperty("iso2")]

public string? Iso2 { get; set; }

}

}

1. Creamos la clase **StateResponse**

using Newtonsoft.Json;

namespace StoresG8.Shared.Responses

{

public class StateResponse

{

[JsonProperty("id")]

public long Id { get; set; }

[JsonProperty("name")]

public string? Name { get; set; }

[JsonProperty("iso2")]

public string? Iso2 { get; set; }

}

}

1. Y luego creamos la clase **CityResponse**

using Newtonsoft.Json;

namespace StoresG8.Shared.Responses

{

public class CityResponse

{

[JsonProperty("id")]

public long Id { get; set; }

[JsonProperty("name")]

public string? Name { get; set; }

}

}

1. En el proyecto **API** creamos la carpeta **Services** y dentro de esta, la interfaz **IApiService**

using StoresG8.Shared.Responses;

namespace StoresG8.API.Services

{

public interface IApiService

{

Task<Response> GetListAsync<T>(string servicePrefix, string controller);

}

}

1. Luego en la misma carpeta creamos la implementación en el **ApiService**

using Newtonsoft.Json;

using StoresG8.Shared.Responses;

namespace StoresG8.API.Services

{

public class ApiService : IApiService

{

private readonly IConfiguration \_configuration;

private readonly string \_urlBase;

private readonly string \_tokenName;

private readonly string \_tokenValue;

public ApiService(IConfiguration configuration)

{

\_configuration = configuration;

\_urlBase = \_configuration["CountriesAPI:urlBase"]!;

\_tokenName = \_configuration["CountriesAPI:tokenName"]!;

\_tokenValue = \_configuration["CountriesAPI:tokenValue"]!;

}

public async Task<Response> GetListAsync<T>(string servicePrefix, string controller)

{

try

{

HttpClient client = new()

{

BaseAddress = new Uri(\_urlBase),

};

client.DefaultRequestHeaders.Add(\_tokenName, \_tokenValue);

string url = $"{servicePrefix}{controller}";

HttpResponseMessage response = await client.GetAsync(url);

string result = await response.Content.ReadAsStringAsync();

if (!response.IsSuccessStatusCode)

{

return new Response

{

IsSuccess = false,

Message = result,

};

}

List<T> list = JsonConvert.DeserializeObject<List<T>>(result)!;

return new Response

{

IsSuccess = true,

Result = list

};

}

catch (Exception ex)

{

return new Response

{

IsSuccess = false,

Message = ex.Message

};

}

}

}

}

1. Y la inyectamos en el **Program** del proyecto **API**:

builder.Services.AddTransient<SeedDb>();

builder.Services.AddScoped<IApiService, ApiService>();

1. Luego modificamos el **SeedDb**:

using Microsoft.EntityFrameworkCore;

using StoresG8.API.Services;

using StoresG8.Shared.Entities;

using StoresG8.Shared.Responses;

namespace StoresG8.API.Data

{

public class SeedDb

{

private readonly DataContext \_context;

private readonly IApiService \_apiService;

public SeedDb(DataContext context, IApiService apiService)

{

\_context = context;

\_apiService = apiService;

}

public async Task SeedAsync()

{

await \_context.Database.EnsureCreatedAsync();

await CheckCountriesAsync();

}

private async Task CheckCountriesAsync()

{

if (!\_context.Countries.Any())

{

Response responseCountries = await \_apiService.GetListAsync<CountryResponse>("/v1", "/countries");

if (responseCountries.IsSuccess)

{

List<CountryResponse> countries = (List<CountryResponse>)responseCountries.Result!;

foreach (CountryResponse countryResponse in countries)

{

Country country = await \_context.Countries!.FirstOrDefaultAsync(c => c.Name == countryResponse.Name!)!;

if (country == null)

{

country = new() { Name = countryResponse.Name!, States = new List<State>() };

Response responseStates = await \_apiService.GetListAsync<StateResponse>("/v1", $"/countries/{countryResponse.Iso2}/states");

if (responseStates.IsSuccess)

{

List<StateResponse> states = (List<StateResponse>)responseStates.Result!;

foreach (StateResponse stateResponse in states!)

{

State state = country.States!.FirstOrDefault(s => s.Name == stateResponse.Name!)!;

if (state == null)

{

state = new() { Name = stateResponse.Name!, Cities = new List<City>() };

Response responseCities = await \_apiService.GetListAsync<CityResponse>("/v1", $"/countries/{countryResponse.Iso2}/states/{stateResponse.Iso2}/cities");

if (responseCities.IsSuccess)

{

List<CityResponse> cities = (List<CityResponse>)responseCities.Result!;

foreach (CityResponse cityResponse in cities)

{

~~if (cityResponse.Name == "Mosfellsbær" || cityResponse.Name == "Șăulița")~~

~~{~~

~~continue;~~

~~}~~

City city = state.Cities!.FirstOrDefault(c => c.Name == cityResponse.Name!)!;

if (city == null)

{

state.Cities.Add(new City() { Name = cityResponse.Name! });

}

}

}

if (state.CitiesNumber > 0)

{

country.States.Add(state);

}

}

}

}

if (country.StatesNumber > 0)

{

\_context.Countries.Add(country);

await \_context.SaveChangesAsync();

}

}

}

}

}

}

}

}

1. Borramos la base de datos con **drop-database**
2. Se puede demorar varias horas para llenar la mayoría de los países con sus estados y ciudades. Digo la mayoría porque la lógica deshecha algunos países o estados que no tienen ciudades devueltas por la API.
3. Probamos y hacemos el **commit**.

## CRUD de Categorías

1. En **StoresG8G8.Shared.Entities** adicionamos la entidad **Category**:

using System.ComponentModel.DataAnnotations;

namespace StoresG8G8.Shared.Entities

{

public class Category

{

public int Id { get; set; }

[Display(Name = "Categoría")]

[MaxLength(100, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string Name { get; set; } = null!;

}

}

1. Modificamos el **DataContext**:

public class DataContext : IdentityDbContext<User>

{

public DataContext(DbContextOptions<DataContext> options) : base(options)

{

}

public DbSet<Category> Categories { get; set; }

public DbSet<City> Cities { get; set; }

public DbSet<Country> Countries { get; set; }

public DbSet<State> States { get; set; }

protected override void OnModelCreating(ModelBuilder modelBuilder)

{

base.OnModelCreating(modelBuilder);

modelBuilder.Entity<Country>().HasIndex(x => x.Name).IsUnique();

modelBuilder.Entity<Category>().HasIndex(x => x.Name).IsUnique();

modelBuilder.Entity<State>().HasIndex("CountryId", "Name").IsUnique();

modelBuilder.Entity<City>().HasIndex("StateId", "Name").IsUnique();

}

}

1. Corremos los comandos para crear la nueva migración y aplicarla:

PM> add-migration AddCategories

PM> update-database

## Creando tablas de productos y listando productos

1. Creamos la entidad **Product**:

using Microsoft.EntityFrameworkCore.Metadata.Internal;

using System.ComponentModel.DataAnnotations;

using System.ComponentModel.DataAnnotations.Schema;

namespace StoresG8G8.Shared.Entities

{

public class Product

{

public int Id { get; set; }

[Display(Name = "Nombre")]

[MaxLength(50, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string Name { get; set; } = null!;

[DataType(DataType.MultilineText)]

[Display(Name = "Descripción")]

[MaxLength(500, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

public string Description { get; set; } = null!;

[Column(TypeName = "decimal(18,2)")]

[DisplayFormat(DataFormatString = "{0:C2}")]

[Display(Name = "Precio")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public decimal Price { get; set; }

[DisplayFormat(DataFormatString = "{0:N2}")]

[Display(Name = "Inventario")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public float Stock { get; set; }

}

}

1. Creamos la entidad **ProductImage**:

using System.ComponentModel.DataAnnotations;

namespace StoresG8G8.Shared.Entities

{

public class ProductImage

{

public int Id { get; set; }

public Product Product { get; set; } = null!;

public int ProductId { get; set; }

[Display(Name = "Imagen")]

public string Image { get; set; } = null!;

}

}

1. Creamos la entidad **ProductCategory**:

namespace StoresG8G8.Shared.Entities

{

public class ProductCategory

{

public int Id { get; set; }

public Product Product { get; set; } = null!;

public int ProductId { get; set; }

public Category Category { get; set; } = null!;

public int CategoryId { get; set; }

}

}

1. Modificamos la entidad **Category**:

public class Category

{

public int Id { get; set; }

[Display(Name = "Categoría")]

[MaxLength(100, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string Name { get; set; } = null!;

public ICollection<ProductCategory>? ProductCategories { get; set; }

[Display(Name = "Productos")]

public int ProductCategoriesNumber => ProductCategories == null ? 0 : ProductCategories.Count;

}

1. Modificamos la entidad **Product**:

public class Product

{

public int Id { get; set; }

[Display(Name = "Nombre")]

[MaxLength(50, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string Name { get; set; } = null!;

[DataType(DataType.MultilineText)]

[Display(Name = "Descripción")]

[MaxLength(500, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

public string Description { get; set; } = null!;

[Column(TypeName = "decimal(18,2)")]

[DisplayFormat(DataFormatString = "{0:C2}")]

[Display(Name = "Precio")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public decimal Price { get; set; }

[DisplayFormat(DataFormatString = "{0:N2}")]

[Display(Name = "Inventario")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public float Stock { get; set; }

public ICollection<ProductCategory>? ProductCategories { get; set; }

[Display(Name = "Categorías")]

public int ProductCategoriesNumber => ProductCategories == null ? 0 : ProductCategories.Count;

public ICollection<ProductImage>? ProductImages { get; set; }

[Display(Name = "Imágenes")]

public int ProductImagesNumber => ProductImages == null ? 0 : ProductImages.Count;

[Display(Name = "Imagén")]

public string MainImage => ProductImages == null ? string.Empty : ProductImages.FirstOrDefault()!.Image;

}

1. Modificamos el **DataContext**.

public class DataContext : IdentityDbContext<User>

{

public DataContext(DbContextOptions<DataContext> options) : base(options)

{

}

public DbSet<Category> Categories { get; set; }

public DbSet<City> Cities { get; set; }

public DbSet<Country> Countries { get; set; }

public DbSet<Product> Products { get; set; }

public DbSet<ProductCategory> ProductCategories { get; set; }

public DbSet<ProductImage> ProductImages { get; set; }

public DbSet<State> States { get; set; }

protected override void OnModelCreating(ModelBuilder modelBuilder)

{

base.OnModelCreating(modelBuilder);

modelBuilder.Entity<Country>().HasIndex(x => x.Name).IsUnique();

modelBuilder.Entity<Category>().HasIndex(x => x.Name).IsUnique();

modelBuilder.Entity<Product>().HasIndex(x => x.Name).IsUnique();

modelBuilder.Entity<State>().HasIndex("CountryId", "Name").IsUnique();

modelBuilder.Entity<City>().HasIndex("StateId", "Name").IsUnique();

}

}

1. Corremos los siguientes comandos para aplicar la migracion y correrla:

PM> add-migration AddProductsTables

PM> update-database

## Ejemplo adicional relación de muchos a muchos para una Biblioteca

using System.ComponentModel.DataAnnotations;

using System.ComponentModel.DataAnnotations.Schema;

using System.Text.Json.Serialization;

public class Libro

{

public int Id { get; set; }

[Required]

[StringLength(40)]

public string Titulo { get; set; }

[Required]

public DateTime FechaPublicacion { get; set; }

//public List<Comentario> Comentarios { get; set; }

[NotMapped]

[JsonIgnore]

public List<AutorLibro>? AutorLibros { get; set; }

}

using System.ComponentModel.DataAnnotations;

using System.ComponentModel.DataAnnotations.Schema;

using System.Text.Json.Serialization;

namespace StoresG8G8.Shared.Entities

{

public class Autor

{

public int Id { get; set; }

[Required]

[StringLength(40)]

public string Nombre { get; set; }

[NotMapped]

[JsonIgnore]

public List<AutorLibro> ?AutorLibros { get; set; }

}

}

System.ComponentModel.DataAnnotations.Schema;

using System.Text.Json.Serialization;

namespace StoresG8G8.Shared.Entities

{

public class AutorLibro

{

public int Id { get; set; }

public int Orden { get; set; }

public int ?LibroId { get; set; }

[JsonIgnore]

public Libro Libro { get; set; }

public int ?AutorId { get; set; }

[JsonIgnore]

public Autor Autor { get; set; }

}

}

## Agregando paginación

1. En el projecto **Shared** creamos la carpeta **DTOs** y dentro de esta creamos la clase **PaginationDTO**:

namespace StoresG8G8.Shared.DTOs

{

public class PaginationDTO

{

public int Id { get; set; }

public int Page { get; set; } = 1;

public int RecordsNumber { get; set; } = 10;

}

}

1. En el proyecto **API** creamos el folder **Helpers** y dentro de este la clase **QueryableExtensions**:

using StoresG8G8.Shared.DTOs;

namespace StoresG8G8.API.Helpers

{

public static class QueryableExtensions

{

public static IQueryable<T> Paginate<T>(this IQueryable<T> queryable,

PaginationDTO pagination)

{

return queryable

.Skip((pagination.Page - 1) \* pagination.RecordsNumber)

.Take(pagination.RecordsNumber);

}

}

}

1. Modificamos el **CountriesController** para agregar la paginación en el método **GET** y de paso agregamos el método **GetPages**:

[HttpGet]

public async Task<IActionResult> GetAsync([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.Countries

.Include(x => x.States)

.AsQueryable();

return Ok(await queryable

.OrderBy(x => x.Name)

.Paginate(pagination)

.ToListAsync());

}

[HttpGet("totalPages")]

public async Task<ActionResult> GetPages([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.Countries.AsQueryable();

double count = await queryable.CountAsync();

double totalPages = Math.Ceiling(count / pagination.RecordsNumber);

return Ok(totalPages);

}

1. Probamos la paginación con Swagger.
2. Creamos en el proyecto **WEB** en la carpeta **Shared** el componente **Pagination**:

<nav>

<ul class="pagination">

@foreach (var link in Links)

{

<li @onclick=@(() => InternalSelectedPage(link)) style="cursor: pointer" class="page-item @(link.Enable ? null : "disabled") @(link.Enable ? "active" : null)">

<a class="page-link">@link.Text</a>

</li>

}

</ul>

</nav>

@code {

[Parameter] public int CurrentPage { get; set; } = 1;

[Parameter] public int TotalPages { get; set; }

[Parameter] public int Radio { get; set; } = 5;

[Parameter] public EventCallback<int> SelectedPage { get; set; }

List<PageModel> Links = new();

protected override void OnParametersSet()

{

Links = new List<PageModel>();

var previousLinkEnable = CurrentPage != 1;

var previousLinkPage = CurrentPage - 1;

Links.Add(new PageModel

{

Text = "Anterior",

Page = previousLinkPage,

Enable = previousLinkEnable

});

for (int i = 1; i <= TotalPages; i++)

{

if (i >= CurrentPage - Radio && i <= CurrentPage + Radio)

{

Links.Add(new PageModel

{

Page = i,

Enable = CurrentPage == i,

Text = $"{i}"

});

}

}

var linkNextEnable = CurrentPage != TotalPages;

var linkNextPage = CurrentPage + 1;

Links.Add(new PageModel

{

Text = "Siguiente",

Page = linkNextPage,

Enable = linkNextEnable

});

}

private async Task InternalSelectedPage(PageModel pageModel)

{

if (pageModel.Page == CurrentPage || pageModel.Page == 0)

{

return;

}

await SelectedPage.InvokeAsync(pageModel.Page);

}

class PageModel

{

public string Text { get; set; } = null!;

public int Page { get; set; }

public bool Enable { get; set; } = true;

public bool Active { get; set; } = false;

}

}

1. Modificamos nuestro componente **CountriesIndex**:

@page "/countries"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

<h3>Países</h3>

<Pagination CurrentPage="currentPage"

TotalPages="totalPages"

SelectedPage="SelectedPage" />

<GenericList MyList="Countries">

<Body>

<table class="table table-striped">

<thead>

<tr>

<th>País</th>

<th style="width:220px">Estados / Departamentos</th>

<th style="width:280px"></th>

</tr>

</thead>

<tbody>

@foreach (var country in Countries!)

