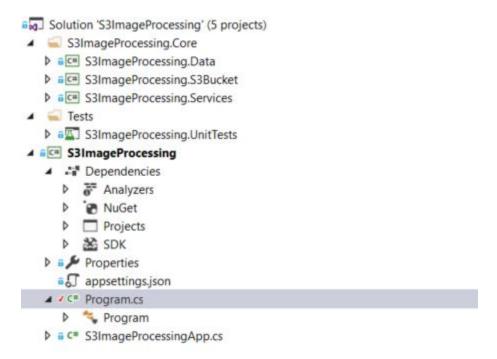## Technologies overview

- .NET Core 2.2 Console App
- .NET Core 2.2 SDK: https://dotnet.microsoft.com/download/dotnet-core/2.2
- AWS RDS MySQL
- NuGet packages:
    - **Dependency Injection**:
        - Microsoft.Extensions.DependencyInjection (2.2.0)
    - **Logging using console log**:
        - Microsoft.Extensions.Logging (2.2.0)
        - Microsoft.Extensions.Logging.Console (2.2.0)
    - **Configuration JSON File**:
        - Microsoft.Extensions.Configuration (2.2.0)
        - Microsoft.Extensions.Configuration.FileExtensions (2.2.0)
        - Microsoft.Extensions.Configuration.Json (2.2.0)
        - Microsoft.Extensions.Options.ConfigurationExtensions. (2.2.0)
    - **MySQL Data Access**:
        - MySql.Data (8.0.15)
    - **AWS S3 Bucket Storage**:
        - AWSSDK.Core (3.3.100.3)
        - AWSSDK.S3 (3.3.101.1)
    - **Image Processing**:
        - SixLabors.ImageSharp (1.0.0-beta0006)
    - **Testing**:
        - Xunit (2.4.0)
        - Microsoft.NET.Test.Sdk (15.9.0)

Local Development

- MS VS Studio 2017 + Reshaper 2018
- Navicat 12 for MySql: https://www.navicat.com/
- S3 Bucket Browser: http://s3browser.com/

Application design

- **S3ImageProcessing.Data**: Responsible for data access with invariant database provider. Using factory pattern for create database factory.
- **S3ImageProcessing.S3Bucket**: Responsible for integrated with AWS S3 Bucket for access resoures by override S3Client by S3BucketClient.
- **S3.ImageProcessing.Services:** Providing application services:
  - **IImageStorageProvider**: Access image file storage and load images implement s3 bucket storage.
  - **IImageHistogramService**: Processing image service, read pixel of the images, compute the histogram of the image.
  - **IParsedImageStore**: Data store implement ADO.NET Data Provider.
- **S3ImageProcessing**: Console application using application services. Using TPL Task Parallel to reduce time of processing images.
- **S3ImageProcessing.Tests:** Unit test for services.

Full source code by extract **Source.zip**

How to use

- Window 10-x64
  - Extract **S3ImageProcessing-Release.zip,** go to folder **win10-x64** and run **S3ImageProcessing.exe**
- MacOS 10.10 x64
  - Install .Net core 2.2 runtime: https://dotnet.microsoft.com/download
  - Extract zip file **S3ImageProcessing-Release.zip,** go to folder **osx.10.10-x64** and run command: **dotnet S3ImageProcessing.dll**