# Technical Information

## **ASP .NET Core 3.1**

- Needs Visual Studio 2019 (v16.7)

- NuGet Microsoft.VisualStudio.Web.CodeGeneration.Design v3.1.4

- Open-source and community-focused.

- Ability to develop and run in Windows, macOS, and Linux.

- Dependency injection is built-in

- A lightweight, high-performance, and modular HTTP request pipeline.

## **MVC**

- Is an architectural pattern - This project starts with an empty template

- Separation of concerns

- Promotes testability and maintainability

- Uses razor pages to integrate C# inside HTML

## **EF Core 3.1**

- Open-source OMR framework for ADO.Net

- Allows us to work directly with the database without writing SQL statements, in most cases.

- Allows us work with types that behind the scenes will be persistent in the database.

- Allows us to work with LINQ queries to work with data.

- Is a lightweight framework and works well with ASP.NET Core MVC web apps.

- it is cross-platform, so allows us to work with Linux, Windows and Mac.

- Supports relational and non-relational DB.

- Supports Code-first approach and still you can create a model from database.

- NuGet - Microsoft.EntityFrameworkCore.Design v3.1.10

## **SQL Server - Postgres Database**

- Is opensource and relational database.

- Well suited for systems that require execution of complex queries.

- With tools to protect data integrity and manage data.

- NuGet packages:

- Microsoft.EntityFrameworkCore.SqlServer v3.1.10

- Microsoft.EntityFramework.Tools v3.1.10

- Npgsql.EntityFrameworkCore.PostgreSQL v3.1.1

## **ASP .NET Identity API**

- Supports user interface (UI) login functionality.

- Manages users, passwords, profile data, roles, claims, tokens, email confirmation, etc.

- NuGet packages:

- Microsoft.AspNetCore.Identity.EntityFrameworkCore 3.1.10

- Microsoft.AspNetCore.Identity.UI 3.1.10

## **xUnit as unit testing tool**

- Open-source unit testing tool that works for .Net and .Net core frameworks

- It works with ReSharper

- Supports data-driven tests.

- NuGet packages:

- Microsoft.NET.Test.Sdk v16.7.1

- xunit v2.4.1

- xunit.runner.visualstudio v2.4.3

- Microsoft.EntityFrameworkCore.InMemory v3.1.10

- Microsoft.AspNetCore.TestHost v3.1.10

- coverlet.collector v1.3.0

- Moq v4.15.2

## **FLUENT VALIDATION**

- Library for server-side data validation

- Cleaner models as decouples validation rules and models

- Efficient unit testing

- NuGet packages:

* FluentValidation v 9.4.0
* FluentValidation.AspNetCore v 9.4.0

## **Roles, Users and Policies**

**2 roles:**

- admin

- readonly

**2 Policies**

- Admin

- ReadOnly

**1 user created**

- admin@mailinator.com: Role "admin" - Owns 1 Policy - Manage roles, users and the CRUD operations with quizzes.

\*\* Database initialises with the user specified above and with 2 roles: admin and read only.

- No logged or registered users can see quizzes and questions but not answers.

- Users with a read only role can see quizzes, questions and answers.

- Users with an admin role can access to all the pages of the web application.