

TP 6 - Pruebas unitarias

```
caro@e14:~$ node -v
v20.17.0
caro@e14:~$ npm -v
10.8.2
caro@e14:~$ npm install -g @angular/cli

added 266 packages in 13s

49 packages are looking for funding
  run `npm fund` for details
npm notice
npm notice New patch version of npm available! 10.8.2 -> 10.8.3
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.8.3
npm notice To update run: npm install -g npm@10.8.3
npm notice
caro@e14:~$ ng version

Angular CLI: 18.2.6
Node: 20.17.0
Package Manager: npm 10.8.2
OS: linux x64

Angular:
...
Package          Version
-----
@angular-devkit/architect    0.1802.6 (cli-only)
@angular-devkit/core         18.2.6 (cli-only)
@angular-devkit/schematics   18.2.6 (cli-only)
@schematics/angular          18.2.6 (cli-only)
```

```
caro@e14:~$ dotnet --version
8.0.108
```

4.1 Creación de una BD SQL Server para nuestra App

en la base sql que creaste > seguridad > redes
y ahí puedo agregar otra dirección ip.

```
caro@e14:~$ docker ps -a
```

```
caro@e14:~$ docker run -e "ACCEPT_EULA=Y" -e "SA_PASSWORD=Anilorac.9" -p
15000:1433 -d mcr.microsoft.com/mssql/server:2022-latest
cea4c10063dbe6042e4656cb2e15ddd4aab50ee5507dee8562dcb4e654f7834e
```

```
caro@e14:~$ docker exec -it agitated_davinci /opt/mssql-tools18/bin/sqlcmd -S localhost -U
SA -P 'Anilorac.9' -C
1>
```

```

3> SET ANSI_NULLS ON
4> GO
1> SET QUOTED_IDENTIFIER ON
2> GO
1> CREATE TABLE [dbo].[Employees](
2>     [Id] [int] IDENTITY(1,1) NOT NULL,
3>     [Name] [nvarchar](max) NULL,
4>     [CreatedDate] [datetime2](7) NOT NULL,
5>     CONSTRAINT [PK_Employees] PRIMARY KEY CLUSTERED
6>     (
7>         [Id] ASC
8>     FF, IGNORE_DUP_KEY = OFF, OPTIMIZE_FOR_SEQUENTIAL_KEY = OFF) ON [PRIMARY]
9> ) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
10> GO
1> SET IDENTITY_INSERT [dbo].[Employees] ON
2> GO
1> UES (1, N'Juan Perez', CAST(N'2024-09-05T00:00:00.0000000' AS DateTime2))
2> GO

(1 rows affected)
1> UES (2, N'Carla Ruiz', CAST(N'2024-09-05T22:22:47.4405720' AS DateTime2))
2> GO

(1 rows affected)
1> S (3, N'Carlos Gomez', CAST(N'2024-09-06T09:16:50.0709430' AS DateTime2))
2> GO

(1 rows affected)
1> (4, N'Joaquin Zarate', CAST(N'2024-09-06T09:19:37.8987160' AS DateTime2))
2> GO

(1 rows affected)
1> (5, N'Luis Rodriguez', CAST(N'2024-09-06T09:23:31.3244340' AS DateTime2))
2> GO

(1 rows affected)
1> SET IDENTITY_INSERT [dbo].[Employees] OFF
2> GO

```

SELECT * FROM [dbo].[Employees];

GO

```

1> SELECT * FROM [dbo].[Employees];
2> go
Id      Name
----- CreatedDate
----- -----
----- 1 Juan Perez
                               2024-09-05 00:00:00.0000000
2 Carla Ruiz
                               2024-09-05 22:22:47.4405720
3 Carlos Gomez
                               2024-09-06 09:16:50.0709430
4 Joaquin Zarate
                               2024-09-06 09:19:37.8987160
5 Luis Rodriguez
                               2024-09-06 09:23:31.3244340

(5 rows affected)
1> []

```

Para acceder nuevamente al contenedor:

```

caro@e14:~$ docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS
      PORTS NAMES
17a983084a91 mcr.microsoft.com/mssql/server:2022-latest "/opt/mssql/bin/perm..." 2 weeks ago Created
      musing_meitner
cea4c10063db mcr.microsoft.com/mssql/server:2022-latest "/opt/mssql/bin/perm..." 2 weeks ago Exited (0) 2 weeks ago
      agitated_davinci
760cfdc099c8 mcr.microsoft.com/mssql/server:2022-latest "/opt/mssql/bin/perm..." 4 weeks ago Exited (137) 4 weeks ago
      youthful_habt
45d30f232c46 postgres:9.4 "docker-entrypoint.s..." 4 weeks ago Exited (137) 4 weeks ago
      my-postgres
caro@e14:~$ docker start agitated_davinci
agitated_davinci
caro@e14:~$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS
      NAMES
cea4c10063db mcr.microsoft.com/mssql/server:2022-latest "/opt/mssql/bin/perm..." 2 weeks ago Up 8 seconds caccce
caro@e14:~$ docker exec -it agitated_davinci /opt/mssql-tools18/bin/sqlcmd -S localhost -U SA -P 'Anilorac.9' -C
1> 

```

4.2 Obtener nuestra App

A. Clonar el repo

https://github.com/ingsoft3ucc/Angular_WebAPINetCore8_CRUD_Sample.git

```

caro@e14:~/Documents/tp_ingsw3$ git clone git@github.com:ingsoft3ucc/Angular_WebAPINetCore8_CRUD_Sample.git
Cloning into 'Angular_WebAPINetCore8_CRUD_Sample'...
remote: Enumerating objects: 236, done.
remote: Counting objects: 100% (236/236), done.
remote: Compressing objects: 100% (124/124), done.
remote: Total 236 (delta 110), reused 227 (delta 103), pack-reused 0 (from 0)
Receiving objects: 100% (236/236), 486.02 KiB | 488.00 KiB/s, done.
Resolving deltas: 100% (110/110), done.

```

B. Seguir las instrucciones del README.md del repo clonado prestando atención a la modificación de la cadena de conexión en el appSettings.json para que apunte a la BD creada en 4.1

```

appsettings.json M x
EmployeeCrudApi > EmployeeCrudApi > appsettings.json > ConnectionStrings > DefaultConnection
1 {
2   "ConnectionString": {
3     "DefaultConnection": "Server=localhost,15000;Initial Catalog=master;Persist Security Info=False;User ID=SA;Password=Anilorac.9;MultipleActiveResultSets=False;Encrypt=False;TrustServerCertificate=False;Connection Timeout=30"
4   }
5 },
6   "Logging": {
7     "LogLevel": {
8       "Default": "Information",
9       "Microsoft.AspNetCore": "Warning"
10    }
11 },
12   "AllowedHosts": "*"
}

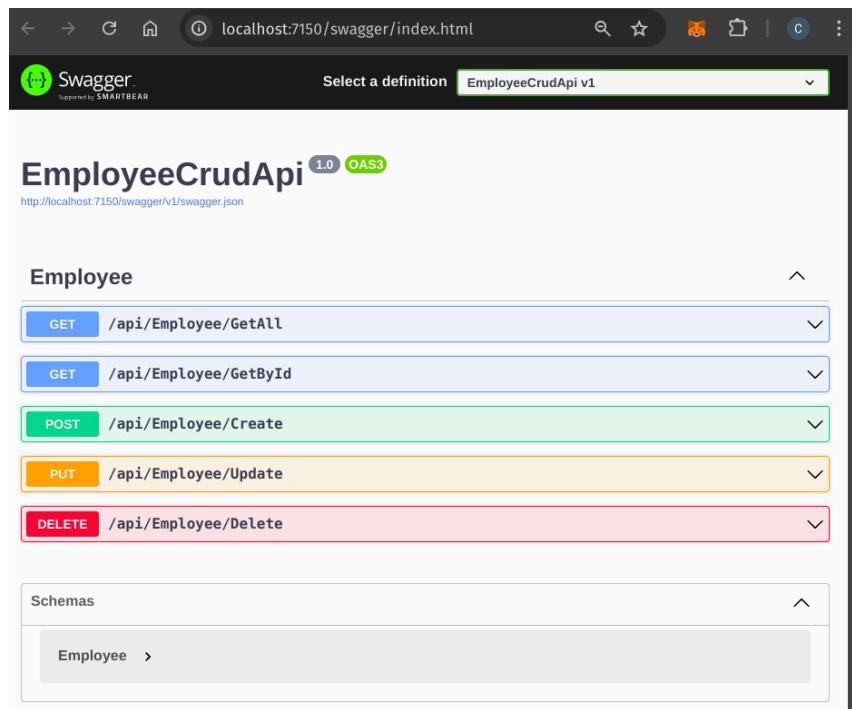
```

```

caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi$ dotnet run --urls "http://localhost:7150"
Building...
info: Microsoft.Hosting.Lifetime[14]
      Now listening on: http://localhost:7150
info: Microsoft.Hosting.Lifetime[0]
      Application started. Press Ctrl+C to shut down.
info: Microsoft.Hosting.Lifetime[0]
      Hosting environment: Development
info: Microsoft.Hosting.Lifetime[0]
      Content root path: /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi/EmployeeCrudApi