{

<tr>

<td>

@country.Name

</td>

<td>

@country.StatesNumber

</td>

<td>

<a class="btn btn-info" href="/countries/details/@country.Id">Detalles</a>

<a class="btn btn-warning" href="/countries/edit/@country.Id">Editar</a>

<button class="btn btn-danger" @onclick=@(() => DeleteAsync(country.Id))>Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</Body>

</GenericList>

@code {

public List<Country>? Countries { get; set; }

private int currentPage = 1;

private int totalPages;

protected override async Task OnInitializedAsync()

{

await LoadAsync();

}

private async Task SelectedPage(int page)

{

currentPage = page;

await LoadAsync(page);

}

private async Task LoadAsync(int page = 1)

{

string url1 = $"api/countries?page={page}";

string url2 = $"api/countries/totalPages";

var responseHppt = await repository.Get<List<Country>>(url1);

var responseHppt2 = await repository.Get<int>(url2);

Countries = responseHppt.Response!;

totalPages = responseHppt2.Response!;

}

private async Task DeleteAsync(int id)

{

var result = await sweetAlertService.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Realmente deseas eliminar el registro?",

Icon = SweetAlertIcon.Question,

ShowCancelButton = true,

CancelButtonText = "No",

ConfirmButtonText = "Si"

});

var confirm = string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

var responseHttp = await repository.Delete($"/api/countries/{id}");

if (responseHttp.Error)

{

if(responseHttp.HttpResponseMessage.StatusCode != HttpStatusCode.NotFound)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

}

await LoadAsync();

}

}

1. Probamos.
2. Ahora vamos hacer lo mismo para estados. Empezamos modificando el GET del **StatesController** y de paso creamos el método para obtener el número de página:

[HttpGet]

public async Task<ActionResult> Get([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.States

.Include(x => x.Cities)

.Where(x => x.Country!.Id == pagination.Id)

.AsQueryable();

return Ok(await queryable

.OrderBy(x => x.Name)

.Paginate(pagination)

.ToListAsync());

}

[HttpGet("totalPages")]

public async Task<ActionResult> GetPages([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.States

.Where(x => x.Country!.Id == pagination.Id)

.AsQueryable();

double count = await queryable.CountAsync();

double totalPages = Math.Ceiling(count / pagination.RecordsNumber);

return Ok(totalPages);

}

1. Probamos en swagger:
2. Luego modificamos el **CountryDetails**:

@page "/countries/details/{Id:int}"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

@if(country is null)

{

<p>Cargando...</p>

} else

{

<h3>@country.Name</h3>

<Pagination CurrentPage="currentPage"

TotalPages="totalPages"

SelectedPage="SelectedPage" />

<GenericList MyList="sates!">

<Body>

<table class="table table-striped">

<thead>

<tr>

<th>Estado / Departamento</th>

<th style="width:140px">Ciudades</th>

<th style="width:260px"></th>

</tr>

</thead>

<tbody>

@foreach (var state in states!)

{

<tr>

<td>

@state.Name

</td>

<td>

@state.CitiesNumber

</td>

<td>

<a class="btn btn-info" href="/states/details/@state.Id">Detalles</a>

<a class="btn btn-warning" href="/states/edit/@state.Id">Editar</a>

<button class="btn btn-danger" @onclick=@(() => DeleteAsync(state.Id))>Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</Body>

</GenericList>

}

@code {

private Country? country;

private List<State>? states;

private int currentPage = 1;

private int totalPages;

[Parameter]

public int Id { get; set; }

protected override async Task OnInitializedAsync()

{

await LoadAsync();

}

private async Task SelectedPage(int page)

{

currentPage = page;

await LoadAsync(page);

}

private async Task LoadAsync(int page = 1)

{

string url1 = $"api/states?id={Id}&page={page}";

string url2 = $"api/states/totalPages?id={Id}";

var responseHppt = await repository.Get<Country>($"api/countries/{Id}");

var responseHppt2 = await repository.Get<List<State>>(url1);

var responseHppt3 = await repository.Get<int>(url2);

country = responseHppt.Response;

states = responseHppt2.Response;

totalPages = responseHppt3.Response;

}

private async Task DeleteAsync(int id)

{

var result = await sweetAlertService.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Realmente deseas eliminar el registro?",

Icon = SweetAlertIcon.Question,

ShowCancelButton = true,

CancelButtonText = "No",

ConfirmButtonText = "Si"

});

var confirm = string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

var responseHttp = await repository.Delete($"/api/states/{id}");

if (responseHttp.Error)

{

if (responseHttp.HttpResponseMessage.StatusCode != HttpStatusCode.NotFound)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

}

await LoadAsync();

}

}

1. Probamos.
2. Ahora vamos hacer lo mismo para ciudades. Empezamos modificando el GET del **CitiesController** y de paso creamos el método para obtener el número de página:

[HttpGet]

public async Task<ActionResult> Get([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.Cities

.Where(x => x.State!.Id == pagination.Id)

.AsQueryable();

return Ok(await queryable

.OrderBy(x => x.Name)

.Paginate(pagination)

.ToListAsync());

}

[HttpGet("totalPages")]

public async Task<ActionResult> GetPages([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.Cities

.Where(x => x.State!.Id == pagination.Id)

.AsQueryable();

double count = await queryable.CountAsync();

double totalPages = Math.Ceiling(count / pagination.RecordsNumber);

return Ok(totalPages);

}

1. Probamos en swagger:
2. Luego modificamos el **StateDetail**:

@page "/states/details/{StateId:int}"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

@if (state is null)

{

<p>Cargando...</p>

}

else

{

<h3>@state.Name</h3>

<Pagination CurrentPage="currentPage"

TotalPages="totalPages"

SelectedPage="SelectedPage" />

<GenericList MyList="cities!">

<Body>

<table class="table table-striped">

<thead>

<tr>

<th>Ciudad</th>

<th style="width:180px"></th>

</tr>

</thead>

<tbody>

@foreach (var city in cities!)

{

<tr>

<td>

@city.Name

</td>

<td>

<a class="btn btn-warning" href="/cities/edit/@city.Id">Editar</a>

<button class="btn btn-danger" @onclick=@(() => DeleteAsync(city.Id))>Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</Body>

</GenericList>

}

@code {

private State? state;

private List<City>? cities;

private int currentPage = 1;

private int totalPages;

[Parameter]

public int StateId { get; set; }

protected override async Task OnInitializedAsync()

{

await LoadAsync();

}

private async Task SelectedPage(int page)

{

currentPage = page;

await LoadAsync(page);

}

private async Task LoadAsync(int page = 1)

{

string url1 = $"api/cities?id={StateId}&page={page}";

string url2 = $"api/cities/totalPages?id={StateId}";

var responseHppt = await repository.Get<State>($"api/states/{StateId}");

var responseHppt2 = await repository.Get<List<City>>(url1);

var responseHppt3 = await repository.Get<int>(url2);

state = responseHppt.Response;

cities = responseHppt2.Response;

totalPages = responseHppt3.Response;

}

private async Task DeleteAsync(int CityId)

{

var result = await sweetAlertService.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Realmente deseas eliminar el registro?",

Icon = SweetAlertIcon.Question,

ShowCancelButton = true,

CancelButtonText = "No",

ConfirmButtonText = "Si"

});

var confirm = string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

var responseHttp = await repository.Delete($"/api/cities/{CityId}");

if (responseHttp.Error)

{

if (responseHttp.HttpResponseMessage.StatusCode != HttpStatusCode.NotFound)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

}

await LoadAsync();

}

private async Task CleanFilterAsync()

{

Filter = string.Empty;

await ApplyFilterAsync();

}

}

1. Probamos y hacemos el **commit**.

## Agregando filtros

1. En el projecto **Shared** modificamos la clase **PaginationDTO**:

public int RecordsNumber { get; set; } = 10;

public string? Filter { get; set; }

1. En el projecto **API** modificamos los métodos **Get** y **GetPages** del controlador **CountriesController**:

[HttpGet]

public async Task<IActionResult> GetAsync([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.Countries

.Include(x => x.States)

.AsQueryable();

if (!string.IsNullOrWhiteSpace(pagination.Filter))

{

queryable = queryable.Where(x => x.Name.ToLower().Contains(pagination.Filter.ToLower()));

}

return Ok(await queryable

.OrderBy(x => x.Name)

.Paginate(pagination)

.ToListAsync());

}

[HttpGet("totalPages")]

public async Task<ActionResult> GetPages([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.Countries.AsQueryable();

if (!string.IsNullOrWhiteSpace(pagination.Filter))

{

queryable = queryable.Where(x => x.Name.ToLower().Contains(pagination.Filter.ToLower()));

}

double count = await queryable.CountAsync();

double totalPages = Math.Ceiling(count / pagination.RecordsNumber);

return Ok(totalPages);

}

1. En el projecto **WEB** modificamos el **CountriesIndex**:

@page "/countries"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

<h3>Países</h3>

<div class="mb-2" style="display: flex; flex-wrap:wrap; align-items: center;">

<div>

<a class="btn btn-primary" href="/countries/create">Nuevo País</a>

</div>

<div class="mx-2">

<input style="width: 400px;" type="text" class="form-control" id="titulo" placeholder="Buscar país..." @bind-value="Filter" />

</div>

<div>

<button type="button" class="btn btn-outline-primary" @onclick="ApplyFilterAsync">Filtrar</button>

<button type="button" class="btn btn-outline-danger" @onclick="CleanFilterAsync">Limpiar</button>

</div>

</div>

<Pagination CurrentPage="currentPage"

TotalPages="totalPages"

SelectedPage="SelectedPage" />

<GenericList MyList="Countries">

<Body>

<table class="table table-striped">

<thead>

<tr>

<th>País</th>

<th style="width:220px">Estados / Departamentos</th>

<th style="width:260px"></th>

</tr>

</thead>

<tbody>

@foreach (var country in Countries!)

{

<tr>

<td>

@country.Name

</td>

<td>

@country.StatesNumber

</td>

<td>

<a class="btn btn-info" href="/countries/details/@country.Id">Detalles</a>

<a class="btn btn-warning" href="/countries/edit/@country.Id">Editar</a>

<button class="btn btn-danger" @onclick=@(() => DeleteAsync(country.Id))>Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</Body>

</GenericList>

@code {

public List<Country>? Countries { get; set; }

private int currentPage = 1;

private int totalPages;

[Parameter]

[SupplyParameterFromQuery]

public string Page { get; set; } = "";

[Parameter]

[SupplyParameterFromQuery]

public string Filter { get; set; } = "";

protected override async Task OnInitializedAsync()

{

await LoadAsync();

}

private async Task SelectedPage(int page)

{

currentPage = page;

await LoadAsync(page);

}

private async Task LoadAsync(int page = 1)

{

if (!string.IsNullOrWhiteSpace(Page))

{

page = Convert.ToInt32(Page);

}

string url1 = string.Empty;

string url2 = string.Empty;

if (string.IsNullOrEmpty(Filter))

{

url1 = $"api/countries?page={page}";

url2 = $"api/countries/totalPages";

}

else

{

url1 = $"api/countries?page={page}&filter={Filter}";

url2 = $"api/countries/totalPages?filter={Filter}";

}

var responseHppt = await repository.Get<List<Country>>(url1);

var responseHppt2 = await repository.Get<int>(url2);

Countries = responseHppt.Response!;

totalPages = responseHppt2.Response!;

}

private async Task DeleteAsync(int id)

{

var result = await sweetAlertService.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Realmente deseas eliminar el registro?",

Icon = SweetAlertIcon.Question,

ShowCancelButton = true,

CancelButtonText = "No",

ConfirmButtonText = "Si"

});

var confirm = string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

var responseHttp = await repository.Delete($"/api/countries/{id}");

if (responseHttp.Error)

{

if(responseHttp.HttpResponseMessage.StatusCode != HttpStatusCode.NotFound)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

}

await LoadAsync();

}

private async Task CleanFilterAsync()

{

Filter = string.Empty;

await ApplyFilterAsync();

}

private async Task ApplyFilterAsync()

{

int page = 1;

await LoadAsync(page);

await SelectedPage(page);

}

}

1. Probamos y hacemos el **commit**.
2. Replicamos para estados y ciudades, primero modificamos el **StatesController**:

[HttpGet]

public async Task<ActionResult> Get([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.States

.Include(x => x.Cities)

.Where(x => x.Country!.Id == pagination.Id)

.AsQueryable();

if (!string.IsNullOrWhiteSpace(pagination.Filter))

{

queryable = queryable.Where(x => x.Name.ToLower().Contains(pagination.Filter.ToLower()));

}

return Ok(await queryable

.OrderBy(x => x.Name)

.Paginate(pagination)

.ToListAsync());

}

[HttpGet("totalPages")]

public async Task<ActionResult> GetPages([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.States

.Where(x => x.Country!.Id == pagination.Id)

.AsQueryable();

if (!string.IsNullOrWhiteSpace(pagination.Filter))

{

queryable = queryable.Where(x => x.Name.ToLower().Contains(pagination.Filter.ToLower()));

}

double count = await queryable.CountAsync();

double totalPages = Math.Ceiling(count / pagination.RecordsNumber);

return Ok(totalPages);

}

1. Luego modificamos el **CitiesController**:

[HttpGet]

public async Task<ActionResult> Get([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.Cities

.Where(x => x.State!.Id == pagination.Id)

.AsQueryable();

if (!string.IsNullOrWhiteSpace(pagination.Filter))

{

queryable = queryable.Where(x => x.Name.ToLower().Contains(pagination.Filter.ToLower()));

}

return Ok(await queryable

.OrderBy(x => x.Name)

.Paginate(pagination)

.ToListAsync());

}

[HttpGet("totalPages")]

public async Task<ActionResult> GetPages([FromQuery] PaginationDTO pagination)

{

var queryable = \_context.Cities

.Where(x => x.State!.Id == pagination.Id)

.AsQueryable();

if (!string.IsNullOrWhiteSpace(pagination.Filter))

{

queryable = queryable.Where(x => x.Name.ToLower().Contains(pagination.Filter.ToLower()));

}

double count = await queryable.CountAsync();

double totalPages = Math.Ceiling(count / pagination.RecordsNumber);

return Ok(totalPages);

}

1. Modificamos el **CountryDetails**.

@page "/countries/details/{Id:int}"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

@if(country is null)

{

<p>Cargando...</p>

} else

{

<h3>@country.Name</h3>

<div class="mb-2" style="display: flex; flex-wrap:wrap; align-items: center;">

<div>

<a class="btn btn-primary" href="/states/create/@country.Id">Nuevo Estado/Departamento</a>

<a class="btn btn-success" href="/countries">Regresar</a>

</div>

<div class="mx-2">

<input style="width: 400px;" type="text" class="form-control" id="titulo" placeholder="Buscar estado/departamento..." @bind-value="Filter" />

</div>

<div>

<button type="button" class="btn btn-outline-primary" @onclick="ApplyFilterAsync">Filtrar</button>

<button type="button" class="btn btn-outline-danger" @onclick="CleanFilterAsync">Limpiar</button>

</div>

</div>

<Pagination CurrentPage="currentPage"

TotalPages="totalPages"

SelectedPage="SelectedPage" />

<GenericList MyList="states!">

<Body>

<table class="table table-striped">

<thead>

<tr>

<th>Estado / Departamento</th>

<th style="width:140px">Ciudades</th>

<th style="width:260px"></th>

</tr>

</thead>

<tbody>

@foreach (var state in states!)

