iLoy Group

Task management system

Requirements

- Visual Studio 2019 (link)
- Ms SQL Server

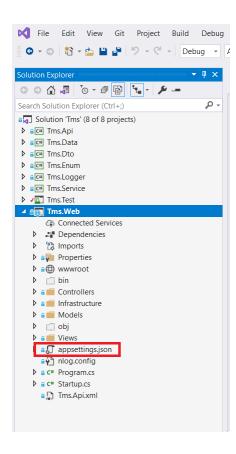
External libraries

- CsvHelper, a library for reading and writing csv-files. Used for fast and easy to use
- <u>NLog</u>, is a logging platform for .NET with rich log routing and management capabilities. Used for debugging and logging exceptions. <u>NLog.Config</u> used for getting configuration from file "nlog.config"
- <u>Swashbuckle.AspNetCore</u>, swagger tools for documenting APIs built on ASP.NET Core. Used for building APIs list on the Swagger page: Home (page) -> Swagger (menu)
- NUnit and Moq used for unit-tests
- Newtonsoft. Json used for serialize and deserialize objects for tests
- AutoMapper, a convention-based object-object mapper
- <u>Microsoft.EntityFrameworkCore.Tools</u> is a Entity Framework Core Tools for the NuGet Package Manager Console, used for commands: add-migration, remove-migration, update-database and etc.

Configuration database

Configuration file

Tms.Web project -> appsettings.json



Database connection

Section "ConnectionStrings" -> "DefaultConnection":

"Data Source=localhost;Initial Catalog=Tms;Integrated Security=True;Persist Security
Info=False"

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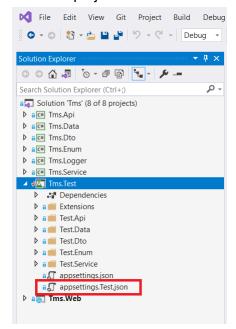
Configuration tests

Configuration file

-> appsettings.Test.json

The path to the configuration file is written in:

Tms.Test project -> TestServerFactory.cs -> the AppsettingsJsonFile constant



Database connection

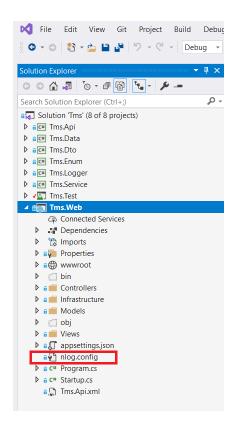
Section "ConnectionStrings" -> "DefaultConnection": "InMemoryDatabase"

```
Schema: <No Schema Selected>
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                                                             ₽{
                                                         1
Solution 'Tms' (8 of 8 projects)
                                                             Ė.
                                                         2
                                                                    "ConnectionStrings": {
▷ ac# Tms.Api
                                                         3
                                                                        "DefaultConnection": "InMemoryDatabase"
▷ ac# Tms.Data
                                                         4
▷ ac# Tms.Dto
                                                         5
                                                                     Logging": {
▶ ac# Tms.Enum
                                                                        "LogLevel": {
                                                         6
▶ ac# Tms.Logger
                                                                            "Default": "Debug",
                                                                            "Microsoft": "Error",
▶ ac# Tms.Service
                                                         8
                                                                            "Microsoft.Hosting.Lifetime": "Error"
                                                         9
✓ ✓ Tms.Test
                                                        10
   Dependencies
                                                        11
   ▶ a i Extensions
                                                        12
                                                              }
   ▶ 💼 Test.Api
   ▶ 🚛 Test.Data
   ▶ a iii Test.Dto
   ▶ a iii Test.Enum
   ▶ a i Test.Service
     appsettings.json
     appsettings.Test.json
 ▶ 🚛 Tms.Web
```

Logging configuration

Configuration file

Tms.Web project -> nlog.config



File logging rules

- Section "targets":
 <target xsi:type="File" name="LogFile" fileName="\${basedir}\logs\\${shortdate}.log"
 layout="\${longdate:universalTime=true} UTC|\${level:uppercase=true}|\${message}"/>
- 2. Section "rules":