```

C. Navegar a <http://localhost:7150/swagger/index.html> y probar uno de los controladores para verificar el correcto funcionamiento de la API.



D. Navegar a <http://localhost:4200> y verificar el correcto funcionamiento de nuestro front-end Angular

```
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudAngular$ npm install
npm warn deprecated inflight@1.0.6: This module is not supported, and leaks memory. Do not use it. Check out lru-cache if you want a good and tested way to coalesce async requests by a key value, which is much more comprehensive and powerful.
npm warn deprecated rimraf@3.0.2: Rimraf versions prior to v4 are no longer supported
npm warn deprecated glob@7.2.3: Glob versions prior to v9 are no longer supported
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudAngular$ ng serve -o
Initial chunk files | Names           | Raw size
styles.css          | styles          | 230.41 kB |
polyfills.js        | polyfills       | 88.12 kB |
main.js             | main            | 15.03 kB |
                           | Initial total | 333.56 kB

Application bundle generation complete. [1.235 seconds]

Watch mode enabled. Watching for file changes...
→ Local: http://localhost:4200/
→ press h + enter to show help
```

EmployeeCrudAngular

Employees: Type to search...

Add New Employee

Id	Name	Created Date
----	------	--------------

GET /api/Employee/GetAll

Parameters

No parameters

Responses

Curl

```
curl -X 'GET' \
'http://localhost:7150/api/Employee/GetAll' \
-H 'accept: text/plain'
```

Request URL

```
http://localhost:7150/api/Employee/GetAll
```

Server response

Code Details

200 Response body

```
[{"id": 1, "name": "Juan Perez", "createdDate": "2024-09-05T00:00:00"}, {"id": 2, "name": "Carla Ruiz", "createdDate": "2024-09-05T22:22:47.440572"}, {"id": 3, "name": "Carlos Gomez", "createdDate": "2024-09-06T09:16:50.070943"}, {"id": 4, "name": "Joaquin Zarate", "createdDate": "2024-09-06T09:19:37.898716"}, {"id": 5, "name": "Luis Rodriguez", "createdDate": "2024-09-06T09:23:31.324434"}]
```

EmployeeCrudAngular

Employees: Type to search...

Add New Employee

Id	Name	Created Date	Actions
1	Juan Perez	05/09/2024 00:00:00	<input type="button" value="📝"/> <input type="button" value="DELETE"/>
2	Carla Ruiz	05/09/2024 22:22:47	<input type="button" value="📝"/> <input type="button" value="DELETE"/>
3	Carlos Gomez	06/09/2024 09:16:50	<input type="button" value="📝"/> <input type="button" value="DELETE"/>
4	Joaquin Zarate	06/09/2024 09:19:37	<input type="button" value="📝"/> <input type="button" value="DELETE"/>
5	Luis Rodriguez	06/09/2024 09:23:31	<input type="button" value="📝"/> <input type="button" value="DELETE"/>

E. Una vez verificado el correcto funcionamiento de la Aplicación procederemos a crear un proyecto de pruebas unitarias para nuestra API.

4.3 Crear Pruebas Unitarias para nuestra API

A. En el directorio raiz de nuestro repo crear un nuevo proyecto de pruebas unitarias para nuestra API

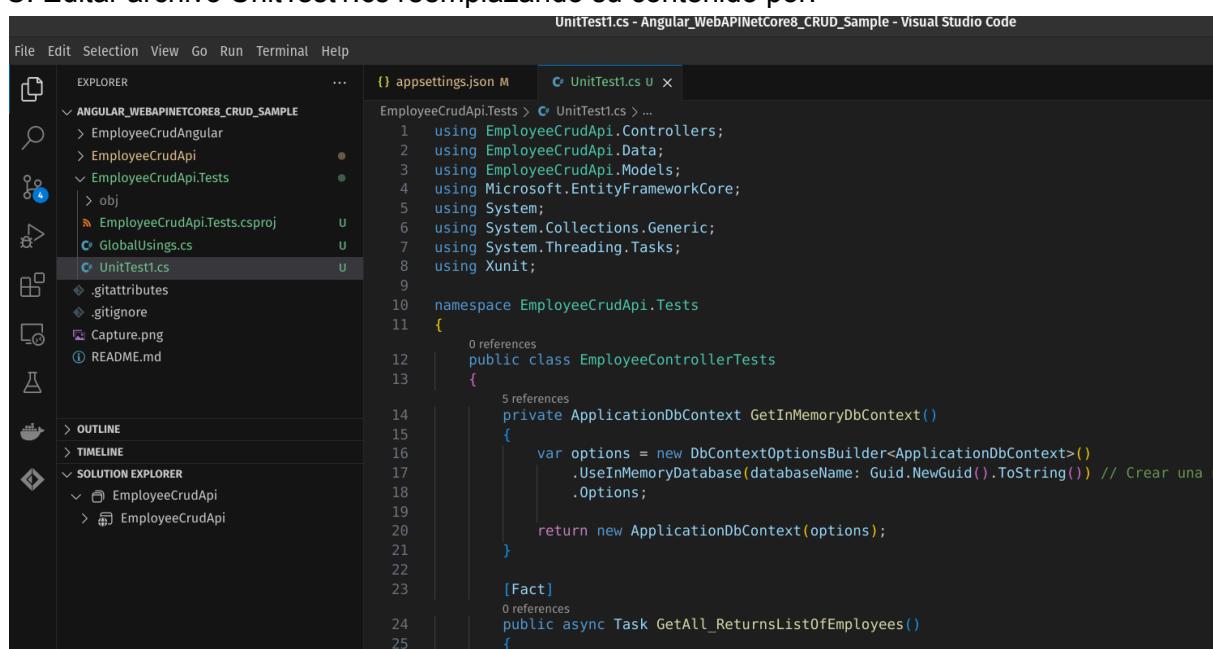
```
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample$ dotnet new xunit -n EmployeeCrudApi.Tests
The template "xUnit Test Project" was created successfully.

Processing post-creation actions...
Restoring /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/EmployeeCrudApi.Tests.csproj:
  Determining projects to restore...
  Restored /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/EmployeeCrudApi.Tests.csproj (in 7.13 sec).
Restore succeeded.
```

B. Instalar dependencias necesarias

```
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample$ cd EmployeeCrudApi.Tests
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests$ dotnet add package Moq
dotnet add package xunit
dotnet add package Microsoft.EntityFrameworkCore.InMemory
Determining projects to restore...
Writing /tmp/tmprv1hhR.tmp
info : X.509 certificate chain validation will use the fallback certificate bundle at '/usr/lib/dotnet/sdk/8.0.108/trustedroots/codesignctl.pem'.
info : X.509 certificate chain validation will use the fallback certificate bundle at '/usr/lib/dotnet/sdk/8.0.108/trustedroots/codesignctl.pem'.
```