{

<tr>

<td>

@state.Name

</td>

<td>

@state.CitiesNumber

</td>

<td>

<a class="btn btn-info" href="/states/details/@state.Id">Detalles</a>

<a class="btn btn-warning" href="/states/edit/@state.Id">Editar</a>

<button class="btn btn-danger" @onclick=@(() => DeleteAsync(state.Id))>Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</Body>

</GenericList>

}

@code {

private Country? country;

private List<State>? states;

private int currentPage = 1;

private int totalPages;

[Parameter]

public int Id { get; set; }

[Parameter]

[SupplyParameterFromQuery]

public string Page { get; set; } = "";

[Parameter]

[SupplyParameterFromQuery]

public string Filter { get; set; } = "";

protected override async Task OnInitializedAsync()

{

await LoadAsync();

}

private async Task SelectedPage(int page)

{

currentPage = page;

await LoadAsync(page);

}

private async Task LoadAsync(int page = 1)

{

if (!string.IsNullOrWhiteSpace(Page))

{

page = Convert.ToInt32(Page);

}

string url1 = string.Empty;

string url2 = string.Empty;

if (string.IsNullOrEmpty(Filter))

{

url1 = $"api/states?id={Id}&page={page}";

url2 = $"api/states/totalPages?id={Id}";

}

else

{

url1 = $"api/states?id={Id}&page={page}&filter={Filter}";

url2 = $"api/states/totalPages?id={Id}&filter={Filter}";

}

var responseHppt = await repository.Get<Country>($"api/countries/{Id}");

var responseHppt2 = await repository.Get<List<State>>(url1);

var responseHppt3 = await repository.Get<int>(url2);

country = responseHppt.Response;

states = responseHppt2.Response;

totalPages = responseHppt3.Response;

}

private async Task DeleteAsync(int id)

{

var result = await sweetAlertService.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Realmente deseas eliminar el registro?",

Icon = SweetAlertIcon.Question,

ShowCancelButton = true,

CancelButtonText = "No",

ConfirmButtonText = "Si"

});

var confirm = string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

var responseHttp = await repository.Delete($"/api/states/{id}");

if (responseHttp.Error)

{

if (responseHttp.HttpResponseMessage.StatusCode != HttpStatusCode.NotFound)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

}

await LoadAsync();

}

private async Task CleanFilterAsync()

{

Filter = string.Empty;

await ApplyFilterAsync();

}

private async Task ApplyFilterAsync()

{

int page = 1;

await LoadAsync(page);

await SelectedPage(page);

}

}

1. Modificamos el **StateDetails**.

@page "/states/details/{StateId:int}"

@inject IRepository repository

@inject NavigationManager navigationManager

@inject SweetAlertService sweetAlertService

@if (state is null)

{

<p>Cargando...</p>

}

else

{

<h3>@state.Name</h3>

<div class="mb-2" style="display: flex; flex-wrap:wrap; align-items: center;">

<div>

<a class="btn btn-primary" href="/cities/create/@StateId">Nueva Ciudad</a>

<a class="btn btn-success" href="/countries/details/@state.CountryId">Regresar</a>

</div>

<div class="mx-2">

<input style="width: 400px;" type="text" class="form-control" id="titulo" placeholder="Buscar ciudad..." @bind-value="Filter" />

</div>

<div>

<button type="button" class="btn btn-outline-primary" @onclick="ApplyFilterAsync">Filtrar</button>

<button type="button" class="btn btn-outline-danger" @onclick="CleanFilterAsync">Limpiar</button>

</div>

</div>

<Pagination CurrentPage="currentPage"

TotalPages="totalPages"

SelectedPage="SelectedPage" />

<GenericList MyList="cities!">

<Body>

<table class="table table-striped">

<thead>

<tr>

<th>Ciudad</th>

<th style="width:180px"></th>

</tr>

</thead>

<tbody>

@foreach (var city in cities!)

{

<tr>

<td>

@city.Name

</td>

<td>

<a class="btn btn-warning" href="/cities/edit/@city.Id">Editar</a>

<button class="btn btn-danger" @onclick=@(() => DeleteAsync(city.Id))>Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</Body>

</GenericList>

}

@code {

private State? state;

private List<City>? cities;

private int currentPage = 1;

private int totalPages;

[Parameter]

public int StateId { get; set; }

[Parameter]

[SupplyParameterFromQuery]

public string Page { get; set; } = "";

[Parameter]

[SupplyParameterFromQuery]

public string Filter { get; set; } = "";

protected override async Task OnInitializedAsync()

{

await LoadAsync();

}

private async Task SelectedPage(int page)

{

currentPage = page;

await LoadAsync(page);

}

private async Task LoadAsync(int page = 1)

{

if (!string.IsNullOrWhiteSpace(Page))

{

page = Convert.ToInt32(Page);

}

string url1 = string.Empty;

string url2 = string.Empty;

if (string.IsNullOrEmpty(Filter))

{

url1 = $"api/cities?id={StateId}&page={page}";

url2 = $"api/cities/totalPages?id={StateId}";

}

else

{

url1 = $"api/cities?id={StateId}&page={page}&filter={Filter}";

url2 = $"api/cities/totalPages?id={StateId}&filter={Filter}";

}

var responseHppt = await repository.Get<State>($"api/states/{StateId}");

var responseHppt2 = await repository.Get<List<City>>(url1);

var responseHppt3 = await repository.Get<int>(url2);

state = responseHppt.Response;

cities = responseHppt2.Response;

totalPages = responseHppt3.Response;

}

private async Task DeleteAsync(int CityId)

{

var result = await sweetAlertService.FireAsync(new SweetAlertOptions

{

Title = "Confirmación",

Text = "¿Realmente deseas eliminar el registro?",

Icon = SweetAlertIcon.Question,

ShowCancelButton = true,

CancelButtonText = "No",

ConfirmButtonText = "Si"

});

var confirm = string.IsNullOrEmpty(result.Value);

if (confirm)

{

return;

}

var responseHttp = await repository.Delete($"/api/cities/{CityId}");

if (responseHttp.Error)

{

if (responseHttp.HttpResponseMessage.StatusCode != HttpStatusCode.NotFound)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

}

await LoadAsync();

}

private async Task CleanFilterAsync()

{

Filter = string.Empty;

await ApplyFilterAsync();

}

private async Task ApplyFilterAsync()

{

int page = 1;

await LoadAsync(page);

await SelectedPage(page);

}

}

## Creando las tablas de usuarios

1. Como vamos a tener dos tipos de usuarios; administradores y usuarios. Vamos a crear una enumeración para diferenciarlos. Creamos la carpeta **Enums** en el proyecto **Shared** y dentro de esta carpeta la enumeración **UserType**:

namespace StoresG8.Shared.Enums

{

public enum UserType

{

Admin,

User

}

}

1. En el proyecto **Shared** instalar el nuget **Microsoft.AspNetCore.Identity.EntityFrameworkCore** última versión (hoy es 7.0.5)
2. En el proyecto **Shared** en la carpeta **Entities**, crear la entidad **User**:

using Microsoft.AspNetCore.Identity;

using StoresG8.Shared.Enums;

using System.ComponentModel.DataAnnotations;

namespace StoresG8.Shared.Entities

{

public class User : IdentityUser

{

[Display(Name = "Documento")]

[MaxLength(20, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string Document { get; set; } = null!;

[Display(Name = "Nombres")]

[MaxLength(50, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string FirstName { get; set; } = null!;

[Display(Name = "Apellidos")]

[MaxLength(50, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string LastName { get; set; } = null!;

[Display(Name = "Dirección")]

[MaxLength(200, ErrorMessage = "El campo {0} debe tener máximo {1} caractéres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string Address { get; set; } = null!;

[Display(Name = "Foto")]

public string? Photo { get; set; }

[Display(Name = "Tipo de usuario")]

public UserType UserType { get; set; }

public City? City { get; set; }

[Display(Name = "Ciudad")]

[Range(1, int.MaxValue, ErrorMessage = "Debes seleccionar una {0}.")]

public int CityId { get; set; }

[Display(Name = "Usuario")]

public string FullName => $"{FirstName} {LastName}";

}

}

1. Modificamos la entidad **City** para definir la relación a ambos lados de esta:

public State? State { get; set; }

public ICollection<User>? Users { get; set; }

1. En el proyecto **API** instalar el nugget **Microsoft.AspNetCore.Identity.EntityFrameworkCore** la última versión(hoy es la 7.0.5)
2. Modificar el **DataContext**:

public class DataContext : IdentityDbContext<User>

1. Crear la interfaz **IUserHelper** en **API.Helpers**:

using Microsoft.AspNetCore.Identity;

using StoresG8.Shared.Entities;

namespace StoresG8.API.Helpers

{

public interface IUserHelper

{

Task<User> GetUserAsync(string email);

Task<IdentityResult> AddUserAsync(User user, string password);

Task CheckRoleAsync(string roleName);

Task AddUserToRoleAsync(User user, string roleName);

Task<bool> IsUserInRoleAsync(User user, string roleName);

}

}

1. Luego hacemos la implementación de dicha interfaz:

using Microsoft.AspNetCore.Identity;

using Microsoft.EntityFrameworkCore;

using StoresG8.API.Data;

using StoresG8.Shared.Entities;

namespace StoresG8.API.Helpers

{

public class UserHelper : IUserHelper

{

private readonly DataContext \_context;

private readonly UserManager<User> \_userManager;

private readonly RoleManager<IdentityRole> \_roleManager;

public UserHelper(DataContext context, UserManager<User> userManager, RoleManager<IdentityRole> roleManager)

{

\_context = context;

\_userManager = userManager;

\_roleManager = roleManager;

}

public async Task<IdentityResult> AddUserAsync(User user, string password)

{

return await \_userManager.CreateAsync(user, password);

}

public async Task AddUserToRoleAsync(User user, string roleName)

{

await \_userManager.AddToRoleAsync(user, roleName);

}

public async Task CheckRoleAsync(string roleName)

{

bool roleExists = await \_roleManager.RoleExistsAsync(roleName);

if (!roleExists)

{

await \_roleManager.CreateAsync(new IdentityRole

{

Name = roleName

});

}

}

public async Task<User> GetUserAsync(string email)

{

return await \_context.Users

.Include(u => u.City)

.ThenInclude(c => c.State)

.ThenInclude(s => s.Country)

.FirstOrDefaultAsync(x => x.Email == email);

}

public async Task<bool> IsUserInRoleAsync(User user, string roleName)

{

return await \_userManager.IsInRoleAsync(user, roleName);

}

}

}

1. Modificamos el **Program** del proyecto **API**:

builder.Services.AddScoped<IApiService, ApiService>();

builder.Services.AddIdentity<User, IdentityRole>(x =>

{

x.User.RequireUniqueEmail = true;

x.Password.RequireDigit = false;

x.Password.RequiredUniqueChars = 0;

x.Password.RequireLowercase = false;

x.Password.RequireNonAlphanumeric = false;

x.Password.RequireUppercase = false;

})

.AddEntityFrameworkStoresG8<DataContext>()

.AddDefaultTokenProviders();

builder.Services.AddScoped<IUserHelper, UserHelper>();

var app = builder.Build();

SeedData(app);

void SeedData(WebApplication app)

{

IServiceScopeFactory? scopedFactory = app.Services.GetService<IServiceScopeFactory>();

using (IServiceScope? scope = scopedFactory!.CreateScope())

{

SeedDb? service = scope.ServiceProvider.GetService<SeedDb>();

service!.SeedAsync().Wait();

}

}

if (app.Environment.IsDevelopment())

{

app.UseSwagger();

app.UseSwaggerUI();

}

app.UseHttpsRedirection();

app.UseAuthentication();

app.UseAuthorization();

1. Modificamos el **SeedDb**:

public class SeedDb

{

private readonly DataContext \_context;

private readonly IApiService \_apiService;

private readonly IUserHelper \_userHelper;

public SeedDb(DataContext context, IApiService apiService, IUserHelper userHelper)

{

\_context = context;

\_apiService = apiService;

\_userHelper = userHelper;

}

public async Task SeedAsync()

{

await \_context.Database.EnsureCreatedAsync();

await CheckCountriesAsync();

await CheckRolesAsync();

await CheckUserAsync("1", "OAP", "OAP", "oap@yopmail.com", "300445555", "CR 78 9687", UserType.Admin);

}

private async Task<User> CheckUserAsync(string document, string firstName, string lastName, string email, string phone, string address, UserType userType)

{

var user = await \_userHelper.GetUserAsync(email);

if (user == null)

{

user = new User

{

FirstName = firstName,

LastName = lastName,

Email = email,

UserName = email,

PhoneNumber = phone,

Address = address,

Document = document,

City = \_context.Cities.FirstOrDefault(),

UserType = userType,

};

await \_userHelper.AddUserAsync(user, "123456");

await \_userHelper.AddUserToRoleAsync(user, userType.ToString());

}

return user;

}

private async Task CheckRolesAsync()

{

await \_userHelper.CheckRoleAsync(UserType.Admin.ToString());

await \_userHelper.CheckRoleAsync(UserType.User.ToString());

}

1. Corremos los siguientes comandos:

PM> drop-database

PM> add-migration Users

PM> update-database

1. Probamos y hacemos el **commit**.

## Creando sistema de seguridad

1. Al proyecto **WEB** agregamos el paquete: **Microsoft.AspNetCore.Components.WebAssembly.Authentication** ver **7.0.5**.
2. Agregamos este using en el **\_Imports**:

@using Microsoft.AspNetCore.Components.Authorization

1. En el proyecto **WEB** creamos la carpeta **Auth** y dentro de esta la clase **AuthenticationProviderTest**:

using Microsoft.AspNetCore.Components.Authorization;

using System.Security.Claims;

namespace StoresG8WEB.Auth

{

public class AuthenticationProviderTest : AuthenticationStateProvider

{

public override async Task<AuthenticationState> GetAuthenticationStateAsync()

{

var anonimous = new ClaimsIdentity();

return await Task.FromResult(new AuthenticationState(new ClaimsPrincipal(anonimous)));

}

}

}

1. Modificamos el **Program** del proyecto **WEB**:

builder.Services.AddSingleton(sp => new HttpClient { BaseAddress = new Uri("https://localhost:7201/") });

builder.Services.AddScoped<IRepository, Repository>();

builder.Services.AddSweetAlert2();

builder.Services.AddAuthorizationCore();

builder.Services.AddScoped<AuthenticationStateProvider, AuthenticationProviderTest>();

1. Modificamos el **App.razor**:

@using Microsoft.AspNetCore.Components.Authorization

<Router AppAssembly="@typeof(App).Assembly">

<Found Context="routeData">

<AuthorizeRouteView RouteData="@routeData" DefaultLayout="@typeof(MainLayout)" />

<FocusOnNavigate RouteData="@routeData" Selector="h1" />

</Found>

<NotFound>

<CascadingAuthenticationState>

<PageTitle>No encontrado</PageTitle>

<LayoutView Layout="@typeof(MainLayout)">

<p role="alert">Lo sentimos no hay nada en esta ruta.</p>

</LayoutView>

</CascadingAuthenticationState>

</NotFound>

</Router>

1. Probamos y vemos que aparentemente no pasa nada, ahora a nuestro **AuthenticationProviderTest** le vamos a colocar un tiempo de espera:

public override async Task<AuthenticationState> GetAuthenticationStateAsync()

{

await Task.Delay(3000);

var anonimous = new ClaimsIdentity();

return await Task.FromResult(new AuthenticationState(new ClaimsPrincipal(anonimous)));

}

1. Probamos de nuevo y vemos que tarda los 3 segundos haciendo la autorización.
2. Si queremos cambiar el mensaje, modificamos el **App.razor**:

<AuthorizeRouteView RouteData="@routeData" DefaultLayout="@typeof(MainLayout)">

<Authorizing>

<p>Autorizando...</p>

</Authorizing>

</AuthorizeRouteView>

1. Probamos de nuevo.
2. Modificamos el **Index.razor**.

@page "/"

@using Microsoft.AspNetCore.Components.Authorization

<PageTitle>Index</PageTitle>

<AuthorizeView>

<p>Estas autenticado</p>

</AuthorizeView>

<h1>Hello, world!</h1>

Welcome to your new app.