<logger name="*" minlevel="Debug" writeTo="LogFile" />

```
1 <?xml version="1.0" encoding="utf-8" ?>
                                                    2 < nlog xmlns="http://www.nlog-project.org/schemas/NLog.xsd"
Solution 'Tms' (8 of 8 projects)
                                                            xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
D ac# Tms.Api
                                                            xsi:schemaLocation="http://www.nlog-project.org/schemas/NLog.xsd"
▶ ac# Tms.Data
                                                            autoReload="true"
                                                            throwExceptions="false"
▶ ac# Tms.Dto
                                                            internalLogLevel="Off" internalLogFile="${basedir}\logs\nlog-internal.log">
D ⊕ C# Tms.Enum
▶ ac# Tms.Logger
▶ ac# Tms.Service
                                                            <target xsi:type="File" name="LogFile" fileName="${basedir}\logs\${shortdate}.log" la</pre>
▶ ✓
▼ Tms.Test
                                                   11
◢  Tms.Web
    Connected Services
                                                          <!-- rules to map from logger name to target -->
  Dependencies
                                                   145
  <logger name="*" minlevel="Debug" writeTo="LogFile" />
                                                         </rules>
  ▶ a properties
  ▶ a⊕ wwwroot
                                                   17 </nlog>
  ▶ 🛗 bin
  ▶ a Controllers
  ▶ a Infrastructure
  ▶ 🚛 Models
  ▶ a  Views
  ▶ a ppsettings.json
    ▶ a c# Program.cs
  ▶ a c# Startup.cs
   a ☐ Tms.Api.xml
```

Logging level

Every appsettings.config and the same files contains the section "Logging" -> "LogLevel", for changing logging level. Preferred values:

```
"Logging"
                             "LogLevel"
                                                          "Default" = "Debug"
                                                          "Microsoft" = "Error"
                                                          "Microsoft.Hosting.Lifetime" = "Error"
                                                          "Hangfire" = "Error" (optional, if used)
                                                          "Microsoft.AspNetCore.SignalR" = "Error" (optional, if used)
                                                           "Microsoft.AspNetCore.Http.Connections" = "Error" (optional, if used)
                                                                                                                              Schema: https://json.schemastore.org/appsettings.json
   Search Solution Explorer (Ctrl+;)
                                                                                                                                                                1 ♀ 🗏 {
   Solution 'Tms' (8 of 8 projects)
                                                                                                                                                                                            "ConnectionStrings": {
    ▶ ac# Tms.Api
                                                                                                                                                                3
                                                                                                                                                                                                         "DefaultConnection": "Data Source=localhost; Initial Catalog=1
    ▶ ac# Tms.Data
                                                                                                                                                                4
    D ac# Tms.Dto
                                                                                                                                                                                               Logging": {
    ▶ ac# Tms.Enum
                                                                                                                                                                6
                                                                                                                                                                                                         "LogLevel": {
                                                                                                                                                                                                                     "Default": "Debug",
    ▶ ac# Tms.Logger
    ▶ ac# Tms.Service
                                                                                                                                                                                                                  "Microsoft": "Error",
                                                                                                                                                               9
                                                                                                                                                                                                                    "Microsoft.Hosting.Lifetime": "Error"
    ▶ ✓ Ims.Test
                                                                                                                                                             10

▲ a

■ Tms.Web

                                                                                                                                                             11
                    Connected Services
                                                                                                                                                             12
                                                                                                                                                                                              'AllowedHosts":
            Dependencies
                                                                                                                                                                             }
                                                                                                                                                             13
           ▶ Maria De la Propertion De la Prope
           ▶ 📦 Properties
           ▶ a⊕ wwwroot
           ▶ iii bin
           ▶ a  Controllers
           ▶ a Infrastructure
           ▶ a  Models
           ▶ ∭ obj
            ▶ a iii Views
         ▶ a  appsettings.json
               ▶ a C# Program.cs
           ▶ a c# Startup.cs
                 a ☐ Tms.Api.xml
```

Migrations

Solution has the "migrations" feature. It is used for keeping the database in sync with the data model. Migrations performed while the Tms.Web project started (development or published). The mechanism is started in the classes:

Tms.Web -> Startup.cs -> void Configure -> app.UseMigration()

Tms.Data -> Context -> ApplicationDbContextUtils.cs -> void UseMigration

The "Seed data" process is used for populating a database with an initial set of demo data:

Tms.Data -> Context -> ApplicationDbContext.cs -> this.SeedData(modelBuilder)

Tms.Data -> Context -> ApplicationDbContext.cs -> void SeedData