C. Editar archivo UnitTest1.cs reemplazando su contenido por:



```
UnitTest1.cs - Angular_WebAPINetCore8_CRUD_Sample - Visual Studio Code
File Edit Selection View Go Run Terminal Help

EXPLORER ... { appsettings.json M C UnitTest1.cs U X
ANGULAR_WEBAPINETCORE8_CRUD_SAMPLE
> EmployeeCrudAngular
> EmployeeCrudApi
EmployeeCrudApi.Tests
> obj
EmployeeCrudApi.Tests.csproj
GlobalUsings.cs
C UnitTest1.cs
.gitattributes
.gitignore
Capture.png
README.md

OUTLINE
TIMELINE
SOLUTION EXPLORER
EmployeeCrudApi
EmployeeCrudApi

EmployeeCrudApi.Tests > C UnitTest1.cs > ...
1  using EmployeeCrudApi.Controllers;
2  using EmployeeCrudApi.Data;
3  using EmployeeCrudApi.Models;
4  using Microsoft.EntityFrameworkCore;
5  using System;
6  using System.Collections.Generic;
7  using System.Threading.Tasks;
8  using Xunit;
9
10 namespace EmployeeCrudApi.Tests
11 {
12     0 references
13     public class EmployeeControllerTests
14     {
15         5 references
16         private ApplicationDbContext GetInMemoryDbContext()
17         {
18             var options = new DbContextOptionsBuilder<ApplicationDbContext>()
19                 .UseInMemoryDatabase(databaseName: Guid.NewGuid().ToString()) // Crear una
20                 .Options;
21
22             return new ApplicationDbContext(options);
23         }
24     [Fact]
25     0 references
public async Task GetAll_ReturnsListOfEmployees()
{
```

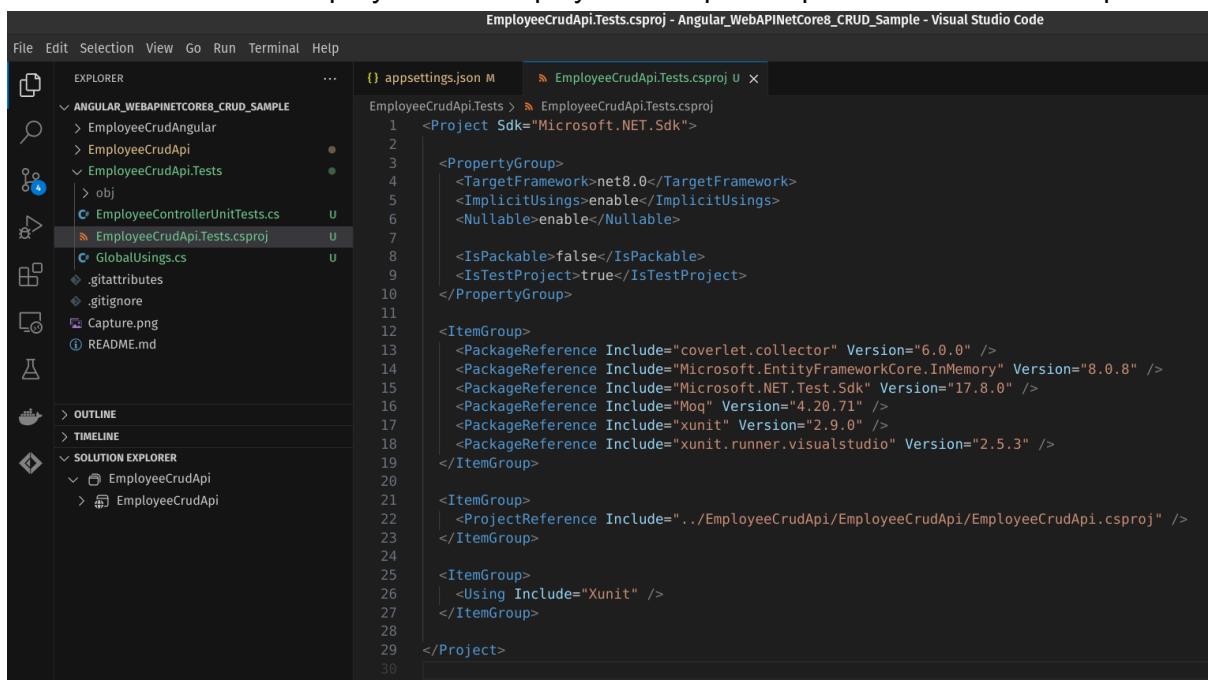
D. Renombrar archivo UnitTest1.cs por EmployeeControllerUnitTests.cs

```

caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests$ ls
EmployeeCrudApi.Tests.csproj GlobalUsings.cs obj UnitTest1.cs
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests$ mv UnitTest1.cs EmployeeControllerUnitTests.cs
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests$ ls
EmployeeControllerUnitTests.cs GlobalUsings.cs
EmployeeCrudApi.Tests.csproj obj
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests$ 

```

E. Editar el archivo EmployeeCrudApi.Tests/EmployeeCrudApi.Tests.csproj para agregar una referencia a nuestro proyecto de EmployeeCrudApi reemplazando su contenido por:



F. Ejecutar los siguientes comandos para ejecutar nuestras pruebas

```

caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests$ dotnet build
MSBuild version 17.8.5+b5265ef37 for .NET
Determining projects to restore...
Restored /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/EmployeeCrudApi.Tests.csproj (in 4.29 sec).
1 of 2 projects are up-to-date for restore.
EmployeeCrudApi -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi/EmployeeCrudApi/bin/Debug/net8.0/EmployeeCrudApi.dll
EmployeeCrudApi.Tests -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/bin/Debug/net8.0/EmployeeCrudApi.Tests.dll

Build succeeded.
  0 Warning(s)
  0 Error(s)

Time Elapsed 00:00:07.23

```

```

caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests$ dotnet test
Determining projects to restore...
All projects are up-to-date for restore.
EmployeeCrudApi -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi/EmployeeCrudApi/bin/Debug/net8.0/EmployeeCrudApi.dll
EmployeeCrudApi.Tests -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/bin/Debug/net8.0/EmployeeCrudApi.Tests.dll
Test run for /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/bin/Debug/net8.0/EmployeeCrudApi.Tests.dll (.NETCoreApp,Version=v8.0)
Microsoft (R) Test Execution Command Line Tool Version 17.8.0 (x64)
Copyright (c) Microsoft Corporation. All rights reserved.

Starting test execution, please wait...
A total of 1 test files matched the specified pattern.

Passed! - Failed: 0, Passed: 5, Skipped: 0, Total: 5, Duration: 93 ms - EmployeeCrudApi.Tests.dll (net8.0)

```

G. Verificar que se hayan ejecutado correctamente las pruebas

Se ejecutaron correctamente y todas “passed”.

H. Verificar que no estamos usando una dependencia externa como la base de datos.

I. Modificar la cadena de conexión en el archivo appsettings.json para que use un usuario o password incorrecto y recompilar el proyecto EmployeeCrudApi

```

1 appsettings.json M ●  EmployeeCrudApi.Tests.csproj U  EmployeeCrudApi.sln
EmployeeCrudApi > EmployeeCrudApi > {} appsettings.json > {} ConnectionStrings > DefaultConnection
1
2
3 initial Catalog=master;Persist Security Info=False;User ID=SA;Password=cualquiera;Multi:
4

dApi/EmployeeCrudApi$ dotnet build
MSBuild version 17.8.5+b5265ef37 for .NET
Determining projects to restore...
All projects are up-to-date for restore.
EmployeeCrudApi -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi/EmployeeCrudApi/bin/Debug/net8.0/EmployeeCrudApi.dll

Build succeeded.
0 Warning(s)
0 Error(s)

Time Elapsed 00:00:00.91
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi$ dotnet run --urls "http://localhost:7150"
Building...
info: Microsoft.Hosting.Lifetime[14]
  Now listening on: http://localhost:7150
info: Microsoft.Hosting.Lifetime[0]
  Application started. Press Ctrl+C to shut down.
info: Microsoft.Hosting.Lifetime[0]
  Hosting environment: Development
info: Microsoft.Hosting.Lifetime[0]
  Content root path: /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi/EmployeeCrudApi
warn: Microsoft.AspNetCore.HttpsPolicy.HttpsRedirectionMiddleware[3]
      Failed to determine the https port for redirect.