<SurveyPrompt Title="How is Blazor working for you?" />

1. Modificamos el **AuthenticationProviderTest**:

public override async Task<AuthenticationState> GetAuthenticationStateAsync()

{

var anonimous = new ClaimsIdentity();

var oapUser = new ClaimsIdentity(authenticationType: "test");

return await Task.FromResult(new AuthenticationState(new ClaimsPrincipal(oapUser)));

}

1. Cambiamos el **Index.razor**.

<AuthorizeView>

<Authorized>

<p>Estas autenticado</p>

</Authorized>

<NotAuthorized>

<p>No estas autorizado</p>

</NotAuthorized>

</AuthorizeView>

1. Y jugamos con el **AuthenticationProviderTest** para ver que pasa con el usuario **anonimous** y con el usuario **oapUser**.
2. Modificamos nuestro **AuthenticationProviderTest**, para agregar algunos **Claims**:

public override async Task<AuthenticationState> GetAuthenticationStateAsync()

{

var anonimous = new ClaimsIdentity();

var oapUser = new ClaimsIdentity(new List<Claim>

{

new Claim("FirstName", "Luis"),

new Claim("LastName", "O"),

new Claim(ClaimTypes.Name, "oap@yopmail.com")

},

authenticationType: "test");

return await Task.FromResult(new AuthenticationState(new ClaimsPrincipal(oapUser)));

}

1. Modificamos el **Index.razor** y probamos:

<AuthorizeView>

<Authorized>

<p>Estas autenticado, @context.User.Identity?.Name</p>

</Authorized>

<NotAuthorized>

<p>No estas autorizado</p>

</NotAuthorized>

</AuthorizeView>

1. Modificamos de nuevo el **Index.razor** para crear un **Role** y probamos:

<AuthorizeView Roles="Admin">

<Authorized>

<p>Estas autenticado y autorizado, @context.User.Identity?.Name</p>

</Authorized>

<NotAuthorized>

<p>No estas autorizado</p>

</NotAuthorized>

</AuthorizeView>

1. Modificamos nuestro **AuthenticationProviderTest**, para agregar el **Claim** de **Role** y probamos:

var oapUser = new ClaimsIdentity(new List<Claim>

{

new Claim("FirstName", "Juan"),

new Claim("LastName", "Oap"),

new Claim(ClaimTypes.Name, "oap@yopmail.com"),

new Claim(ClaimTypes.Role, "Admin")

},

authenticationType: "test");

1. Ahora cambiamos nuestro **NavMenu** para mostrar la opción de países solo a los administradores, y jugamos con nuestro **AuthenticationProviderTest** para cambiarle el rol al usuario:

@using Microsoft.AspNetCore.Components.Authorization

<div class="@NavMenuCssClass nav-scrollable" @onclick="ToggleNavMenu">

<nav class="flex-column">

<div class="nav-item px-3">

<NavLink class="nav-link" href="" Match="NavLinkMatch.All">

<span class="oi oi-home" aria-hidden="true"></span> Home

</NavLink>

</div>

<div class="nav-item px-3">

<NavLink class="nav-link" href="counter">

<span class="oi oi-plus" aria-hidden="true"></span> Counter

</NavLink>

</div>

<AuthorizeView Roles="Admin">

<Authorized>

<div class="nav-item px-3">

<NavLink class="nav-link" href="countries">

<span class="oi oi-list-rich" aria-hidden="true"></span> Países

</NavLink>

</div>

</Authorized>

</AuthorizeView>

</nav>

</div>

1. Pero nótese que solo estamos ocultando la opción, si el usuario por la URL introduce la dirección de países, pues podrá acceder a nuestras páginas, lo cual es algo que no queremos.
2. Para evitar esto le colocamos este atributo a todos los componentes a los que navegamos y queremos proteger Countries:

@using Microsoft.AspNetCore.Authorization;

@attribute [Authorize(Roles = "Admin")]

1. Ahora si queremos personalizar el mensaje de autorización, podemos modificar todo nuestro **App.razor**:

@using Microsoft.AspNetCore.Components.Authorization

<Router AppAssembly="@typeof(App).Assembly">

<Found Context="routeData">

<AuthorizeRouteView RouteData="@routeData" DefaultLayout="@typeof(MainLayout)">

<Authorizing>

<p>Autorizando...</p>

</Authorizing>

<NotAuthorized>

<p>No estas autorizado para ver este contenido...</p>

</NotAuthorized>

</AuthorizeRouteView>

<FocusOnNavigate RouteData="@routeData" Selector="h1" />

</Found>

<NotFound>

<CascadingAuthenticationState>

<PageTitle>No encontrado</PageTitle>

<LayoutView Layout="@typeof(MainLayout)">

<p role="alert">Lo sentimos no hay nada en esta ruta.</p>

</LayoutView>

</CascadingAuthenticationState>

</NotFound>

</Router>

1. Probamos y hacemos el **commit**.

## Seguridad desde el backend

1. Antes de empezar corrijamos el Warnig del **GetUserAsync** en el **UserHelper**,

public async Task<User> GetUserAsync(string email)

{

var user = await \_context.Users

.Include(u => u.City!)

.ThenInclude(c => c.State!)

.ThenInclude(s => s.Country!)

.FirstOrDefaultAsync(u => u.Email! == email);

return user!;

}

1. Agregamos el paquete **Microsoft.AspNetCore.Authentication.JwtBearer** al proyecto **API**, versión 7.0.5.
2. Creamos el parámetro **jwtKey** en el appsettings del proyecto **API** (cualquier cosa, entre más larga mejor):

"AllowedHosts": "\*",

"jwtKey": "sagdsadgfeSDF674545REFG$%FEfgdslkjfglkjhfgdkljhdR5454545\_4TGRGtyo!!kjytkljty"

}

1. Modificamos el **Program** del proyecto **API**:

builder.Services.AddScoped<IUserHelper, UserHelper>();

builder.Services.AddAuthentication(JwtBearerDefaults.AuthenticationScheme)

.AddJwtBearer(x => x.TokenValidationParameters = new TokenValidationParameters

{

ValidateIssuer = false,

ValidateAudience = false,

ValidateLifetime = true,

ValidateIssuerSigningKey = true,

IssuerSigningKey = new SymmetricSecurityKey(Encoding.UTF8.GetBytes(builder.Configuration["jwtKey"]!)),

ClockSkew = TimeSpan.Zero

});

var app = builder.Build();

1. En el proyecto **Shared** en la carpeta **DTOs** creamos el **UserDTO**:

using StoresG8.Shared.Entities;

using System.ComponentModel.DataAnnotations;

using System.Xml.Linq;

namespace StoresG8.Shared.DTOs

{

public class UserDTO : User

{

[DataType(DataType.Password)]

[Display(Name = "Contraseña")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

[StringLength(20, MinimumLength = 6, ErrorMessage = "El campo {0} debe tener entre {2} y {1} carácteres.")]

public string Password { get; set; } = null!;

[Compare("Password", ErrorMessage = "La contraseña y la confirmación no son iguales.")]

[Display(Name = "Confirmación de contraseña")]

[DataType(DataType.Password)]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

[StringLength(20, MinimumLength = 6, ErrorMessage = "El campo {0} debe tener entre {2} y {1} carácteres.")]

public string PasswordConfirm { get; set; } = null!;

}

}

1. En el proyecto **Shared** en la carpeta **DTOs** creamos el **TokenDTO**:

using StoresG8.Shared.Entities;

namespace StoresG8.Shared.DTOs

{

public class TokenDTO

{

public string Token { get; set; } = null!;

public DateTime Expiration { get; set; }

}

}

1. En el proyecto **Shared** en la carpeta **DTOs** creamos el **LoginDTO**:

using System.ComponentModel.DataAnnotations;

namespace StoresG8.Shared.DTOs

{

public class LoginDTO

{

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

[EmailAddress(ErrorMessage = "Debes ingresar un correo válido.")]

public string Email { get; set; } = null!;

[Display(Name = "Contraseña")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

[MinLength(6, ErrorMessage = "El campo {0} debe tener al menos {1} carácteres.")]

public string Password { get; set; } = null!;

}

}

1. Agregamos estos métodos al **IUserHelper**:

Task<SignInResult> LoginAsync(LoginDTO model);

Task LogoutAsync();

1. Los implementamos en el **UserHelper**:

private readonly DataContext \_context;

private readonly UserManager<User> \_userManager;

private readonly RoleManager<IdentityRole> \_roleManager;

private readonly SignInManager<User> \_signInManager;

public UserHelper(DataContext context, UserManager<User> userManager, RoleManager<IdentityRole> roleManager, SignInManager<User> signInManager)

{

\_context = context;

\_userManager = userManager;

\_roleManager = roleManager;

\_signInManager = signInManager;

}

…

public async Task<SignInResult> LoginAsync(LoginDTO model)

{

return await \_signInManager.PasswordSignInAsync(model.Email, model.Password, false, false);

}

public async Task LogoutAsync()

{

await \_signInManager.SignOutAsync();

}

1. Creamos el **AccountsController**:

using Microsoft.AspNetCore.Mvc;

using Microsoft.IdentityModel.Tokens;

using StoresG8.API.Helpers;

using StoresG8.Shared.DTOs;

using StoresG8.Shared.Entities;

using System.IdentityModel.Tokens.Jwt;

using System.Security.Claims;

using System.Text;

namespace StoresG8.API.Controllers

{

[ApiController]

[Route("/api/accounts")]

public class AccountsController : ControllerBase

{

private readonly IUserHelper \_userHelper;

private readonly IConfiguration \_configuration;

public AccountsController(IUserHelper userHelper, IConfiguration configuration)

{

\_userHelper = userHelper;

\_configuration = configuration;

}

[HttpPost("CreateUser")]

public async Task<ActionResult> CreateUser([FromBody] UserDTO model)

{

User user = model;

var result = await \_userHelper.AddUserAsync(user, model.Password);

if (result.Succeeded)

{

await \_userHelper.AddUserToRoleAsync(user, user.UserType.ToString());

return Ok(BuildToken(user));

}

return BadRequest(result.Errors.FirstOrDefault());

}

[HttpPost("Login")]

public async Task<ActionResult> Login([FromBody] LoginDTO model)

{

var result = await \_userHelper.LoginAsync(model);

if (result.Succeeded)

{

var user = await \_userHelper.GetUserAsync(model.Email);

return Ok(BuildToken(user));

}

return BadRequest("Email o contraseña incorrectos.");

}

private TokenDTO BuildToken(User user)

{

var claims = new List<Claim>

{

new Claim(ClaimTypes.Name, user.Email!),

new Claim(ClaimTypes.Role, user.UserType.ToString()),

new Claim("Document", user.Document),

new Claim("FirstName", user.FirstName),

new Claim("LastName", user.LastName),

new Claim("Address", user.Address),

new Claim("Photo", user.Photo ?? string.Empty),

new Claim("CityId", user.CityId.ToString())

};

var key = new SymmetricSecurityKey(Encoding.UTF8.GetBytes(\_configuration["jwtKey"]!));

var credentials = new SigningCredentials(key, SecurityAlgorithms.HmacSha256);

var expiration = DateTime.UtcNow.AddDays(30);

var token = new JwtSecurityToken(

issuer: null,

audience: null,

claims: claims,

expires: expiration,

signingCredentials: credentials);

return new TokenDTO

{

Token = new JwtSecurityTokenHandler().WriteToken(token),

Expiration = expiration

};

}

}

}

1. Luego le colocamos autorización a los 3 controladores **CountriesController**, **StatesController** y **CitiesController**:

[Authorize(AuthenticationSchemes = JwtBearerDefaults.AuthenticationScheme)]

1. Modificamos el **CountriesIndex**:

try

{

var responseHppt = await repository.Get<List<Country>>(url1);

var responseHppt2 = await repository.Get<int>(url2);

Countries = responseHppt.Response!;

totalPages = responseHppt2.Response!;

}

catch (Exception ex)

{

await sweetAlertService.FireAsync("Error", ex.Message, SweetAlertIcon.Error);

}

1. Podemos probar por **POSTMAN** como está funcionando nuestro token, y con <https://jwt.io/> probamos como está quedando nuestro token.
2. Probamos en la interfaz web, y nos debe salir un error porque aun no le mandamos ningún token a nuestra API. Hacemos el **commit**.

## Implementando el registro de usuarios, login & logout

1. En el proyecto **WEB** Instalamos el paquete: **System.IdentityModel.Tokens.Jwt**.
2. En el proyecto **WEB** en la carpeta **Helpers** creamos el **IJSRuntimeExtensionMethods**:

using Microsoft.JSInterop;

namespace StoresG8.WEB.Helpers

{

public static class IJSRuntimeExtensionMethods

{

public static ValueTask<object> SetLocalStorage(this IJSRuntime js, string key, string content)

{

return js.InvokeAsync<object>("localStorage.setItem", key, content);

}

public static ValueTask<object> GetLocalStorage(this IJSRuntime js, string key)

{

return js.InvokeAsync<object>("localStorage.getItem", key);

}

public static ValueTask<object> RemoveLocalStorage(this IJSRuntime js, string key)

{

return js.InvokeAsync<object>("localStorage.removeItem", key);

}

}

}

1. En el proyecto **WEB** en la carpeta **Auth** creamos la interface **ILoginService**:

namespace StoresG8.WEB.Auth

{

public interface ILoginService

{

Task LoginAsync(string token);

Task LogoutAsync();

}

}

1. En el proyecto **WEB** en la carpeta **Auth** creamos el **AuthenticationProviderJWT**:

using Microsoft.AspNetCore.Components.Authorization;

using Microsoft.JSInterop;

using StoresG8.WEB.Helpers;

using System.IdentityModel.Tokens.Jwt;

using System.Net.Http.Headers;

using System.Security.Claims;

namespace StoresG8.WEB.Auth

{

public class AuthenticationProviderJWT : AuthenticationStateProvider, ILoginService

{

private readonly IJSRuntime \_jSRuntime;

private readonly HttpClient \_httpClient;

private readonly String \_tokenKey;

private readonly AuthenticationState \_anonimous;

public AuthenticationProviderJWT(IJSRuntime jSRuntime, HttpClient httpClient)

{

\_jSRuntime = jSRuntime;

\_httpClient = httpClient;

\_tokenKey = "TOKEN\_KEY";

\_anonimous = new AuthenticationState(new ClaimsPrincipal(new ClaimsIdentity()));

}

public async override Task<AuthenticationState> GetAuthenticationStateAsync()

{

var token = await \_jSRuntime.GetLocalStorage(\_tokenKey);

if (token is null)

{

return \_anonimous;

}

return BuildAuthenticationState(token.ToString()!);

}

private AuthenticationState BuildAuthenticationState(string token)

{

\_httpClient.DefaultRequestHeaders.Authorization = new AuthenticationHeaderValue("bearer", token);

var claims = ParseClaimsFromJWT(token);

return new AuthenticationState(new ClaimsPrincipal(new ClaimsIdentity(claims, "jwt")));

}

private IEnumerable<Claim> ParseClaimsFromJWT(string token)

{

var jwtSecurityTokenHandler = new JwtSecurityTokenHandler();

var unserializedToken = jwtSecurityTokenHandler.ReadJwtToken(token);

return unserializedToken.Claims;

}

public async Task LoginAsync(string token)

{

await \_jSRuntime.SetLocalStorage(\_tokenKey, token);

var authState = BuildAuthenticationState(token);

NotifyAuthenticationStateChanged(Task.FromResult(authState));

}

public async Task LogoutAsync()

{

await \_jSRuntime.RemoveLocalStorage(\_tokenKey);

\_httpClient.DefaultRequestHeaders.Authorization = null;

NotifyAuthenticationStateChanged(Task.FromResult(\_anonimous));

}

}

}

1. Modificamos el **Program** del **WEB** para usar nuestro nuevo proveedor de autenticación:

builder.Services.AddSingleton(sp => new HttpClient { BaseAddress = new Uri("https://localhost:7201/") });

builder.Services.AddScoped<IRepository, Repository>();

builder.Services.AddSweetAlert2();

builder.Services.AddAuthorizationCore();

builder.Services.AddScoped<AuthenticationProviderJWT>();

builder.Services.AddScoped<AuthenticationStateProvider, AuthenticationProviderJWT>(x => x.GetRequiredService<AuthenticationProviderJWT>());

builder.Services.AddScoped<ILoginService, AuthenticationProviderJWT>(x => x.GetRequiredService<AuthenticationProviderJWT>());

1. Creamos un componente razor en la carpeta Shared del proyecto WEB, llamado **AuthLinks**:

<AuthorizeView>

<Authorized>

<span>Hola, @context.User.Identity!.Name</span>

<a href="Logout" class="nav-link btn btn-link">Cerrar Sesión</a>

</Authorized>

<NotAuthorized>

<a href="Register" class="nav-link btn btn-link">Registro</a>

<a href="Login" class="nav-link btn btn-link">Iniciar Sesión</a>

</NotAuthorized>

</AuthorizeView>

1. Llamamos el nuevo componente desde el **MainLayout**:.

@inherits LayoutComponentBase

<div class="page">

<div class="sidebar">

<NavMenu />

</div>

<main>

<div class="top-row px-4">

<AuthLinks/>

<a href="https://docs.microsoft.com/aspnet/" target="\_blank">Acerca de</a>

</div>

<article class="content px-4">

@Body

</article>

</main>

</div>

1. Probamos lo que llevamos.
2. Dentro de **Pages** creamos la carpeta **Auth** y dentro de esta el componente **Register**:

@page "/Register"

@using StoresG8.Shared.DTOs;

@using StoresG8.Shared.Enums;

@using StoresG8.WEB.Auth;

@inject IRepository repository

@inject SweetAlertService sweetAlertService

@inject NavigationManager navigationManager

@inject ILoginService loginService

<h3>Registrar Nuevo Usuario</h3>

<EditForm Model="userDTO" OnValidSubmit="CreteUserAsync">

<DataAnnotationsValidator/>

<div class="row">

<div class="col-6">

<div class="mb-3">

<label>Nombres:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.FirstName" />

<ValidationMessage For="@(() => userDTO.FirstName)" />

</div>

</div>

<div class="mb-3">

<label>Apellidos:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.LastName" />

<ValidationMessage For="@(() => userDTO.LastName)" />

</div>

</div>

<div class="mb-3">

<label>Documento:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.Document" />