```

J. Verificar que nuestro proyecto ya no tiene acceso a la BD navegando a <http://localhost:7150/swagger/index.html> y probando uno de los controladores:

The screenshot shows the Swagger UI interface for a .NET Core API. The endpoint selected is `/api/Employee/GetAll`. The 'Responses' section shows a detailed error message for a 500 Internal Server Error. The error message is as follows:

```

Microsoft.Data.SqlClient.SqlException (0x80131904): Login failed for user 'SA'.
  at Microsoft.Data.SqlClient.SqlInternalConnection.OnError(SqlException exception, Boolean breakConnection, Action`1 wrapCloseInAction)
  at Microsoft.Data.SqlClient.TdsParser.ThrowExceptionAndWarning(TdsParserStateObject stateObj, Boolean callerHasConnectionLock, Boolean asyncClose)
  at Microsoft.Data.SqlClient.TdsParser.TryRun(RunBehavior runBehavior, SqlCommand commandHandler, SqlDataReader dataReader, BulkCopyHandler bulkCopyHandler, TdsParserStateObject stateObj, Boolean& dataReady)
  at Microsoft.Data.SqlClient.TdsParser.Run(RunBehavior runBehavior, SqlCommand commandHandler, SqlDataReader dataReader, SqlConnection connectionHandler, TdsParserStateObject stateObj)
  at Microsoft.Data.SqlClient.SqlInternalConnectionTds.CompleteLogin(Boolean enlistOk)
  at Microsoft.Data.SqlClient.SqlInternalConnectionTds.AttemptOneLogin(ServerInfo serverInfo, String newPassword, SecureString newSecurePassword, Boolean ignoreSniOpenTimeout, TimeoutTimer timeout, Boolean withFailover)
  at Microsoft.Data.SqlClient.SqlInternalConnectionTds.LoginNoFailover(ServerInfo serverInfo, String newPassword, SecureString newSecurePassword, Boolean redirectedUserInstance, SqlConnectionString connectionOptions, SqlCredential credential, TimeoutTimer timeout)
  at Microsoft.Data.SqlClient.SqlInternalConnectionTds.OpenLoginEnlist(TimeoutTimer timeout, SqlConnectionString connectionOptions, SqlCredential credential, String newPassword, SecureString newSecurePassword, Boolean redirectedUserInstance)
  at Microsoft.Data.SqlClient.SqlInternalConnectionTds..ctor(DbConnectionPoolIdentity identity, SqlConnectionString connectionOptions, SqlCredential credential, Object providerInfo, String newPassword, SecureString newSecurePassword, Boolean redirectedUserInstance)
  at Microsoft.Data.SqlClient.SqlInternalConnectionTds.Connect(DbConnectionPoolIdentity identity, SqlConnectionString connectionOptions, SqlCredential credential, Boolean redirectedUserInstance)
  at Microsoft.Data.SqlClient.SqlInternalConnectionTds..ctor(DbConnectionPoolIdentity identity, SqlConnectionString connectionOptions, SqlCredential credential, Object providerInfo, String newPassword, SecureString newSecurePassword, Boolean redirectedUserInstance, SqlConnectionString userConnectionString, Object[] extraParameters, Dictionary`2 hostNameHashes, Dictionary`2 localProxies)

```

K. En la carpeta de nuestro proyecto EmployeeCrudApi.Tests volver a correr las pruebas L. Verificar que se hayan ejecutado correctamente las pruebas inclusive sin tener acceso a la BD, lo que confirma que es efectivamente un conjunto de pruebas unitarias que no requieren de una dependencia externa para funcionar.

```

dApi.Tests$ dotnet build
MSBuild version 17.8.5+b5265ef37 for .NET
  Determining projects to restore...
  All projects are up-to-date for restore.
  EmployeeCrudApi -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi/EmployeeCrudApi/bin/Debug/net8.0/EmployeeCrudApi.dll
  EmployeeCrudApi.Tests -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/bin/Debug/net8.0/EmployeeCrudApi.Tests.dll

Build succeeded.
  0 Warning(s)
  0 Error(s)

Time Elapsed 00:00:01.37
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests$ dotnet test
  Determining projects to restore...
  All projects are up-to-date for restore.
  EmployeeCrudApi -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi/EmployeeCrudApi/bin/Debug/net8.0/EmployeeCrudApi.dll
  EmployeeCrudApi.Tests -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/bin/Debug/net8.0/EmployeeCrudApi.Tests.dll
  Test run for /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/bin/Debug/net8.0/EmployeeCrudApi.Tests.dll (.NETCoreApp,Version=v8.0)
  Microsoft (R) Test Execution Command Line Tool Version 17.8.0 (x64)
  Copyright (c) Microsoft Corporation. All rights reserved.

  Starting test execution, please wait...
  A total of 1 test files matched the specified pattern.

  Passed! - Failed:  0, Passed:  5, Skipped:  0, Total:  5, Duration: 125 ms - EmployeeCrudApi.Tests.dll (net8.0)
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests$ 

```

M. Modificar la cadena de conexión en el archivo appsettings.json para que use el usuario y password correcto y recompilar el proyecto EmployeeCrudApi

```

    appsettings.json M EmployeeCrudApi.csproj EmployeeCrudApi.Tests.csproj U
EmployeeCrudApi > EmployeeCrudApi > appsettings.json > ConnectionStrings > DefaultConnection
1
2   :
3   "n": "Server=localhost,15000;Initial Catalog=master;Persist Security Info=False;User ID=SA;Password=Anilorac.9;Multi
4
5
6

```

dotnet build

dotnet run --urls "http://localhost:7150"

N. Verificar que nuestro proyecto vuelve a tener acceso a la BD navegando a <http://localhost:7150/swagger/index.html> y probando uno de los controladores:

No parameters

Responses

Curl

```
curl -X 'GET' \
  'http://localhost:7150/api/Employee/GetAll' \
  -H 'accept: text/plain'
```

Request URL

```
http://localhost:7150/api/Employee/GetAll
```

Server response

Code Details

200 Response body

```
[
  {
    "id": 1,
    "name": "Juan Perez",
    "createdDate": "2024-09-05T00:00:00"
  },
  {
    "id": 2,
    "name": "Carla Ruiz",
    "createdDate": "2024-09-05T22:22:47.440572"
  },
  {
    "id": 3,
    "name": "Carlos Gomez",
    "createdDate": "2024-09-06T09:16:50.070943"
  },
  {
    "id": 4,
    "name": "Joaquin Zarate",
    "createdDate": "2024-09-06T09:19:37.898716"
  },
  {
    "id": 5,
    "name": "Luis Rodriguez",
    "createdDate": "2024-09-06T09:23:31.324434"
  }
]
```

Download

4.4 Creamos pruebas unitarias para nuestro front de Angular:

A. Nos posicionamos en nuestro proyecto de front, en el directorio EmployeeCrudAngular/src/app

```

caro@e14: ~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCr... Q = ×
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudAngular/src/app$ pwd
/home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudAngular/src/app
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudAngular/src/app$ ls
ademployee          app.component.ts  app-routing.module.ts
app.component.css   app.config.ts    employee
app.component.html  app.module.ts   employee.model.ts
app.component.spec.ts app.routes.ts  employee.service.ts
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudAngular/src/app$
```

B. Editamos el archivo app.component.spec.ts reemplazando su contenido por:

```

EXPLORER ... appsettings.json M ts app.component.spec.ts EmployeeCrudApi.Tests.csproj U
ANGULAR_WEBAPINETCORE8_CRUD_SAMPLE
EmployeeCrudAngular
src
app
  app-routing.module.ts
  # app.component.css
  app.component.html
  TS app.component.spec.ts
  TS app.component.ts
  TS app.config.ts
  TS app.module.ts
  TS app.routes.ts
  TS employee.model.ts
  TS employee.service.ts
OUTLINE
TIMELINE
SOLUTION EXPLORER
EmployeeCrudAngular > src > app > TS app.component.spec.ts ...
1 import { TestBed } from '@angular/core/testing';
2 import { AppComponent } from './app.component'; // Ajusta la ruta si es necesario
3
4 describe('AppComponent', () => {
5   beforeEach(async () => {
6     await TestBed.configureTestingModule({
7       imports: [AppComponent], // Usa imports en lugar de declarations
8       compileComponents();
9     });
10
11   it('should render title', () => {
12     const fixture = TestBed.createComponent(AppComponent);
13     fixture.detectChanges();
14     const compiled = fixture.nativeElement as HTMLElement;
15     expect(compiled.querySelector('h1')?.textContent).toContain('EmployeeCrudAngular');
16   });
17 });
18 });

```

C. Creamos el archivo employee.service.spec.ts reemplazando su contenido por:

```

EXPLORER ... appsettings.json M ts app.component.spec.ts M ts employee.service.spec.ts U EmployeeCrudApi.Tests.csproj U
ANGULAR_WEBAPINETCORE8_CRUD_SAMPLE
EmployeeCrudAngular
  node_modules
src
  app
    addemployee
    employee
      # employee.component.css
      employee.component.html
      TS employee.component.spec.ts
      TS employee.component.ts
      TS app-routing.module.ts
      # app.component.css
      app.component.html
      TS app.component.spec.ts
      TS app.component.ts
      TS app.config.ts
      TS app.module.ts
      TS app.routes.ts
      TS employee.model.ts
      TS employee.service.ts
employee.service.spec.ts M
EmployeeCrudAngular > src > app > TS employee.service.spec.ts ...
1 import { TestBed } from '@angular/core/testing';
2 import { HttpClientTestingModule, HttpTestingController } from '@angular/common/http/testing';
3 import { EmployeeService } from './employee.service';
4 import { Employee } from './employee.model';
5 import { DatePipe } from '@angular/common';
6
7 describe('EmployeeService', () => {
8   let service: EmployeeService;
9   let httpMock: HttpTestingController;
10  let datePipe: DatePipe;
11
12  beforeEach(() => {
13    TestBed.configureTestingModule({
14      imports: [HttpClientTestingModule],
15      providers: [
16        EmployeeService,
17        DatePipe
18      ]
19    });
20
21    service = TestBed.inject(EmployeeService);
22    httpMock = TestBed.inject(HttpTestingController);
23    datePipe = TestBed.inject(DatePipe);

```

D. Editamos el archivo employee.component.spec.ts ubicado en la carpeta employee reemplazando su contenido por:

```

EXPLORER ... appsettings.json M ts app.component.spec.ts M ts employee.service.spec.ts U ts employee.component.spec.ts X
ANGULAR_WEBAPINETCORE8_CRUD_SAMPLE
EmployeeCrudAngular
  .angular
  .vscode
  node_modules
src
  app
    addemployee
    employee
      # employee.component.css
      employee.component.html
      TS employee.component.spec.ts
      TS employee.component.ts
      TS app-routing.module.ts
      # app.component.css
      app.component.html
      TS app.component.spec.ts
      TS app.component.ts
      TS app.config.ts
      TS app.module.ts
      TS app.routes.ts
employee.component.spec.ts M
EmployeeCrudAngular > src > employee > TS employee.component.spec.ts ...
1 import { TestBed } from '@angular/core/testing';
2 import { EmployeeComponent } from './employee.component';
3 import { HttpClientTestingModule } from '@angular/common/http/testing';
4 import { DatePipe } from '@angular/common';
5
6 describe('EmployeeComponent', () => {
7   beforeEach(() => {
8     TestBed.configureTestingModule({
9       imports: [EmployeeComponent, HttpClientTestingModule],
10      providers: [DatePipe] // Añade DatePipe a los proveedores
11    });
12  });
13
14  it('should create', () => {
15    const fixture = TestBed.createComponent(EmployeeComponent);
16    const component = fixture.componentInstance;
17    expect(component).toBeTruthy();
18  });
19 });

```

E. Editamos el archivo addemployee.component.spec.ts ubicado en la carpeta addemployee reemplazando su contenido por:

```

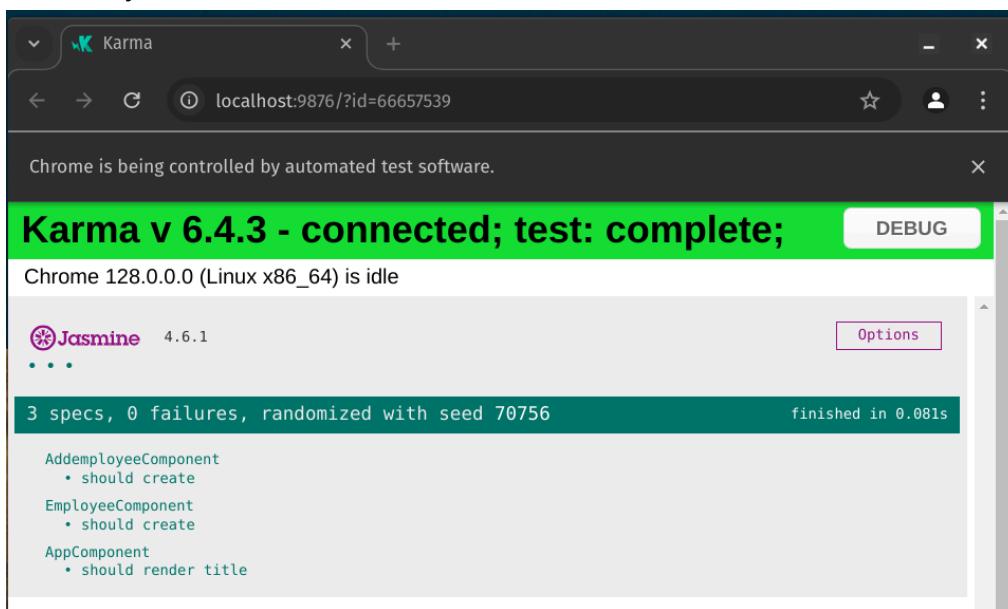
EmployeeCrudAngular > src > app > addemployee > ts addemployee.component.spec.ts ...
1 import { TestBed } from '@angular/core/testing';
2 import { AddemployeeComponent } from './addemployee.component';
3 import { HttpClientTestingModule } from '@angular/common/http/testing';
4 import { ActivatedRoute } from '@angular/router';
5 import { of } from 'rxjs'; // para simular observables
6 import { DatePipe } from '@angular/common';

7 describe('AddemployeeComponent', () => {
8   beforeEach(() => {
9     TestBed.configureTestingModule({
10       imports: [AddemployeeComponent, HttpClientTestingModule],
11       providers: [
12         DatePipe,
13         {
14           provide: ActivatedRoute, // Simula ActivatedRoute
15           useValue: {
16             params: of({ id: 1 }) // simula el parámetro id en la URL
17           }
18         }
19       ]
20     });
21   });
22 });
23
24 it('should create', () => {
25   const fixture = TestBed.createComponent(AddemployeeComponent);
26   const component = fixture.componentInstance;
27   expect(component).toBeTruthy();
28 });
29 });
30