<ValidationMessage For="@(() => userDTO.Document)" />

</div>

</div>

<div class="mb-3">

<label>Teléfono:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.PhoneNumber" />

<ValidationMessage For="@(() => userDTO.PhoneNumber)" />

</div>

</div>

<div class="mb-3">

<label>Dirección:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.Address" />

<ValidationMessage For="@(() => userDTO.Address)" />

</div>

</div>

<div class="mb-3">

<label>Email:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.Email" />

<ValidationMessage For="@(() => userDTO.Email)" />

</div>

</div>

</div>

<div class="col-6">

<div class="mb-3">

<label>Ciudad:</label>

<div>

<InputNumber class="form-control" @bind-Value="@userDTO.CityId" />

<ValidationMessage For="@(() => userDTO.CityId)" />

</div>

</div>

<div class="mb-3">

<label>Foto:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.Photo" />

<ValidationMessage For="@(() => userDTO.Photo)" />

</div>

</div>

<div class="mb-3">

<label>Contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@userDTO.Password" />

<ValidationMessage For="@(() => userDTO.Password)" />

</div>

</div>

<div class="mb-3">

<label>Confirmación de contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@userDTO.PasswordConfirm" />

<ValidationMessage For="@(() => userDTO.PasswordConfirm)" />

</div>

</div>

</div>

</div>

<button class="btn btn-primary" type="submit">Registrar</button>

</EditForm>

@code {

private UserDTO userDTO = new();

private async Task CreteUserAsync()

{

userDTO.UserName = userDTO.Email;

userDTO.UserType = UserType.User;

var responseHttp = await repository.Post<UserDTO, TokenDTO>("/api/accounts/CreateUser", userDTO);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

await loginService.LoginAsync(responseHttp.Response!.Token);

navigationManager.NavigateTo("/");

}

}

1. Dentro de **Pages** en la carpeta **Auth** creamos el componente **Login**:

@page "/Login"

@using StoresG8.Shared.DTOs;

@using StoresG8.WEB.Auth;

@inject IRepository repository

@inject SweetAlertService sweetAlertService

@inject NavigationManager navigationManager

@inject ILoginService loginService

<h3>Iniciar Sesión</h3>

<EditForm Model="loginDTO" OnValidSubmit="LoginAsync">

<DataAnnotationsValidator />

<div class="row">

<div class="col-4">

<div class="mb-3">

<label>Email:</label>

<div>

<InputText class="form-control" @bind-Value="@loginDTO.Email" />

<ValidationMessage For="@(() => loginDTO.Email)" />

</div>

</div>

<div class="mb-3">

<label>Contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@loginDTO.Password" />

<ValidationMessage For="@(() => loginDTO.Password)" />

</div>

</div>

<button class="btn btn-primary" type="submit">Iniciar Sesión</button>

</div>

</div>

</EditForm>

@code {

private LoginDTO loginDTO = new();

private async Task LoginAsync()

{

var responseHttp = await repository.Post<LoginDTO, TokenDTO>("/api/accounts/Login", loginDTO);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

await loginService.LoginAsync(responseHttp.Response!.Token);

navigationManager.NavigateTo("/");

}

}

1. Probemos lo que llevamos.
2. Dentro de **Pages** en la carpeta **Auth** creamos el componente **Logout**:

@page "/logout"

@using StoresG8.WEB.Auth;

@inject ILoginService loginService

@inject NavigationManager navigationManager

<p>Cerrando sesión...</p>

@code {

protected override async Task OnInitializedAsync()

{

await loginService.LogoutAsync();

navigationManager.NavigateTo("/");

}

}

1. Probamos y hacemos el **commit**.

## Habilitando tokens en swagger

1. Modificamos el **Program** del **API**:

builder.Services.AddSwaggerGen();

builder.Services.AddSwaggerGen(c =>

{

c.SwaggerDoc("v1", new OpenApiInfo { Title = "StoresG8 API", Version = "v1" });

c.AddSecurityDefinition("Bearer", new OpenApiSecurityScheme

{

Description = @"JWT Authorization header using the Bearer scheme. <br /> <br />

Enter 'Bearer' [space] and then your token in the text input below.<br /> <br />

Example: 'Bearer 12345abcdef'<br /> <br />",

Name = "Authorization",

In = ParameterLocation.Header,

Type = SecuritySchemeType.ApiKey,

Scheme = "Bearer"

});

c.AddSecurityRequirement(new OpenApiSecurityRequirement()

{

{

new OpenApiSecurityScheme

{

Reference = new OpenApiReference

{

Type = ReferenceType.SecurityScheme,

Id = "Bearer"

},

Scheme = "oauth2",

Name = "Bearer",

In = ParameterLocation.Header,

},

new List<string>()

}

});

});

builder.Services.AddDbContext<DataContext>(x => x.UseSqlServer("name=DockerConnection"));

1. Probamos y hacemos el **commit**.

## Mejorando el registro de usuarios con drop-down-lists en cascada

1. Creamos el método **GetCombo** en el **CountriesController**:

[AllowAnonymous]

[HttpGet("combo")]

public async Task<ActionResult> GetCombo()

{

return Ok(await \_context.Countries.ToListAsync());

}

1. Creamos el método **GetCombo** en el **StatesController**:

[AllowAnonymous]

[HttpGet("combo/{countryId:int}")]

public async Task<ActionResult> GetCombo(int countryId)

{

return Ok(await \_context.States

.Where(x => x.CountryId == countryId)

.ToListAsync());

}

1. Creamos el método **GetCombo** en el **CitiesController**:

[AllowAnonymous]

[HttpGet("combo/{stateId:int}")]

public async Task<ActionResult> GetCombo(int stateId)

{

return Ok(await \_context.Cities

.Where(x => x.StateId == stateId)

.ToListAsync());

}

1. Modificamos el **Register.razor**:

…

<div class="col-6">

Eliminamos todo el <Div> de Ciudad, y copiamos el siguiente código:

<div class="mb-3">

<label>País:</label>

<div>

<select class="form-select" @onchange="CountryChangedAsync">

<option value="0">-- Seleccione un país --</option>

@if (countries is not null)

{

@foreach (var country in countries)

{

<option value="@country.Id">@country.Name</option>

}

}

</select>

</div>

</div>

<div class="mb-3">

<label>Estado/Departamento:</label>

<div>

<select class="form-select" @onchange="StateChangedAsync">

<option value="0">-- Seleccione un estado/departamento --</option>

@if (states is not null)

{

@foreach (var state in states)

{

<option value="@state.Id">@state.Name</option>

}

}

</select>

</div>

</div>

<div class="mb-3">

<label>Ciudad:</label>

<div>

<select class="form-select" @bind="userDTO.CityId">

<option value="0">-- Seleccione una ciudad --</option>

@if (cities is not null)

{

@foreach (var city in cities)

{

<option value="@city.Id">@city.Name</option>

}

}

</select>

<ValidationMessage For="@(() => userDTO.CityId)" />

</div>

</div>

<div class="mb-3">

<label>Foto:</label>

…

@code {

private UserDTO userDTO = new();

private List<Country>? countries;

private List<State>? states;

private List<City>? cities;

protected override async Task OnInitializedAsync()

{

await LoadCountriesAsync();

}

private async Task CountryChangedAsync(ChangeEventArgs e)

{

var selectedCountry = Convert.ToInt32(e.Value!);

await LoadStatesAsyn(selectedCountry);

}

private async Task StateChangedAsync(ChangeEventArgs e)

{

var selectedState = Convert.ToInt32(e.Value!);

await LoadCitiesAsyn(selectedState);

}

private async Task LoadCountriesAsync()

{

var responseHttp = await repository.Get<List<Country>>("/api/countries/combo");

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

countries = responseHttp.Response;

}

private async Task LoadStatesAsyn(int countryId)

{

var responseHttp = await repository.Get<List<State>>($"/api/states/combo/{countryId}");

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

states = responseHttp.Response;

}

private async Task LoadCitiesAsyn(int stateId)

{

var responseHttp = await repository.Get<List<City>>($"/api/cities/combo/{stateId}");

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

cities = responseHttp.Response;

}

private async Task CreteUserAsync()

…

1. Probamos y hacemos el **commit**.

## Mejorando un poco la interfaz de usuario

1. Primero vamos a agregar estas líneas al final de nuestro **app.css**:

.spinner {

border: 16px solid silver;

border-top: 16px solid #337AB7;

border-radius: 50%;

width: 80px;

height: 80px;

animation: spin 700ms linear infinite;

top: 40%;

left: 55%;

position: absolute;

}

@keyframes spin {

0% {

transform: rotate(0deg)

}

100% {

transform: rotate(360deg)

}

}

1. Luego modificamos nuestro **CountriesIndex**:

…

@if (Countries is null)

{

<div class="spinner"/>

}

else

{

<GenericList MyList="Countries">

<div class="card">

<div class="card-header">

<span>

<i class="oi oi-globe"></i> Países

<a class="btn btn-sm btn-primary float-end" href="/countries/create"><i class="oi oi-plus"></i> Adicionar País</a>

</span>

</div>

<div class="card-body">

<div class="mb-2" style="display: flex; flex-wrap:wrap; align-items: center;">

<div>

<input style="width: 400px;" type="text" class="form-control" id="titulo" placeholder="Buscar país..." @bind-value="Filter" />

</div>

<div class="mx-1">

<button type="button" class="btn btn-outline-primary" @onclick="ApplyFilterAsync"><i class="oi oi-layers" /> Filtrar</button>

<button type="button" class="btn btn-outline-danger" @onclick="CleanFilterAsync"><i class="oi oi-ban" /> Limpiar</button>

</div>

</div>

<Pagination CurrentPage="currentPage"

TotalPages="totalPages"

SelectedPage="SelectedPage" />

<table class="table table-striped">

<thead>

<tr>

<th>País</th>

<th style="width:220px">Departamentos / Estados</th>

<th style="width:310px"></th>

</tr>

</thead>

<tbody>

@foreach (var country in Countries!)

{

<tr>

<td>

@country.Name

</td>

<td>

@country.StatesNumber

</td>

<td>

<a href="/countries/details/@country.Id" class="btn btn-info btn-sm"><i class="oi oi-list" /> Detalles</a>

<a href="/countries/edit/@country.Id" class="btn btn-warning btn-sm"><i class="oi oi-pencil" /> Editar</a>

<button class="btn btn-danger btn-sm" @onclick=@(() => DeleteAsync(country))><i class="oi oi-trash" /> Borrar</button>

</td>

</tr>

}

</tbody>

</table>

</div>

</div>

</GenericList>

}

…

1. Replica el cambio para el resto de la solución. Si quieres una lista de íconos que puedes usar te dejo este link: <https://kordamp.org/ikonli/cheat-sheet-openiconic.html>
2. Este es un ejemplo de como puede quedar la página de **Register**:

<EditForm Model="userDTO" OnValidSubmit="CreteUserAsync">

<DataAnnotationsValidator />

<div class="card">

<div class="card-header">

<span>

<i class="oi oi-person" /> Registrar Nuevo Usuario

<button class="btn btn-sm btn-primary float-end" type="submit"><i class="oi oi-check" /> Registrar</button>

</span>

</div>

<div class="card-body">

<div class="row">

<div class="col-6">

<div class="mb-3">

<label>Nombres:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.FirstName" />

<ValidationMessage For="@(() => userDTO.FirstName)" />

</div>

</div>

<div class="mb-3">

<label>Apellidos:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.LastName" />

<ValidationMessage For="@(() => userDTO.LastName)" />

</div>

</div>

<div class="mb-3">

<label>Documento:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.Document" />

<ValidationMessage For="@(() => userDTO.Document)" />

</div>

</div>

<div class="mb-3">

<label>Teléfono:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.PhoneNumber" />

<ValidationMessage For="@(() => userDTO.PhoneNumber)" />

</div>

</div>

<div class="mb-3">

<label>Dirección:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.Address" />

<ValidationMessage For="@(() => userDTO.Address)" />

</div>

</div>

<div class="mb-3">

<label>Email:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.Email" />

<ValidationMessage For="@(() => userDTO.Email)" />

</div>

</div>

</div>

<div class="col-6">

<div class="mb-3">

<label>País:</label>

<div>

<select class="form-select" @onchange="CountryChangedAsync">

<option value="0">-- Seleccione un país --</option>

@if (countries is not null)

{

@foreach (var country in countries)

{

<option value="@country.Id">@country.Name</option>

}

}

</select>

</div>

</div>

<div class="mb-3">

<label>Estado/Departamento:</label>

<div>

<select class="form-select" @onchange="StateChangedAsync">

<option value="0">-- Seleccione un estado/departamento --</option>

@if (states is not null)

{

@foreach (var state in states)

{

<option value="@state.Id">@state.Name</option>

}

}

</select>

</div>

</div>

<div class="mb-3">

<label>Ciudad:</label>

<div>

<select class="form-select" @bind="userDTO.CityId">

<option value="0">-- Seleccione una ciudad --</option>

@if (cities is not null)

{

@foreach (var city in cities)

{

<option value="@city.Id">@city.Name</option>

}

}

</select>

<ValidationMessage For="@(() => userDTO.CityId)" />

</div>

</div>

<div class="mb-3">

<label>Foto:</label>

<div>

<InputText class="form-control" @bind-Value="@userDTO.Photo" />

<ValidationMessage For="@(() => userDTO.Photo)" />

</div>

</div>

<div class="mb-3">

<label>Contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@userDTO.Password" />

<ValidationMessage For="@(() => userDTO.Password)" />

</div>

</div>

<div class="mb-3">

<label>Confirmación de contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@userDTO.PasswordConfirm" />

<ValidationMessage For="@(() => userDTO.PasswordConfirm)" />

</div>

</div>

</div>

</div>

</div>

</div>

</EditForm>

1. Y este es un ejemplo de como puede quedar la página de **Login**:

@page "/Login"

@inject IRepository repository

@inject SweetAlertService sweetAlertService

@inject NavigationManager navigationManager

@inject ILoginService loginService

<div class="row">

<div class="col-md-4 offset-md-4">

<EditForm Model="loginDTO" OnValidSubmit="LoginAsync">

<DataAnnotationsValidator />

<div class="card bg-light">

<div class="card-header justify-content-center">

<span>

<i class="oi oi-account-login" /> Iniciar Sesión

<button class="btn btn-sm btn-primary float-end" type="submit"><i class="oi oi-check" /> Iniciar Sesión</button>

</span>

</div>

<div class="card-body">

<div class="mb-3">

<label>Email:</label>

<div>

<InputText class="form-control" @bind-Value="@loginDTO.Email" />

<ValidationMessage For="@(() => loginDTO.Email)" />

</div>

</div>

<div class="card-body">

<label>Contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@loginDTO.Password" />

<ValidationMessage For="@(() => loginDTO.Password)" />

</div>

</div>

</div>

</div>

</EditForm>

</div>

</div>

1. También cambiemos todos los **<p>Cargando…</p>** por **<div class="spinner" />**
2. Hacemos el **commit**.

## Almacenando la foto del usuario

1. Creamos el componente genérico **InputImg.razor**:

<div>

<label>@Label</label>

<div>

<InputFile OnChange="OnChange" accept=".jpg,.jpeg,.png" />

</div>

</div>

<div>

@if (imageBase64 is not null)

{

<div>

<div style="margin: 10px">

<img src="data:image/jpeg;base64, @imageBase64" style="width:400px" />

</div>

</div>

}

@if (ImageURL is not null)

{

<div>

<div style="margin: 10px">

<img src="@ImageURL" style="width:400px" />

</div>

</div>

}

</div>

@code {

[Parameter] public string Label { get; set; } = "Imagen";

[Parameter] public string? ImageURL { get; set; }

[Parameter] public EventCallback<string> ImageSelected { get; set; }

private string? imageBase64;

async Task OnChange(InputFileChangeEventArgs e)

{

var imagenes = e.GetMultipleFiles();

foreach (var imagen in imagenes)

{

var arrBytes = new byte[imagen.Size];

await imagen.OpenReadStream().ReadAsync(arrBytes);

imageBase64 = Convert.ToBase64String(arrBytes);

ImageURL = null;

await ImageSelected.InvokeAsync(imageBase64);

StateHasChanged();

}

}

}

1. Modificamos nuestra página de **Register.razor**:

@using StoresG8.WEB.Shared;

…

<div class="mb-3">

<label>Confirmación de contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@userDTO.PasswordConfirm" />

<ValidationMessage For="@(() => userDTO.PasswordConfirm)" />

</div>

</div>

<div class="mb-3">

<InputImg Label="Foto" ImageSelected="ImageSelected" ImageURL="@imageUrl" />

</div>

</div>

</div>

</div>

</div>

</EditForm>

@code {

private UserDTO userDTO = new();

private List<Country>? countries;

private List<State>? states;

private List<City>? cities;

private bool loading;

private string? imageUrl;

protected override async Task OnInitializedAsync()

{

await LoadCountriesAsync();

if (!string.IsNullOrEmpty(userDTO.Photo))

{

imageUrl = userDTO.Photo;

userDTO.Photo = null;

}

}

private void ImageSelected(string imagenBase64)

{

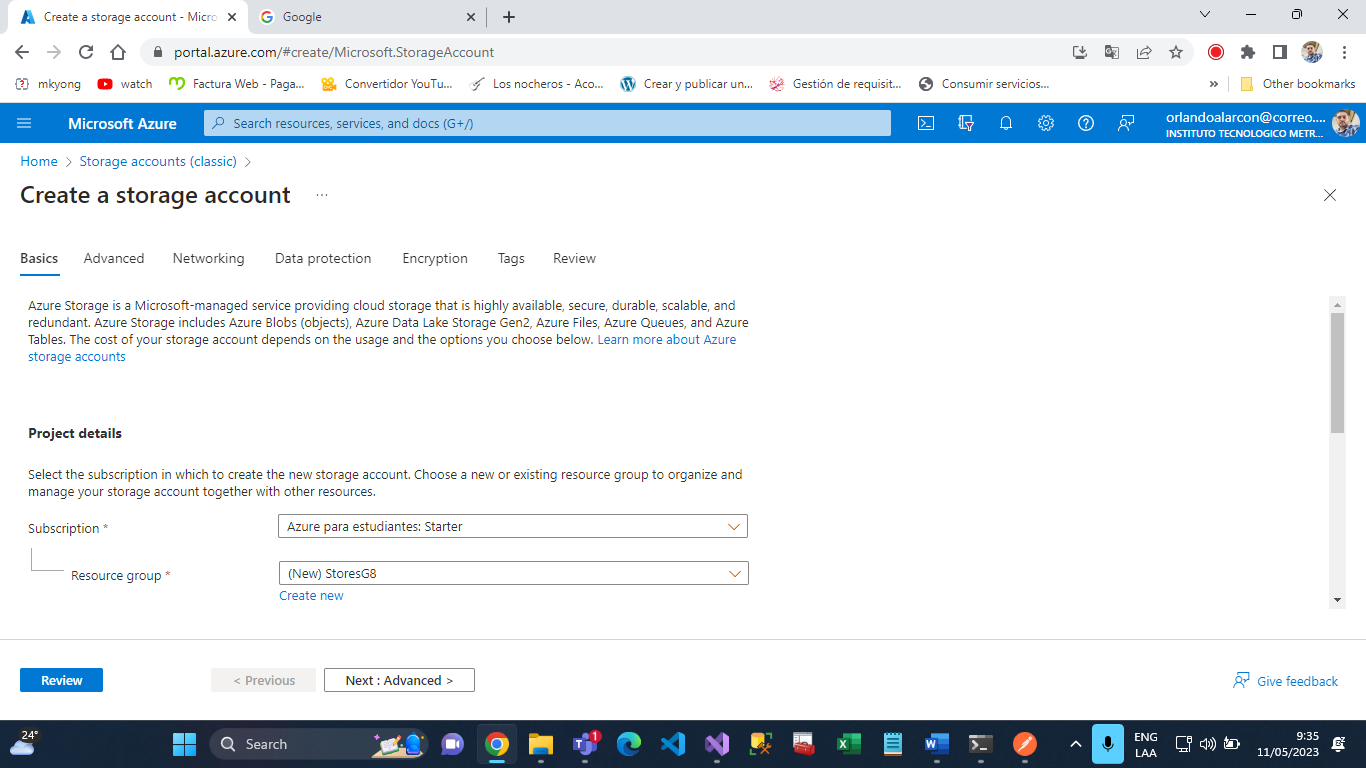
userDTO.Photo = imagenBase64;

imageUrl = null;

}

…

1. Probamos lo que llevamos hasta el momento.
2. Ahora vamos a crear el **blob** en **Azure**:

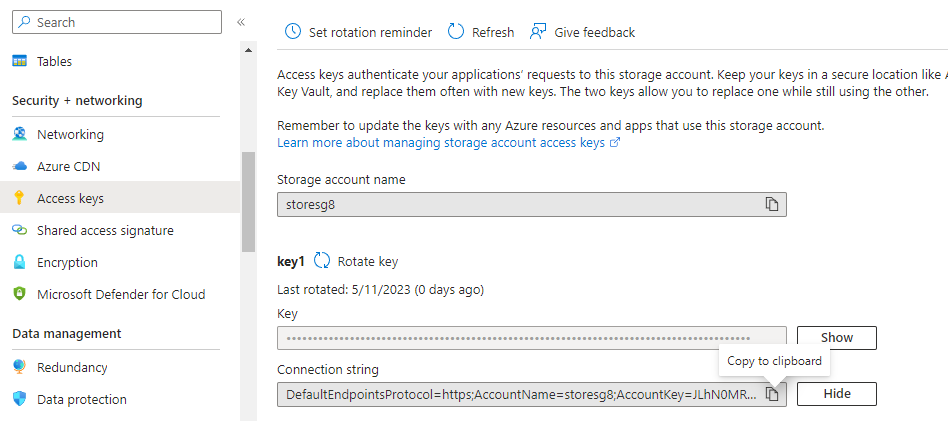


1. Y luego creamos los contenedores para **users** y **products**:

Interfaz de usuario gráfica, Texto, Aplicación

Descripción generada automáticamente

1. Luego que termine oprimimos el botón **GO TO RESOURCE**, luego buscamos en el menú lateral izquierdo Access Key y copiamos el Connection String que necesitamos para acceder a nuestro blob storage, en mi caso es:



DefaultEndpointsProtocol=https;AccountName=storesG8;AccountKey=JLhN0MRAddCMbjk0a+uQDg0E4pz7mRuva/9hsVGfVurU4DdUV1ILMyRJEeh5Npfl8kyZjpko65WQ+AStqqBcFw==;EndpointSuffix=core.windows.net

1. Agregamos ese connection string en el **appsettings** de nuestro proyecto **API**:

"ConnectionStrings": {

"DefaultConnection": "Server= OALARCON;Database=StoresG8;Encrypt=False;User Id=dba;Password=Abcd1234\*;"

"AzureStorage": "DefaultEndpointsProtocol=https;AccountName=storesG8;AccountKey=JLhN0MRAddCMbjk0a+uQDg0E4pz7mRuva/9hsVGfVurU4DdUV1ILMyRJEeh5Npfl8kyZjpko65WQ+AStqqBcFw==;EndpointSuffix=core.windows.net"

},

1. En el proyecto **API** en la carpeta **Helpers** creamos la interfaz **IFileStorage**:

namespace StoresG8.API.Helpers

{

public interface IFileStorage

{

Task<string> SaveFileAsync(byte[] content, string extention, string containerName);

Task RemoveFileAsync(string path, string nombreContenedor);

async Task<string> EditFileAsync(byte[] content, string extention, string containerName, string path)

{

if (path is not null)

{

await RemoveFileAsync(path, containerName);

}

return await SaveFileAsync(content, extention, containerName);

}

}

}

1. En la misma carpeta creamos la implementation **FileStorage**:

Instalamos el nugget llamado Azure.Storage,Blobs en el proyecto API

using Azure.Storage.Blobs;

using Azure.Storage.Blobs.Models;

namespace StoresG8.API.Helpers

{

public class FileStorage : IFileStorage

{

private readonly string connectionString;

public FileStorage(IConfiguration configuration)

{

connectionString = configuration.GetConnectionString("AzureStorage")!;

}

public async Task RemoveFileAsync(string path, string containerName)

{

var client = new BlobContainerClient(connectionString, containerName);

await client.CreateIfNotExistsAsync();

var fileName = Path.GetFileName(path);

var blob = client.GetBlobClient(fileName);

await blob.DeleteIfExistsAsync();

}

public async Task<string> SaveFileAsync(byte[] content, string extention, string containerName)

{

var client = new BlobContainerClient(connectionString, containerName);

await client.CreateIfNotExistsAsync();

client.SetAccessPolicy(PublicAccessType.Blob);

var fileName = $"{Guid.NewGuid()}{extention}";

var blob = client.GetBlobClient(fileName);

using (var ms = new MemoryStream(content))

{

await blob.UploadAsync(ms);

}

return blob.Uri.ToString();

}

}

}

1. Configuramos la nueva inyección en el **Program** del **API**:

builder.Services.AddScoped<IUserHelper, UserHelper>();

builder.Services.AddScoped<IFileStorage, FileStorage>();

1. Modificamos el **AccountsController**:

[ApiController]

[Route("/api/accounts")]

public class AccountsController : ControllerBase

{

private readonly IUserHelper \_userHelper;

private readonly IConfiguration \_configuration;

private readonly IFileStorage \_fileStorage;

private readonly string \_container;

public AccountsController(IUserHelper userHelper, IConfiguration configuration, IFileStorage fileStorage)

{

\_userHelper = userHelper;

\_configuration = configuration;

\_fileStorage = fileStorage;

\_container = "users";

}

[HttpPost("CreateUser")]

public async Task<ActionResult> CreateUser([FromBody] UserDTO model)

{

User user = model;

if(!string.IsNullOrEmpty(model.Photo))

{

var photoUser = Convert.FromBase64String(model.Photo);

model.Photo = await \_fileStorage.SaveFileAsync(photoUser, ".jpg", \_container);

}

var result = await \_userHelper.AddUserAsync(user, model.Password);

if (result.Succeeded)

{

await \_userHelper.AddUserToRoleAsync(user, user.UserType.ToString());

return Ok(BuildToken(user));

}

return BadRequest(result.Errors.FirstOrDefault());

}

1. Modificamos el **AuthLinks.razor**:

<AuthorizeView>

<Authorized>

<span>Hola, @context.User.Identity!.Name</span>

@if (!string.IsNullOrEmpty(photoUser))

{

<div class="mx-2">

<img src="@photoUser" width="50" height="50" style="border-radius:50%" />

</div>

}

<a href="Logout" class="nav-link btn btn-link">Cerrar Sesión</a>

</Authorized>

<NotAuthorized>

<a href="Register" class="nav-link btn btn-link">Registro</a>

<a href="Login" class="nav-link btn btn-link">Iniciar Sesión</a>

</NotAuthorized>

</AuthorizeView>

@code {

private string? photoUser;

[CascadingParameter]

private Task<AuthenticationState> authenticationStateTask { get; set; } = null!;

protected async override Task OnParametersSetAsync()

{

var authenticationState = await authenticationStateTask;

var claims = authenticationState.User.Claims.ToList();

var photoClaim = claims.FirstOrDefault(x => x.Type == "Photo");

if (photoClaim is not null)

{

photoUser = photoClaim.Value;

}

}

}

1. Probamos y hacemos el **commit**.

## Editando el usuario

1. A la interfaz **IUserHelper** le adicionamos los siguientes métodos:

Task<IdentityResult> ChangePasswordAsync(User user, string currentPassword, string newPassword);

Task<IdentityResult> UpdateUserAsync(User user);

Task<User> GetUserAsync(Guid userId);

1. Implementamos los nuevos métodos en el **UserHelper**:

public async Task<User> GetUserAsync(string email)

{

var user = await \_context.Users

.Include(u => u.City!)

.ThenInclude(c => c.State!)

.ThenInclude(s => s.Country!)

.FirstOrDefaultAsync(x => x.Email == email);

return user!;

}

public async Task<User> GetUserAsync(Guid userId)

{

var user = await \_context.Users

.Include(u => u.City!)

.ThenInclude(c => c.State!)

.ThenInclude(s => s.Country!)

.FirstOrDefaultAsync(x => x.Id == userId.ToString());

return user!;

}

public async Task<IdentityResult> ChangePasswordAsync(User user, string currentPassword, string newPassword)

{

return await \_userManager.ChangePasswordAsync(user, currentPassword, newPassword);

}

public async Task<IdentityResult> UpdateUserAsync(User user)

{

return await \_userManager.UpdateAsync(user);

}

1. Creamos estos métodos en el **AccountsController**:

[HttpPut]

[Authorize(AuthenticationSchemes = JwtBearerDefaults.AuthenticationScheme)]

public async Task<ActionResult> Put(User user)

{

try

{

if (!string.IsNullOrEmpty(user.Photo))

{

var photoUser = Convert.FromBase64String(user.Photo);

user.Photo = await \_fileStorage.SaveFileAsync(photoUser, ".jpg", \_container);

}

var currentUser = await \_userHelper.GetUserAsync(user.Email!);

if (currentUser == null)

{

return NotFound();

}

currentUser.Document = user.Document;

currentUser.FirstName = user.FirstName;

currentUser.LastName = user.LastName;

currentUser.Address = user.Address;

currentUser.PhoneNumber = user.PhoneNumber;

currentUser.Photo = !string.IsNullOrEmpty(user.Photo) && user.Photo != currentUser.Photo ? user.Photo : currentUser.Photo;

currentUser.CityId = user.CityId;

var result = await \_userHelper.UpdateUserAsync(currentUser);

if (result.Succeeded)

{

return NoContent();

}

return BadRequest(result.Errors.FirstOrDefault());

}

catch (Exception ex)

{

return BadRequest(ex.Message);

}

}

[HttpGet]

[Authorize(AuthenticationSchemes = JwtBearerDefaults.AuthenticationScheme)]

public async Task<ActionResult> Get()

{

return Ok(await \_userHelper.GetUserAsync(User.Identity!.Name!));

}

1. Modificamos el **AuthLinks**:

<Authorized>

Hola, <a href="EditUser" class="nav-link btn btn-link">@context.User.Identity!.Name</a>

@if (!string.IsNullOrEmpty(photoUser))

{

<div class="mx-2">

<img src="@photoUser" width="50" height="50" style="border-radius:50%" />

</div>

}

<a href="Logout" class="nav-link btn btn-link">Cerrar Sesión</a>

</Authorized>

1. Creamos el **EditUser.razor**:

@page "/EditUser"

@inject IRepository repository

@inject SweetAlertService sweetAlertService

@inject NavigationManager navigationManager

@inject ILoginService loginService

@if (user is null)

{

<div class="spinner" />

}

else

{

<EditForm Model="user" OnValidSubmit="SaveUserAsync">

<DataAnnotationsValidator />

<div class="card">

<div class="card-header">

<span>

<i class="oi oi-person" /> Editar Usuario

<a class="btn btn-sm btn-secondary float-end" href="/changePassword"><i class="oi oi-key" /> Cambiar Contraseña</a>

<button class="btn btn-sm btn-primary float-end mx-2" type="submit"><i class="oi oi-check" /> Guardar Cambios</button>

</span>

</div>

<div class="card-body">

<div class="row">

<div class="col-6">

<div class="mb-3">

<label>Nombres:</label>

<div>

<InputText class="form-control" @bind-Value="@user.FirstName" />

<ValidationMessage For="@(() => user.FirstName)" />

</div>

</div>

<div class="mb-3">

<label>Apellidos:</label>

<div>

<InputText class="form-control" @bind-Value="@user.LastName" />

<ValidationMessage For="@(() => user.LastName)" />

</div>

</div>

<div class="mb-3">

<label>Documento:</label>

<div>

<InputText class="form-control" @bind-Value="@user.Document" />

<ValidationMessage For="@(() => user.Document)" />

</div>

</div>

<div class="mb-3">

<label>Teléfono:</label>

<div>

<InputText class="form-control" @bind-Value="@user.PhoneNumber" />

<ValidationMessage For="@(() => user.PhoneNumber)" />

</div>

</div>

<div class="mb-3">

<label>Dirección:</label>

<div>

<InputText class="form-control" @bind-Value="@user.Address" />

<ValidationMessage For="@(() => user.Address)" />

</div>

</div>

</div>

<div class="col-6">

<div class="mb-3">

<label>País:</label>

<div>

<select class="form-select" @onchange="CountryChangedAsync">

<option value="0">-- Seleccione un país --</option>

@if (countries is not null)

{

@foreach (var country in countries)

{

<option value="@country.Id" selected="@(country.Id == user.City!.State!.Country!.Id)">@country.Name</option>

}

}

</select>

</div>

</div>

<div class="mb-3">

<label>Estado/Departamento:</label>

<div>

<select class="form-select" @onchange="StateChangedAsync">

<option value="0">-- Seleccione un estado/departamento --</option>

@if (states is not null)