```

F. En el directorio raiz de nuestro proyecto EmployeeCrudAngular ejecutamos el comando ng test

G. Vemos que se abre una ventana de Karma con Jasmine en la que nos indica que los tests se ejecutaron correctamente



H. Vemos que los tests se ejecutaron correctamente:

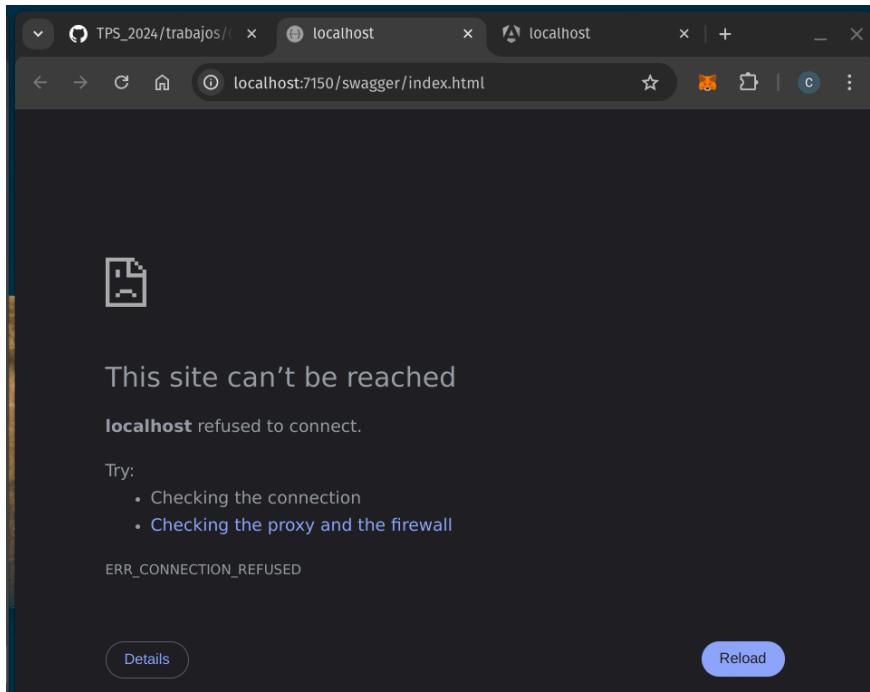
```

DISconnected client disconnected from CONNECTED state (transport close)
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudAngular$ ng test
✓ Browser application bundle generation complete.

28 09 2024 19:52:52.355:WARN [karma]: No captured browser, open http://localhost:9876/
28 09 2024 19:52:52.363:INFO [karma-server]: Karma v6.4.3 server started at http://localhost:9876/
28 09 2024 19:52:52.363:INFO [launcher]: Launching browsers Chrome with concurrency unlimited
28 09 2024 19:52:52.365:INFO [launcher]: Starting browser Chrome
28 09 2024 19:52:52.976:INFO [Chrome 128.0.0.0 (Linux x86_64)]: Connected on socket qb_llmpDkuVzikW--AAAB with id 66657539
Chrome 128.0.0.0 (Linux x86_64): Executed 1 of 3 SUCCESS (0 secs / 0.048 secs)
Chrome 128.0.0.0 (Linux x86_64): Executed 2 of 3 SUCCESS (0 secs / 0.066 secs)
Chrome 128.0.0.0 (Linux x86_64): Executed 3 of 3 SUCCESS (0 secs / 0.071 secs)
Chrome 128.0.0.0 (Linux x86_64): Executed 3 of 3 SUCCESS (0.081 secs / 0.071 secs)
TOTAL: 3 SUCCESS

```

I. Verificamos que no esté corriendo nuestra API navegando a <http://localhost:7150/swagger/index.html> y recibiendo esta salida:



J. Los puntos G y H nos indican que se han ejecutado correctamente las pruebas inclusive sin tener acceso a la API, lo que confirma que es efectivamente un conjunto de pruebas unitarias que no requieren de una dependencia externa para funcionar.

4.5 Agregamos generación de reporte XML de nuestras pruebas de front.

A. Instalamos dependencia karma-junit-reporter

```

caro@e14: ~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCr... 
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudAngular$ npm install karma-junit-reporter --save-dev

added 2 packages, and audited 941 packages in 6s

120 packages are looking for funding
  run `npm fund` for details

11 vulnerabilities (7 moderate, 4 high)

To address issues that do not require attention, run:
  npm audit fix

To address all issues (including breaking changes), run:
  npm audit fix --force

Run `npm audit` for details.

```

B. En el directorio raiz de nuestro proyecto (al mismo nivel que el archivo angular.json) creamos un archivo karma.conf.js con el siguiente contenido

The screenshot shows a code editor with the following file structure:

- EXPLORER**: Shows files like appsettings.json, angular.json, and karma.conf.js.
- ANGULAR_WEBAPINETCORE8_CRUD_SAMPLE** folder:
 - EmployeeCrudAngular
 - .angular
 - .vscode
 - node_modules
 - src
 - .editorconfig
 - .gitignore
 - angular.json
 - karma.conf.js**
 - package-lock.json
 - package.json
 - README.md
 - tsconfig.app.json
 - tsconfig.json
 - tsconfig.spec.json
 - EmployeeCrudApi
 - EmployeeCrudApi.Tests
 - bin
 - obj
 - EmployeeControllerUnitTests.cs
 - EmployeeCrudApi.Tests.csproj

The **karma.conf.js** file content is as follows:

```

module.exports = function (config) {
  config.set({
    frameworks: ['jasmine', '@angular-devkit/build-angular'],
    plugins: [
      require('karma-jasmine'),
      require('karma-chrome-launcher'),
      require('karma-junit-reporter'),
      require('@angular-devkit/build-angular/plugins/karma')
    ],
    reporters: ['progress', 'junit'],
    junitReporter: {
      outputDir: 'test-results',
      outputFile: 'test-results.xml',
      useBrowserName: false
    },
    port: 9876,
    colors: true,
    LogLevel: config.LOG_INFO,
    autoWatch: true,
    browsers: ['ChromeHeadless'],
    singleRun: true,
    restartOnFileChange: true
  });
};

```

C. Ejecutamos nuestros test de la siguiente manera:

```

caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudAngular$ ng test --karma-config=karma.conf.js --watch=false --browsers ChromeHeadless
✓ Browser application bundle generation complete.
28 09 2024 20:07:44.620:INFO [karma-server]: Karma v6.4.3 server started at http://localhost:9876/
28 09 2024 20:07:44.623:INFO [launcher]: Launching browsers ChromeHeadless with concurrency unlimited
28 09 2024 20:07:44.627:INFO [launcher]: Starting browser ChromeHeadless
28 09 2024 20:07:45.102:INFO [Chrome Headless 128.0.0.0 (Linux x86_64)]: Connected on socket fCC_2hEiOesA_co5AAAB with id 27012082
Chrome Headless 128.0.0.0 (Linux x86_64): Executed 0 of 3 SUCCESS (0 secs / 0)
Chrome Headless 128.0.0.0 (Linux x86_64): Executed 1 of 3 SUCCESS (0 secs / 0)
Chrome Headless 128.0.0.0 (Linux x86_64): Executed 2 of 3 SUCCESS (0 secs / 0)
Chrome Headless 128.0.0.0 (Linux x86_64): Executed 3 of 3 SUCCESS (0 secs / 0)
Chrome Headless 128.0.0.0 (Linux x86_64): Executed 3 of 3 SUCCESS (0.082 secs / 0.075 secs)
TOTAL: 3 SUCCESS

```

D. Verificamos que se creo un archivo test-result.xml en el directorio test-results que está al mismo nivel que el directorio src

```

EXPLORER ... appsettings.json M karma.conf.js U test-results.xml X
ANGULAR_WEBAPINETCORE_CRUD_SAMPLE EmployeeCrudAngular > test-results > test-results.xml
EmployeeCrudAngular > .angular > .vscode > node_modules > src > test-results > test-results.xml
.editorconfig gitignore angular.json karma.conf.js package-lock.json package.json
1  <?xml version="1.0"?
2  <testsuite name="Chrome Headless 128.0.0.0 (Linux x86_64)" package="" timestamp="2024-09-28T23:07:46" id="0" hostname=
3      <properties>
4          <property name="browser.fullName" value="Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) He
5              <testcase name="AddEmployeeComponent should create" time="0.052" classname="AddEmployeeComponent"/>
6          <testcase name="AppComponent should render title" time="0.008" classname="AppComponent"/>
7          <testcase name="EmployeeComponent should create" time="0.015" classname="EmployeeComponent"/>
8      </properties>
9      <system-out>
10         <! [CDATA[
11             ]]>
12         </system-out>
13         <system-err/>
14     </testsuite>