{

@foreach (var state in states)

{

<option value="@state.Id" selected="@(state.Id == user.City!.State!.Id)">@state.Name</option>

}

}

</select>

</div>

</div>

<div class="mb-3">

<label>Ciudad:</label>

<div>

<select class="form-select" @bind="user.CityId">

<option value="0">-- Seleccione una ciudad --</option>

@if (cities is not null)

{

@foreach (var city in cities)

{

<option value="@city.Id" selected="@(city.Id == user.City!.Id)">@city.Name</option>

}

}

</select>

<ValidationMessage For="@(() => user.CityId)" />

</div>

</div>

<div class="mb-3">

<InputImg Label="Foto" ImageSelected="ImageSelected" ImageURL="@imageUrl" />

</div>

</div>

</div>

</div>

</div>

</EditForm>

}

@code {

private User? user;

private List<Country>? countries;

private List<State>? states;

private List<City>? cities;

private string? imageUrl;

protected override async Task OnInitializedAsync()

{

await LoadUserAsyc();

await LoadCountriesAsync();

await LoadStatesAsyn(user!.City!.State!.Country!.Id);

await LoadCitiesAsyn(user!.City!.State!.Id);

if (!string.IsNullOrEmpty(user!.Photo))

{

imageUrl = user.Photo;

user.Photo = null;

}

}

private async Task LoadUserAsyc()

{

var responseHTTP = await repository.Get<User>($"/api/accounts");

if (responseHTTP.Error)

{

if (responseHTTP.HttpResponseMessage.StatusCode == System.Net.HttpStatusCode.NotFound)

{

navigationManager.NavigateTo("/");

return;

}

var messageError = await responseHTTP.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", messageError, SweetAlertIcon.Error);

return;

}

user = responseHTTP.Response;

}

private void ImageSelected(string imagenBase64)

{

user!.Photo = imagenBase64;

imageUrl = null;

}

private async Task CountryChangedAsync(ChangeEventArgs e)

{

var selectedCountry = Convert.ToInt32(e.Value!);

await LoadStatesAsyn(selectedCountry);

}

private async Task StateChangedAsync(ChangeEventArgs e)

{

var selectedState = Convert.ToInt32(e.Value!);

await LoadCitiesAsyn(selectedState);

}

private async Task LoadCountriesAsync()

{

var responseHttp = await repository.Get<List<Country>>("/api/countries/combo");

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

countries = responseHttp.Response;

}

private async Task LoadStatesAsyn(int countryId)

{

var responseHttp = await repository.Get<List<State>>($"/api/states/combo/{countryId}");

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

states = responseHttp.Response;

}

private async Task LoadCitiesAsyn(int stateId)

{

var responseHttp = await repository.Get<List<City>>($"/api/cities/combo/{stateId}");

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

cities = responseHttp.Response;

}

private async Task SaveUserAsync()

{

var responseHttp = await repository.Put<User>("/api/accounts", user!);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

navigationManager.NavigateTo("/");

}

}

1. Probamos.

## Cambiando password del usuario

1. Dentro de **StoresG8.Shared.DTOs** creamos el **ChangePasswordDTO**:

using System.ComponentModel.DataAnnotations;

namespace StoresG8.Shared.DTOs

{

public class ChangePasswordDTO

{

[DataType(DataType.Password)]

[Display(Name = "Contraseña actual")]

[StringLength(20, MinimumLength = 6, ErrorMessage = "El campo {0} debe tener entre {2} y {1} carácteres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string CurrentPassword { get; set; } = null!;

[DataType(DataType.Password)]

[Display(Name = "Nueva contraseña")]

[StringLength(20, MinimumLength = 6, ErrorMessage = "El campo {0} debe tener entre {2} y {1} carácteres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string NewPassword { get; set; } = null!;

[Compare("NewPassword", ErrorMessage = "La nueva contraseña y la confirmación no son iguales.")]

[DataType(DataType.Password)]

[Display(Name = "Confirmación nueva contraseña")]

[StringLength(20, MinimumLength = 6, ErrorMessage = "El campo {0} debe tener entre {2} y {1} carácteres.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string Confirm { get; set; } = null!;

}

}

1. En **StoresG8.API.Controllers** en el controlador **AccountsController** adicionamos este método:

[HttpPost("changePassword")]

[Authorize(AuthenticationSchemes = JwtBearerDefaults.AuthenticationScheme)]

public async Task<ActionResult> ChangePasswordAsync(ChangePasswordDTO model)

{

if (!ModelState.IsValid)

{

return BadRequest(ModelState);

}

var user = await \_userHelper.GetUserAsync(User.Identity!.Name!);

if (user == null)

{

return NotFound();

}

var result = await \_userHelper.ChangePasswordAsync(user, model.CurrentPassword, model.NewPassword);

if (!result.Succeeded)

{

return BadRequest(result.Errors.FirstOrDefault().Description);

}

return NoContent();

}

1. Dentro de **StoresG8.WEB.Pages** creamos el **ChangePassword.razor**:

@page "/changePassword"

@inject IRepository repository

@inject SweetAlertService sweetAlertService

@inject NavigationManager navigationManager

@if (loading)

{

<div class="spinner" />

}

<div class="row">

<div class="col-6">

<EditForm Model="changePasswordDTO" OnValidSubmit="ChangePasswordAsync">

<DataAnnotationsValidator />

<div class="card">

<div class="card-header">

<span>

<i class="oi oi-key" /> Cambiar Contraseña

<a class="btn btn-sm btn-success float-end" href="/editUser"><i class="oi oi-arrow-thick-left" /> Regresar</a>

<button class="btn btn-sm btn-primary float-end mx-2" type="submit"><i class="oi oi-check" /> Guardar Cambios</button>

</span>

</div>

<div class="card-body">

<div class="mb-3">

<label>Contraseña actual:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@changePasswordDTO.CurrentPassword" />

<ValidationMessage For="@(() => changePasswordDTO.CurrentPassword)" />

</div>

</div>

<div class="mb-3">

<label>Nueva contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@changePasswordDTO.NewPassword" />

<ValidationMessage For="@(() => changePasswordDTO.CurrentPassword)" />

</div>

</div>

<div class="mb-3">

<label>Confirmación de nueva contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@changePasswordDTO.Confirm" />

<ValidationMessage For="@(() => changePasswordDTO.Confirm)" />

</div>

</div>

</div>

</div>

</EditForm>

</div>

</div>

@code {

private ChangePasswordDTO changePasswordDTO = new();

private bool loading;

private async Task ChangePasswordAsync()

{

loading = true;

var responseHttp = await repository.Post("/api/accounts/changePassword", changePasswordDTO);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

loading = false;

return;

}

loading = false;

navigationManager.NavigateTo("/editUser");

var toast = sweetAlertService.Mixin(new SweetAlertOptions

{

Toast = true,

Position = SweetAlertPosition.TopEnd,

ShowConfirmButton = true,

Timer = 5000

});

await toast.FireAsync(icon: SweetAlertIcon.Success, message: "Contraseña cambiada con éxito.");

}

}

1. Probamos y hacemos el **commit**.

## Confirmar el registro de usuarios

1. Cambiamos la configuración de usuarios en el **Program** del **API**:

builder.Services.AddIdentity<User, IdentityRole>(x =>

{

x.Tokens.AuthenticatorTokenProvider = TokenOptions.DefaultAuthenticatorProvider;

x.SignIn.RequireConfirmedEmail = true;

x.User.RequireUniqueEmail = true;

x.Password.RequireDigit = false;

x.Password.RequiredUniqueChars = 0;

x.Password.RequireLowercase = false;

x.Password.RequireNonAlphanumeric = false;

x.Password.RequireUppercase = false;

x.Lockout.DefaultLockoutTimeSpan = TimeSpan.FromMinutes(5);

x.Lockout.MaxFailedAccessAttempts = 3;

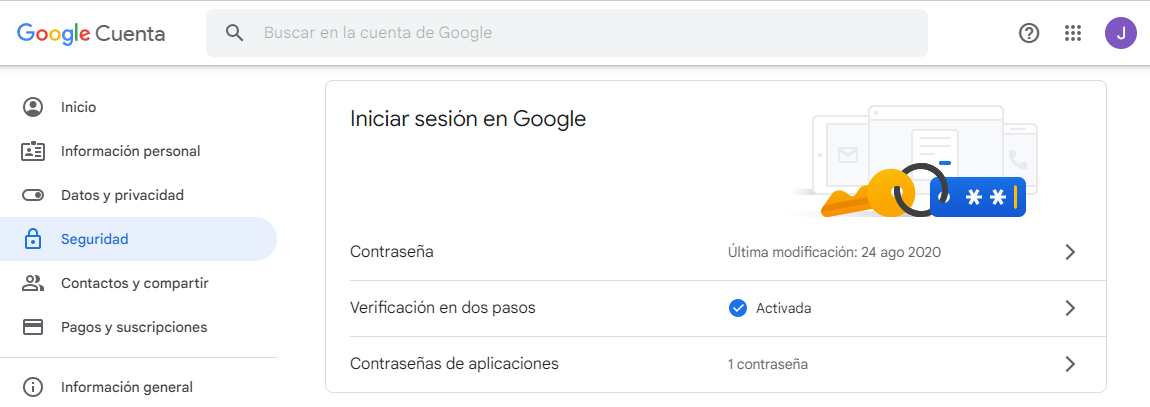
x.Lockout.AllowedForNewUsers = true;

})

.AddEntityFrameworkStoresG8<DataContext>()

.AddDefaultTokenProviders();

1. Verificamos que la cuenta de Gmail con la que vamos a mandar los correos tenga lo siguiente:



1. Adicionamos estos parámetros al Appsettings del **API**:

"Mail": {

"From": "StoresG8@gmail.com",

"Name": "Soporte StoresG8",

"Smtp": "smtp.gmail.com",

"Port": 587,

"Password": "nniufszzppfuzhxe"

},

"UrlWEB": "localhost:7057"

**Nota**: reemplazar el 7057 por el puerto donde sale tu App WEB, y reemplazar el password por el generado de tu cuenta.

1. Adicionamos el nuget “**Mailkit**” al proyecto **API**:
2. En los **Helpers** del **API** adicionamos la interzar **IMailHelper**:

public interface IMailHelper

{

Response SendMail(string toName, string toEmail, string subject, string body);

}

1. Luego agregamos la implementation **MailHelper**:

using MailKit.Net.Smtp;

using MimeKit;

using StoresG8.Shared.Responses;

namespace StoresG8.API.Helpers

{

public class MailHelper : IMailHelper

{

private readonly IConfiguration \_configuration;

public MailHelper(IConfiguration configuration)

{

\_configuration = configuration;

}

public Response SendMail(string toName, string toEmail, string subject, string body)

{

try

{

var from = \_configuration["Mail:From"];

var name = \_configuration["Mail:Name"];

var smtp = \_configuration["Mail:Smtp"];

var port = \_configuration["Mail:Port"];

var password = \_configuration["Mail:Password"];

var message = new MimeMessage();

message.From.Add(new MailboxAddress(name, from));

message.To.Add(new MailboxAddress(toName, toEmail));

message.Subject = subject;

BodyBuilder bodyBuilder = new BodyBuilder

{

HtmlBody = body

};

message.Body = bodyBuilder.ToMessageBody();

using (var client = new SmtpClient())

{

client.Connect(smtp, int.Parse(port!), false);

client.Authenticate(from, password);

client.Send(message);

client.Disconnect(true);

}

return new Response { IsSuccess = true };

}

catch (Exception ex)

{

return new Response

{

IsSuccess = false,

Message = ex.Message,

Result = ex

};

}

}

}

}

1. Configuramos la inyección del servicio:

builder.Services.AddScoped<IMailHelper, MailHelper>();

1. Add those methods to **IUserHelper**:

Task<string> GenerateEmailConfirmationTokenAsync(User user);

Task<IdentityResult> ConfirmEmailAsync(User user, string token);

Y la implementación:

public async Task<string> GenerateEmailConfirmationTokenAsync(User user)

{

return await \_userManager.GenerateEmailConfirmationTokenAsync(user);

}

public async Task<IdentityResult> ConfirmEmailAsync(User user, string token)

{

return await \_userManager.ConfirmEmailAsync(user, token);

}

1. Modificamos el método **CreateUser** del controlador **AccountsController** (primero inyectamos el **IMailHelper**):

[HttpPost("CreateUser")]

public async Task<ActionResult> CreateUser([FromBody] UserDTO model)

{

User user = model;

if (!string.IsNullOrEmpty(model.Photo))

{

var photoUser = Convert.FromBase64String(model.Photo);

model.Photo = await \_fileStorage.SaveFileAsync(photoUser, ".jpg", \_container);

}

var result = await \_userHelper.AddUserAsync(user, model.Password);

if (result.Succeeded)

{

await \_userHelper.AddUserToRoleAsync(user, user.UserType.ToString());

var myToken = await \_userHelper.GenerateEmailConfirmationTokenAsync(user);

var tokenLink = Url.Action("ConfirmEmail", "accounts", new

{

userid = user.Id,

token = myToken

}, HttpContext.Request.Scheme, \_configuration["UrlWEB"]);

var response = \_mailHelper.SendMail(user.FullName, user.Email!,

$"StoresG8s- Confirmación de cuenta",

$"<h1>StoresG8 - Confirmación de cuenta</h1>" +

$"<p>Para habilitar el usuario, por favor hacer clic 'Confirmar Email':</p>" +

$"<b><a href ={tokenLink}>Confirmar Email</a></b>");

if (response.IsSuccess)

{

return NoContent();

}

return BadRequest(response.Message);

}

return BadRequest(result.Errors.FirstOrDefault());

}

1. Crear el método para confirmar el email en el **AccountsController**:

[HttpGet("ConfirmEmail")]

public async Task<ActionResult> ConfirmEmailAsync(string userId, string token)

{

token = token.Replace(" ", "+");

var user = await \_userHelper.GetUserAsync(new Guid(userId));

if (user == null)

{

return NotFound();

}

var result = await \_userHelper.ConfirmEmailAsync(user, token);

if (!result.Succeeded)

{

return BadRequest(result.Errors.FirstOrDefault());

}

return NoContent();

}

1. Modificamos el método **Login** en el **AccountsController**:

[HttpPost("Login")]

public async Task<ActionResult> Login([FromBody] LoginDTO model)

{

var result = await \_userHelper.LoginAsync(model);

if (result.Succeeded)

{

var user = await \_userHelper.GetUserAsync(model.Email);

return Ok(BuildToken(user));

}

if (result.IsLockedOut)

{

return BadRequest("Ha superado el máximo número de intentos, su cuenta está bloqueada, intente de nuevo en 5 minutos.");

}

if (result.IsNotAllowed)

{

return BadRequest("El usuario no ha sido habilitado, debes de seguir las instrucciones del correo enviado para poder habilitar el usuario.");

}

return BadRequest("Email o contraseña incorrectos.");

}

1. Agregamos este método al **IRepository**:

Task<HttpResponseWrapper<object>> Get(string url);

1. Lo implementamos en el **Repository**:

public async Task<HttpResponseWrapper<object>> Get(string url)

{

var responseHTTP = await \_httpClient.GetAsync(url);

return new HttpResponseWrapper<object>(null, !responseHTTP.IsSuccessStatusCode, responseHTTP);

}

1. Dentro de **Pages/Auth** creamos la página **ConfirmEmail.razor**:

@page "/api/accounts/ConfirmEmail"

@inject IRepository repository

@inject SweetAlertService sweetAlertService

@inject NavigationManager navigationManager

<h3>Confirmación de email</h3>

<p>Presione el botón para confirmar su cuenta</p>

<button class="btn btn-primary" @onclick="ConfirmAccountAsync">Confirmar Cuenta</button>

@code {

private string? message;

[Parameter]

[SupplyParameterFromQuery]

public string UserId { get; set; } = "";

[Parameter]

[SupplyParameterFromQuery]

public string Token { get; set; } = "";

protected async Task ConfirmAccountAsync()

{

var responseHttp = await repository.Get($"/api/accounts/ConfirmEmail/?userId={UserId}&token={Token}");

if (responseHttp.Error)

{

message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

navigationManager.NavigateTo("/");

}

else

{

await sweetAlertService.FireAsync("Confirmación", "Gracias por confirmar su email, ahora puedes ingresar al sistema.", SweetAlertIcon.Info);

navigationManager.NavigateTo("/Login");