```

4.6 Modificamos el código de nuestra API y creamos nuevas pruebas unitarias:

A. Realizar al menos 5 de las siguientes modificaciones sugeridas al código de la API:

- Al agregar y al editar un empleado, controlar que el nombre del empleado no esté repetido.
- Validar que el nombre tenga un número mínimo de caracteres, por ejemplo, al menos dos caracteres para evitar entradas inválidas como "A".
- La longitud máxima del nombre y apellido del empleado debe ser de 100 caracteres.
- Verificar que el nombre no contenga números, ya que no es común en los nombres de empleados.
- Almacenar el nombre en la BD siempre con la primera letra de los nombres en Mayuscula y todo el apellido en Mayusculas. Ejemplo, si recibo juan carlos chamizo, se debe almacenar como Juan Carlos CHAMIZO.

```

EmployeeController.cs - Angular_WebAPINe
File Edit Selection View Go Run Terminal Help
EmployeeController.cs M
EmployeeCrudApi > EmployeeCrudApi > Controllers > EmployeeController.cs > Create
15 public class EmployeeController : ControllerBase
16 {
17     [HttpPost]
18     public async Task<ActionResult> Create([FromBody] Employee employee)
19     {
20         // 1. Validar que el nombre del empleado no este repetido
21         if (await _context.Employees.AnyAsync(e => e.Name == employee.Name))
22         {
23             return BadRequest("El nombre ya está registrado");
24         }
25
26         // 2. Validar longitud mínima del nombre
27         if (employee.Name.Length < 2)
28         {
29             return BadRequest("El nombre no puede tener menos de 2 caracteres");
30         }
31
32         // 3. Validar longitud máxima del nombre
33         if (employee.Name.Length > 100)
34         {
35             return BadRequest("El nombre no puede tener más de 100 caracteres");
36         }
37
38         // 4. Validar que el nombre no contenga números
39         if (Regex.IsMatch(employee.Name, @"\d"))
40         {
41             return BadRequest("El nombre no debe contener números");
42         }
43
44         // 5. Formatear el nombre: primera letra de los nombres en mayúscula y todo el apellido en mayúsculas
45         var nameParts = employee.Name.Split(' ');
46         for (int i = 0; i < nameParts.Length; i++)
47         {
48             if (i == nameParts.Length - 1)
49             {
50                 // Última parte (el apellido) en mayúsculas
51                 nameParts[i] = nameParts[i].ToUpper();
52             }
53             else
54             {
55                 // Nombres con la primera letra en mayúscula
56                 nameParts[i] = char.ToUpper(nameParts[i][0]) + nameParts[i].Substring(1).ToLower();
57             }
58         }
59         employee.Name = string.Join(' ', nameParts);
60
61         // Guardar empleado
62         employee.CreatedDate = DateTime.Now;
63         await _context.Employees.AddAsync(employee);
64         await _context.SaveChangesAsync();
65
66         return Ok("Se agrego el empleado con exito.");
67     }
68 }

```

B. Crear las pruebas unitarias necesarias para validar las modificaciones realizadas en el código

```
82  [Fact]
83  0 references
84  public async Task AddEmployee_ExistingName()
85  {
86      // Arrange
87      var context = GetInMemoryDbContext();
88      var controller = new EmployeeController(context);
89
90      var employee1 = new Employee {Name = "Caro"};
91      var employee2 = new Employee {Name = "Caro"};
92      await controller.Create(employee1);
93
94      // Act
95      var result = await controller.Create(employee2);
96
97      // Assert
98      Assert.IsType<BadRequestObjectResult>(result);
99      var badRequestResult = result as BadRequestObjectResult;
100     Assert.Equal("El nombre ya esta registrado", badRequestResult.Value);
101 }
102
103 [Fact]
104 0 references
105 public async Task Create_AddsEmployee_LongestName()
106 {
107     //Arrange
108     var context = GetInMemoryDbContext();
109     var controller = new EmployeeController(context);
110
111     var longestName = new string('F', 100);
112     var newEmployee = new Employee(Id = 2, Name = longestName);
113
114     // Act
115     var result = await controller.Create(newEmployee);
116
117     // Assert
118     var employee = await context.Employees.FindAsync(2);
119     Assert.NotNull(employee);
120     Assert.Equal(longestName, employee.Name);
121 }
122
123 [Fact]
124 0 references
125 public async Task Create_AddsEmployee_NameTooShort()
126 {
127     // Arrange
128     var context = GetInMemoryDbContext();
129     var controller = new EmployeeController(context);
130
131     var newEmployee = new Employee(Id = 2, Name = "A");
132
133     // Act
134     var result = await controller.Create(newEmployee);
135
136     // Assert
137     Assert.IsType<BadRequestObjectResult>(result);
138 }
139
140 [Fact]
141 0 references
142 public async Task AddEmployee_NameWithNumbers()
143 {
144     var context = GetInMemoryDbContext();
145     var controller = new EmployeeController(context);
146
147     var newEmployee = new Employee(Name = "Caro3");
148
149     // Act
150     var result = await controller.Create(newEmployee);
151
152     // Assert
153     Assert.IsType<BadRequestObjectResult>(result);
154 }
```

```
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests$ dotnet build
MSBuild version 17.8.5+b5265ef37 for .NET
Determining projects to restore...
All projects are up-to-date for restore.
EmployeeCrudApi -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi/EmployeeCrudApi/bin/Debug/net8.0/EmployeeCrudApi.dll
EmployeeCrudApi.Tests -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/bin/Debug/net8.0/EmployeeCrudApi.Tests.dll

Build succeeded.
  0 Warning(s)
  0 Error(s)

Time Elapsed 00:00:01.24
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests$ dotnet test
Determining projects to restore...
All projects are up-to-date for restore.
EmployeeCrudApi -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi/EmployeeCrudApi/bin/Debug/net8.0/EmployeeCrudApi.dll
EmployeeCrudApi.Tests -> /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/bin/Debug/net8.0/EmployeeCrudApi.Tests.dll
Test run for /home/caro/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudApi.Tests/bin/Debug/net8.0/EmployeeCrudApi.Tests.dll (.NETCoreApp,Version=v8.0)
Microsoft (R) Test Execution Command Line Tool Version 17.8.0 (x64)
Copyright (c) Microsoft Corporation. All rights reserved.

Starting test execution, please wait...
A total of 1 test files matched the specified pattern.

Passed! - Failed: 0, Passed: 9, Skipped: 0, Total: 9, Duration: 112 ms - EmployeeCrudApi.Tests.dll (net8.0)
```

4.7 Modificamos el código de nuestro Front y creamos nuevas pruebas unitarias:

```
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudAngular$ npm install ngx-toastr --save
added 1 package, and audited 942 packages in 5s

120 packages are looking for funding
  run `npm fund` for details

11 vulnerabilities (7 moderate, 4 high)

To address issues that do not require attention, run:
  npm audit fix

To address all issues (including breaking changes), run:
  npm audit fix --force

Run `npm audit` for details.
```

Importamos módulos ToastrModule y BrowserAnimationsModule, en src/app/app.config.ts

```
File Edit Selection View Go Run Terminal Help
TS app.config.ts M X
EmployeeCrudAngular > src > app > TS app.config.ts > ...
1 import { ApplicationConfig } from '@angular/core';
2 import { provideRouter } from '@angular/router';
3
4 import { routes } from './app.routes';
5 import { provideHttpClient, withInterceptors } from '@angular/common/http';
6 import { DatePipe } from '@angular/common';
7 import { provideAnimations } from '@angular/platform-browser/animations';
8 import { provideToastr } from 'ngx-toastr';
9
10 export const AppConfig: ApplicationConfig = {
11   providers: [
12     provideRouter(routes),
13     provideHttpClient(),
14     provideAnimations(),
15     provideToastr(),
16     DatePipe
17   ],
18};
```

y agregamos estilo en styles.css

```
File Edit Selection View Go Run Terminal Help
TS app.config.ts # styles.css M X
EmployeeCrudAngular > src > # styles.css > toast-warning
1 /* You can add global styles to this file, and also import other style files */
2
3 .toast {
4   border-radius: 5px;
5   max-width: 80vw;
6   display: flex;
7   flex-wrap: nowrap;
8   align-items: center;
9   justify-content: space-between;
10  background-color: #444444;
11  color: #FFF;
12  position: fixed;
13  bottom: 10px;
14  left: 10px;
15  font-size: 90%;
16  z-index: 5100;
17
18  transform: translateY(calc(100% + 10px));
19  transition: transform 0.2s ease-in-out;
20 }
21
22 .toast.inview {
23   transform: translateY(0);
24 }
25
26 .text {
27   padding: 20px;
28   flex-basis: 100%;
29   margin-right: 10px;
30 }
31
32 button {
33   padding: 20px;
34   cursor: pointer;
35   font-weight: bold;
36   color: inherit;
37 }
38
39 .buttons {
40   display: flex;
41 }
42
43 .toast-error {
44   background-color: #B0362F;
45 }
46
47 .toast-info {
48   background-color: #2F96B4;
49 }
50
51 .toast-warning {
52   background-color: #F89406;
53 }
```