}

}

}

1. Borramos los usuarios de la base de datos.
2. Modificamos el alimentador de la base de datos:

private async Task<User> CheckUserAsync(string document, string firstName, string lastName, string email, string phone, string address, UserType userType)

{

var user = await \_userHelper.GetUserAsync(email);

if (user == null)

{

var city = await \_context.Cities.FirstOrDefaultAsync(x => x.Name == "Medellín");

if (city == null)

{

city = await \_context.Cities.FirstOrDefaultAsync();

}

user = new User

{

FirstName = firstName,

LastName = lastName,

Email = email,

UserName = email,

PhoneNumber = phone,

Address = address,

Document = document,

City = city,

UserType = userType,

};

await \_userHelper.AddUserAsync(user, "123456");

await \_userHelper.AddUserToRoleAsync(user, userType.ToString());

var token = await \_userHelper.GenerateEmailConfirmationTokenAsync(user);

await \_userHelper.ConfirmEmailAsync(user, token);

}

return user;

}

1. Modificamos el **Register.razor**:

private async Task CreteUserAsync()

{

loading = true;

userDTO.UserName = userDTO.Email;

userDTO.UserType = UserType.User;

var responseHttp = await repository.Post<UserDTO>("/api/accounts/CreateUser", userDTO);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

loading = false;

return;

}

loading = false;

await sweetAlertService.FireAsync("Confirmación", "Su cuenta ha sido creada con éxito. Se te ha enviado un correo electrónico con las instrucciones para activar tu usuario.", SweetAlertIcon.Info);

navigationManager.NavigateTo("/");

}

1. Probamos y hacemos el **commit**.

## Reenviar correo de confirmación

1. En **StoresG8.Shared.DTOs** creamos la clase **EmailDTO**:

using System.ComponentModel.DataAnnotations;

namespace StoresG8.Shared.DTOs

{

public class EmailDTO

{

[Display(Name = "Email")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

[EmailAddress(ErrorMessage = "Debes ingresar un correo válido.")]

public string Email { get; set; } = null!;

}

}

1. En el **API** creamos este método en el **AccountsController**:

[HttpPost("ResedToken")]

public async Task<ActionResult> ResedToken([FromBody] EmailDTO model)

{

User user = await \_userHelper.GetUserAsync(model.Email);

if (user == null)

{

return NotFound();

}

var myToken = await \_userHelper.GenerateEmailConfirmationTokenAsync(user);

var tokenLink = Url.Action("ConfirmEmail", "accounts", new

{

userid = user.Id,

token = myToken

}, HttpContext.Request.Scheme, \_configuration["UrlWEB"]);

var response = \_mailHelper.SendMail(user.FullName, user.Email!,

$"StoresG8s- Confirmación de cuenta",

$"<h1>StoresG8 - Confirmación de cuenta</h1>" +

$"<p>Para habilitar el usuario, por favor hacer clic 'Confirmar Email':</p>" +

$"<b><a href ={tokenLink}>Confirmar Email</a></b>");

if (response.IsSuccess)

{

return NoContent();

}

return BadRequest(response.Message);

}

1. Modificamos nuestro **Login.razor**:

<div class="row">

<div class="col-md-4 offset-md-4">

<EditForm Model="loginDTO" OnValidSubmit="LoginAsync">

<DataAnnotationsValidator />

<div class="card bg-light">

<div class="card-header justify-content-center">

<span>

<i class="oi oi-account-login" /> Iniciar Sesión

<button class="btn btn-sm btn-primary float-end" type="submit"><i class="oi oi-check" /> Iniciar Sesión</button>

</span>

</div>

<div class="card-body">

<div class="mb-3">

<label>Email:</label>

<div>

<InputText class="form-control" @bind-Value="@loginDTO.Email" />

<ValidationMessage For="@(() => loginDTO.Email)" />

</div>

</div>

<div class="mb-3">

<label>Contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@loginDTO.Password" />

<ValidationMessage For="@(() => loginDTO.Password)" />

</div>

</div>

</div>

<div class="card-footer">

<a class="bbtn btn-link" href="/ResendToken">Reenviar correro de activación de cuenta</a>

</div>

</div>

</EditForm>

</div>

</div>

1. Dentro de **Pages/Auth** creamos el **ResendConfirmationEmailToken.razor**:

@page "/ResendToken"

@inject IRepository repository

@inject SweetAlertService sweetAlertService

@inject NavigationManager navigationManager

@if (loading)

{

<div class="spinner" />

}

<div class="row">

<div class="col-6">

<EditForm Model="emailDTO" OnValidSubmit="ResendConfirmationEmailTokenAsync">

<DataAnnotationsValidator />

<div class="card">

<div class="card-header">

<span>

<i class="oi oi-key" /> Reenviar correo de confirmación de contraseña

<button class="btn btn-sm btn-primary float-end mx-2" type="submit"><i class="oi oi-loop-square" /> Reenviar</button>

</span>

</div>

<div class="card-body">

<div class="mb-3">

<label>Email:</label>

<div>

<InputText class="form-control" @bind-Value="@emailDTO.Email" />

<ValidationMessage For="@(() => emailDTO.Email)" />

</div>

</div>

</div>

</div>

</EditForm>

</div>

</div>

@code {

private EmailDTO emailDTO = new();

private bool loading;

private async Task ResendConfirmationEmailTokenAsync()

{

loading = true;

var responseHttp = await repository.Post("/api/accounts/ResedToken", emailDTO);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

loading = false;

return;

}

loading = false;

await sweetAlertService.FireAsync("Confirmación", "Se te ha enviado un correo electrónico con las instrucciones para activar tu usuario.", SweetAlertIcon.Info);

navigationManager.NavigateTo("/");

}

}

1. Probamos y hacemos el **commit**.

## Actualización de la foto del usuario luego de editar usuario

1. Modificamos el **PUT** del **AccountsController**:

var result = await \_userHelper.UpdateUserAsync(currentUser);

if (result.Succeeded)

{

return Ok(BuildToken(currentUser));

}

1. Agregamos este método al **IRepository**:

Task<HttpResponseWrapper<TResponse>> Put<T, TResponse>(string url, T model);

1. Y su implementación en el **Repository**:

public async Task<HttpResponseWrapper<TResponse>> Put<T, TResponse>(string url, T model)

{

var messageJSON = JsonSerializer.Serialize(model);

var messageContent = new StringContent(messageJSON, Encoding.UTF8, "application/json");

var responseHttp = await \_httpClient.PutAsync(url, messageContent);

if (responseHttp.IsSuccessStatusCode)

{

var response = await UnserializeAnswer<TResponse>(responseHttp, \_jsonDefaultOptions);

return new HttpResponseWrapper<TResponse>(response, false, responseHttp);

}

return new HttpResponseWrapper<TResponse>(default, !responseHttp.IsSuccessStatusCode, responseHttp);

}

1. Modificamos el **EditUser**:

private async Task SaveUserAsync()

{

var responseHttp = await repository.Put<User, TokenDTO>("/api/accounts", user!);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

return;

}

await loginService.LoginAsync(responseHttp.Response!.Token);

navigationManager.NavigateTo("/");

}

1. Probamos y hacemos el **Commit**.

## Recuperación de contraseña

1. Modificamos el **Login.razor**:

<div class="card-footer">

<p><a class="bbtn btn-link" href="/ResendToken">Reenviar correro de activación de cuenta</a></p>

<p><a class="bbtn btn-link" href="/RecoverPassword">¿Has olvidado tu contraseña?</a></p>

</div>

1. Adicionamos en **StoresG8.Shared.DTOs** la clase **ResetPasswordDTO**:

using System.ComponentModel.DataAnnotations;

namespace StoresG8.Shared.DTOs

{

public class ResetPasswordDTO

{

[Display(Name = "Email")]

[EmailAddress(ErrorMessage = "Debes ingresar un correo válido.")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

public string Email { get; set; } = null!;

[DataType(DataType.Password)]

[Display(Name = "Contraseña")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

[StringLength(20, MinimumLength = 6, ErrorMessage = "El campo {0} debe tener entre {2} y {1} carácteres.")]

public string Password { get; set; } = null!;

[Compare("Password", ErrorMessage = "La nueva contraseña y la confirmación no son iguales.")]

[DataType(DataType.Password)]

[Display(Name = "Confirmación de contraseña")]

[Required(ErrorMessage = "El campo {0} es obligatorio.")]

[StringLength(20, MinimumLength = 6, ErrorMessage = "El campo {0} debe tener entre {2} y {1} carácteres.")]

public string ConfirmPassword { get; set; } = null!;

public string Token { get; set; } = null!;

}

}

1. Adicionamos estos métodos al **IUserHelper**:

Task<string> GeneratePasswordResetTokenAsync(User user);

Task<IdentityResult> ResetPasswordAsync(User user, string token, string password);

Y la implementación:

public async Task<string> GeneratePasswordResetTokenAsync(User user)

{

return await \_userManager.GeneratePasswordResetTokenAsync(user);

}

public async Task<IdentityResult> ResetPasswordAsync(User user, string token, string password)

{

return await \_userManager.ResetPasswordAsync(user, token, password);

}

1. Adicionamos estos métodos al **AccountController**:

[HttpPost("RecoverPassword")]

public async Task<ActionResult> RecoverPassword([FromBody] EmailDTO model)

{

User user = await \_userHelper.GetUserAsync(model.Email);

if (user == null)

{

return NotFound();

}

var myToken = await \_userHelper.GeneratePasswordResetTokenAsync(user);

var tokenLink = Url.Action("ResetPassword", "accounts", new

{

userid = user.Id,

token = myToken

}, HttpContext.Request.Scheme, \_configuration["UrlWEB"]);

var response = \_mailHelper.SendMail(user.FullName, user.Email!,

$"StoresG8 - Recuperación de contraseña",

$"<h1>StoresG8 - Recuperación de contraseña</h1>" +

$"<p>Para recuperar su contraseña, por favor hacer clic 'Recuperar Contraseña':</p>" +

$"<b><a href ={tokenLink}>Recuperar Contraseña</a></b>");

if (response.IsSuccess)

{

return NoContent();

}

return BadRequest(response.Message);

}

[HttpPost("ResetPassword")]

public async Task<ActionResult> ResetPassword([FromBody] ResetPasswordDTO model)

{

User user = await \_userHelper.GetUserAsync(model.Email);

if (user == null)

{

return NotFound();

}

var result = await \_userHelper.ResetPasswordAsync(user, model.Token, model.Password);

if (result.Succeeded)

{

return NoContent();

}

return BadRequest(result.Errors.FirstOrDefault()!.Description);

}

1. Dentro de **Pages/Auth** creamos el **RecoverPassword.razor**:

@page "/RecoverPassword"

@inject IRepository repository

@inject SweetAlertService sweetAlertService

@inject NavigationManager navigationManager

@if (loading)

{

<div class="spinner" />

}

<div class="row">

<div class="col-6">

<EditForm Model="emailDTO" OnValidSubmit="SendRecoverPasswordEmailTokenAsync">

<DataAnnotationsValidator />

<div class="card">

<div class="card-header">

<span>

<i class="oi oi-key" /> Enviar email para recuperación de contraseña

<button class="btn btn-sm btn-primary float-end mx-2" type="submit"><i class="oi oi-loop-square" /> Enviar</button>

</span>

</div>

<div class="card-body">

<div class="mb-3">

<label>Email:</label>

<div>

<InputText class="form-control" @bind-Value="@emailDTO.Email" />

<ValidationMessage For="@(() => emailDTO.Email)" />

</div>

</div>

</div>

</div>

</EditForm>

</div>

</div>

@code {

private EmailDTO emailDTO = new();

private bool loading;

private async Task SendRecoverPasswordEmailTokenAsync()

{

loading = true;

var responseHttp = await repository.Post("/api/accounts/RecoverPassword", emailDTO);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

loading = false;

return;

}

loading = false;

await sweetAlertService.FireAsync("Confirmación", "Se te ha enviado un correo electrónico con las instrucciones para recuperar su contraseña.", SweetAlertIcon.Info);

navigationManager.NavigateTo("/");

}

}

1. Dentro de **Pages/Auth** creamos el **ResetPassword.razor**:

@page "/api/accounts/ResetPassword"

@inject IRepository repository

@inject SweetAlertService sweetAlertService

@inject NavigationManager navigationManager

@if (loading)

{

<div class="spinner" />

}

<div class="row">

<div class="col-6">

<EditForm Model="resetPasswordDTO" OnValidSubmit="ChangePasswordAsync">

<DataAnnotationsValidator />

<div class="card">

<div class="card-header">

<span>

<i class="oi oi-key" /> Cambiar Contraseña

<button class="btn btn-sm btn-primary float-end mx-2" type="submit"><i class="oi oi-check" /> Cambiar Contrasña</button>

</span>

</div>

<div class="card-body">

<div class="mb-3">

<label>Email:</label>

<div>

<InputText class="form-control" @bind-Value="@resetPasswordDTO.Email" />

<ValidationMessage For="@(() => resetPasswordDTO.Email)" />

</div>

</div>

<div class="mb-3">

<label>Nueva contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@resetPasswordDTO.Password" />

<ValidationMessage For="@(() => resetPasswordDTO.Password)" />

</div>

</div>

<div class="mb-3">

<label>Confirmar contraseña:</label>

<div>

<InputText type="password" class="form-control" @bind-Value="@resetPasswordDTO.ConfirmPassword" />

<ValidationMessage For="@(() => resetPasswordDTO.ConfirmPassword)" />

</div>

</div>

</div>

</div>

</EditForm>

</div>

</div>

@code {

private ResetPasswordDTO resetPasswordDTO = new();

private bool loading;

[Parameter]

[SupplyParameterFromQuery]

public string Token { get; set; } = "";

private async Task ChangePasswordAsync()

{

loading = true;

resetPasswordDTO.Token = Token;

var responseHttp = await repository.Post("/api/accounts/ResetPassword", resetPasswordDTO);

if (responseHttp.Error)

{

var message = await responseHttp.GetErrorMessageAsync();

await sweetAlertService.FireAsync("Error", message, SweetAlertIcon.Error);

loading = false;

return;

}

loading = false;

await sweetAlertService.FireAsync("Confirmación", "Contraseña cambiada con éxito, ahora puede ingresar con su nueva contraseña.", SweetAlertIcon.Info);

navigationManager.NavigateTo("/Login");

}

}

1. Probamos y hacemos el **commit**.

## Solución del problema de la paginación

1. Modificamos el componente de **Pagination**:

<nav>

<ul class="pagination">

@foreach (var link in Links)

{

<li @onclick=@(() => InternalSelectedPage(link)) style="cursor: pointer" class="page-item @(link.Enable ? null : "disabled") @(link.Enable ? "active" : null)">

<a class="page-link">@link.Text</a>

</li>

}

</ul>

</nav>

@code {

[Parameter] public int CurrentPage { get; set; } = 1;

[Parameter] public int TotalPages { get; set; }

[Parameter] public int Radio { get; set; } = 10;

[Parameter] public EventCallback<int> SelectedPage { get; set; }

List<PageModel> Links = new();

private async Task InternalSelectedPage(PageModel pageModel)

{

if (pageModel.Page == CurrentPage || pageModel.Page == 0)

{

return;

}

await SelectedPage.InvokeAsync(pageModel.Page);

}

protected override void OnParametersSet()

{

Links = new List<PageModel>();

var previousLinkEnable = CurrentPage != 1;

var previousLinkPage = CurrentPage - 1;

Links.Add(new PageModel

{

Text = "Anterior",

Page = previousLinkPage,

Enable = previousLinkEnable

});

for (int i = 1; i <= TotalPages; i++)

{

if (TotalPages <= Radio)

{

Links.Add(new PageModel

{

Page = i,

Enable = CurrentPage == i,

Text = $"{i}"

});

}

if (TotalPages > Radio && i <= Radio && CurrentPage <= Radio)

{

Links.Add(new PageModel

{

Page = i,

Enable = CurrentPage == i,

Text = $"{i}"

});

}

if (CurrentPage > Radio && i > CurrentPage - Radio && i <= CurrentPage)

{

Links.Add(new PageModel

{

Page = i,

Enable = CurrentPage == i,

Text = $"{i}"

});

}

}

var linkNextEnable = CurrentPage != TotalPages;

var linkNextPage = CurrentPage != TotalPages ? CurrentPage + 1 : CurrentPage;

Links.Add(new PageModel

{

Text = "Siguiente",

Page = linkNextPage,

Enable = linkNextEnable

});

}

class PageModel

{

public string Text { get; set; } = null!;

public int Page { get; set; }

public bool Enable { get; set; } = true;

public bool Active { get; set; } = false;

}

}