A. Realizar en el código del front las mismas modificaciones hechas a la API.

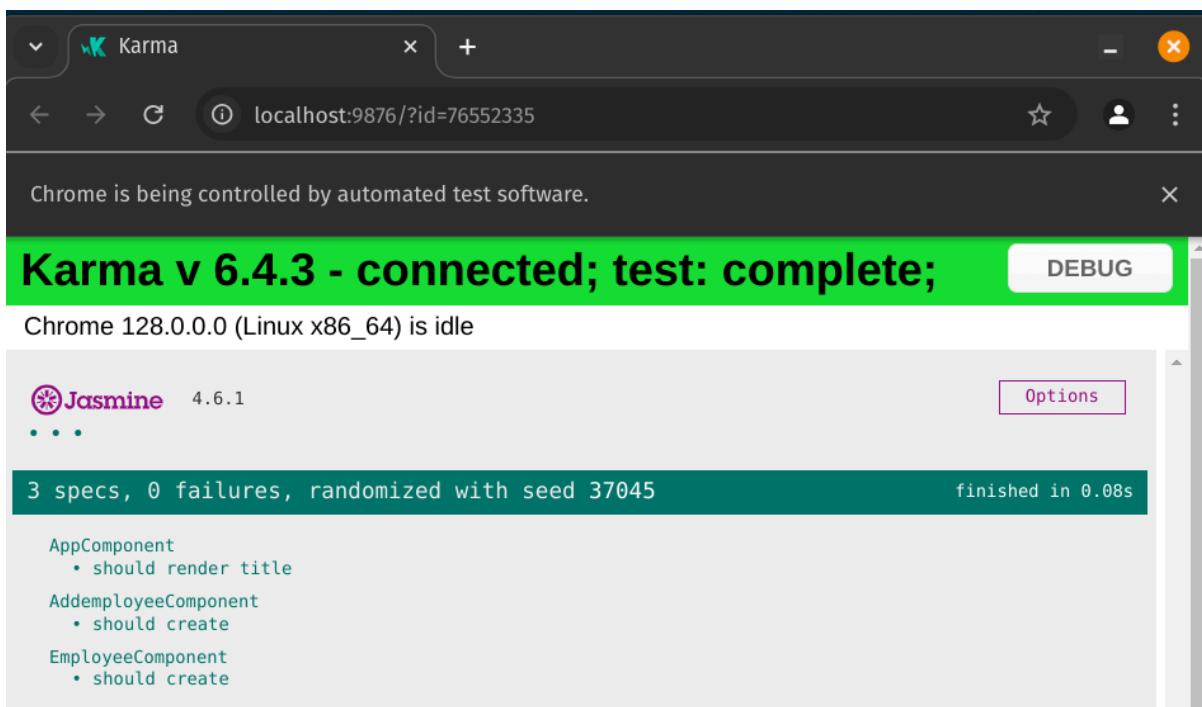
```
ts app.config.ts M # styles.css M ts addemployee.component.ts M X
EmployeeCrudAngular > src > app > addemployee > ts addemployee.component.ts > AdemployeeComponent > addEmployee
16 |
17 import class AdemployeeComponent implements OnInit {
18   newEmployee: Employee = new Employee(0, '', '');
19   submitBtnText: string = "Create";
20   imgLoadingDisplay: string = 'none';
21
22   constructor(private employeeService: EmployeeService,
23     private router: Router,
24     private toastr: ToastrService,
25     private activatedRoute: ActivatedRoute) {
26   }
27
28   ngOnInit(): void {
29     this.activatedRoute.queryParams.subscribe(params => {
30       const employeeId = params['id'];
31       if(employeeId)
32         this.editEmployee(employeeId);
33     });
34   }
35
36   addEmployee(employee: Employee) {
37
38     if (employee.name == "") {
39       this.toastr.error("El nombre del empleado no puede estar vacio");
40       return;
41     }
42
43     if (employee.name.length > 100) {
44       this.toastr.error("El nombre del empleado no puede tener mas de 100 caracteres");
45       return;
46     }
47
48     if (employee.name.length < 2) {
49       this.toastr.error("El nombre del empleado no puede tener menos de 2 caracteres");
50       return;
51     }
52
53     const regex = /\d/;
54     if (regex.test(employee.name)) {
55       this.toastr.error("El nombre del empleado no puede tener numeros");
56     }
57
58
59     employee.createdDate = new Date().toISOString();
60     this.employeeService.updateEmployee(employee).subscribe(result=> {this.router.navigate(['/']);});
61
62
```

```
 1 import { TestBed } from '@angular/core/testing';
 2 import { AddemployeeComponent } from './addemployee.component';
 3 import { HttpClientTestingModule } from '@angular/common/http/testing';
 4 import { ActivatedRoute } from '@angular/router';
 5 import { of } from 'rxjs'; // para simular observables
 6 import { DatePipe } from '@angular/common';
 7 import { ToastrService } from 'ngx-toastr';
 8
 9 describe('AddemployeeComponent', () => {
10   beforeEach(() => {
11     TestBed.configureTestingModule({
12       imports: [AddemployeeComponent, HttpClientTestingModule],
13       providers: [
14         DatePipe,
15         {
16           provide: ActivatedRoute, // Simula ActivatedRoute
17           useValue: {
18             params: of({ id: 1 }) // simula el parámetro id en la URL
19           }
20         },
21         {
22           provide: ToastrService, // Proporciona un mock de ToastrService
23           useValue: {
24             error: (msg: string) => console.log('Toastr error:', msg)
25           }
26         }
27       ]
28     });
29   });
30
31   it('should create', () => {
32     const fixture = TestBed.createComponent(AddemployeeComponent);
33     const component = fixture.componentInstance;
34     expect(component).toBeTruthy();
35   });
36
37 });
38
```

C. Crear las pruebas unitarias necesarias en el front para validar las modificaciones realizadas en el código del front.

```
^C
caro@e14:~/Documents/tp_ingsw3/Angular_WebAPINetCore8_CRUD_Sample/EmployeeCrudAngular$ ng test
✓ Browser application bundle generation complete.

30 09 2024 11:45:28.172:WARN [karma]: No captured browser, open http://localhost:9876/
30 09 2024 11:45:28.180:INFO [karma-server]: Karma v6.4.3 server started at http://localhost:9876/
30 09 2024 11:45:28.180:INFO [launcher]: Launching browsers Chrome with concurrency unlimited
30 09 2024 11:45:28.183:INFO [launcher]: Starting browser Chrome
30 09 2024 11:45:28.672:INFO [Chrome 128.0.0.0 (Linux x86_64)]: Connected on socket 1gcxHTb6hC-Iqn_kAAAB with id 76552335
Chrome 128.0.0.0 (Linux x86_64): Executed 1 of 3 SUCCESS (0 secs / 0.033 secs)
Chrome 128.0.0.0 (Linux x86_64): Executed 2 of 3 SUCCESS (0 secs / 0.052 secs)
Chrome 128.0.0.0 (Linux x86_64): Executed 3 of 3 SUCCESS (0 secs / 0.068 secs)
Chrome 128.0.0.0 (Linux x86_64): Executed 3 of 3 SUCCESS (0.08 secs / 0.068 secs)
TOTAL: 3 SUCCESS
```



Link al repositorio:

<https://github.com/carohavenstein/AngularWebApi>