Namespace Heatington.AssetManager Classes

<u>AssetManager</u>

<u>HeatingGrid</u>

ProductionUnit

Enums

ProductionUnitsEnum

Class AssetManager

Namespace: <u>Heatington</u>. <u>AssetManager</u>

Assembly: Heatington.dll

public class AssetManager

Inheritance

<u>object</u>

← AssetManager

Inherited Members

<u>object.Equals(object)</u> <u>object.Equals(object, object)</u> <u>object.GetHashCode()</u> <u>object.MemberwiseClone()</u> <u>object.ReferenceEquals(object, object)</u> <u>object.MemberwiseClone()</u> <u>ob</u>

Examples

```
AssetManager AM = new AssetManager();
await AM.LoadAssets();
```

Constructors

AssetManager()

```
public AssetManager()
```

Properties

HeatingGridInformation

```
public HeatingGrid? HeatingGridInformation { get; }
```

Property Value

HeatingGrid

ProductionUnits

```
public Dictionary<ProductionUnitsEnum, ProductionUnit>? ProductionUnits { get; }
```

Property Value

<u>Dictionary</u> < ProductionUnit>

Methods

LoadAssets()

```
public Task LoadAssets()
```

Returns

<u>Task</u> ☑

ReadHeatingUnits()

```
public Dictionary<ProductionUnitsEnum, ProductionUnit> ReadHeatingUnits()
```

Returns

<u>Dictionary</u> < <u>ProductionUnitsEnum</u>, <u>ProductionUnit</u>>

ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

A string that represents the current object.

WriteHeatingUnit(ProductionUnit)

public void WriteHeatingUnit(ProductionUnit editedHeatingUnit)

Parameters

editedHeatingUnit ProductionUnit

WriteHeatingUnit(ProductionUnitsEnum, ProductionUnit)

public void WriteHeatingUnit(ProductionUnitsEnum productionUnitKey, ProductionUnit heatingUnitNewbBody)

Parameters

productionUnitKey ProductionUnitsEnum

heatingUnitNewbBody ProductionUnit

WriteHeatingUnit(Guid, ProductionUnit)

public void WriteHeatingUnit(Guid unitId, ProductionUnit heatingUnitNewbBody)

Parameters

unitId Guid

heatingUnitNewbBody ProductionUnit

Class HeatingGrid

Namespace: <u>Heatington</u>. <u>AssetManager</u>

Assembly: Heatington.dll

public class HeatingGrid

Inheritance

object

← HeatingGrid

Inherited Members

Constructors

HeatingGrid(string, string)

```
public HeatingGrid(string picturePath, string name)
```

Parameters

picturePath <u>string</u> ♂

name <u>string</u> ♂

Properties

Id

```
public Guid Id { get; set; }
```

Property Value

Name

```
public string Name { get; set; }
Property Value
string♂
```

PicturePath

```
public string PicturePath { get; set; }
```

Property Value

Class ProductionUnit

Namespace: <u>Heatington</u>. <u>AssetManager</u>

Assembly: Heatington.dll

public class ProductionUnit : ICloneable

Inheritance

object

← ProductionUnit

Implements

ICloneable ☑

Inherited Members

<u>object.Equals(object)</u> <u>object.Equals(object, object)</u> <u>object.GetHashCode()</u> <u>object.MemberwiseClone()</u> <u>object.ReferenceEquals(object, object)</u> <u>object.MemberwiseClone()</u> <u>ob</u>

Constructors

ProductionUnit(string, string, double, double, double, double, double)

public ProductionUnit(string name, string picturePath, double maxHeat, double
productionCost, double maxElectricity, double gasConsumption, double co2Emission)

Parameters

```
name stringd

picturePath stringd

maxHeat doubled

productionCost doubled

maxElectricity doubled

gasConsumption doubled
```

Properties

Co2Emission

```
public double Co2Emission { get; }
```

Property Value

GasConsumption

```
public double GasConsumption { get; }
```

Property Value

Id

```
public Guid Id { get; }
```

Property Value

MaxElectricity

```
public double MaxElectricity { get; }
```

Property Value

MaxHeat

```
public double MaxHeat { get; }
```

<u>double</u>♂

Property Value

Name

```
public string Name { get; set; }
```

Property Value

OperationPoint

```
public double OperationPoint { get; set; }
```

Property Value

PicturePath

```
public string PicturePath { get; }
```

Property Value

<u>string</u> ♂

ProductionCost

```
public double ProductionCost { get; }
```

Property Value

Methods

Clone()

Creates a new object that is a copy of the current instance.

```
public object Clone()
```

Returns

A new object that is a copy of this instance.

ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

A string that represents the current object.

Enum ProductionUnitsEnum

Namespace: <u>Heatington.AssetManager</u>

Assembly: Heatington.dll

public enum ProductionUnitsEnum

Fields

ElectricBoiler = 3
GasBoiler = 0
GasMotor = 2
OilBoiler = 1

Namespace Heatington.Controllers Classes

CsvController

FileController

Documentation in Documents/Heatington/Controllers/FileController.md

<u>JsonController</u>

<u>ProductionUnitJsonConverter</u>

Class CsvController

Namespace: <u>Heatington.Controllers</u>

Assembly: Heatington.dll

public class CsvController : IDataSource

Inheritance

<u>object</u>

← CsvController

Implements

IDataSource

Inherited Members

Methods

GetDataAsync(string)

public Task<List<DataPoint>?> GetDataAsync(string filePath)

Parameters

filePath <u>string</u>♂

Returns

<u>Task</u>♂<<u>List</u>♂<<u>DataPoint</u>>>

SaveData(List<DataPoint>, string)

public void SaveData(List<DataPoint> data, string filePath)

Parameters

data <u>List</u>♂<<u>DataPoint</u>>

filePath <u>string</u>♂

Class FileController

Namespace: <u>Heatington.Controllers</u>

Assembly: Heatington.dll

Documentation in Documents/Heatington/Controllers/FileController.md

```
public class FileController : IReadWriteController
```

Inheritance

<u>object</u> ← FileController

Implements

IReadWriteController

Inherited Members

<u>object.Equals(object)</u> <u>object.Equals(object, object)</u> <u>object.GetHashCode()</u> <u>object.MemberwiseClone()</u> <u>object.ReferenceEquals(object, object)</u> <u>object.MemberwiseClone()</u> <u>object.MemberwiseClone()</u> <u>object.ReferenceEquals(object, object)</u> <u>object.MemberwiseClone()</u> <u>o</u>

Constructors

FileController(string)

Documentation in Documents/Heatington/Controllers/FileController.md

```
public FileController(string pathToFile)
```

Parameters

pathToFile <u>string</u> ♂

Methods

ReadData<T>()

```
public Task<T> ReadData<T>()
```

Returns

<u>Task</u>♂<T>

Type Parameters

Т

ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

<u>string</u> ♂

A string that represents the current object.

WriteData<T>(T)

```
public Task<OperationStatus> WriteData<T>(T content)
```

Parameters

content T

Returns

<u>Task</u> do < <u>OperationStatus</u> >

Type Parameters

т

Class JsonController

Namespace: <u>Heatington.Controllers</u>

Assembly: Heatington.dll

```
public class JsonController : ISerializeDeserialize, IReadWriteController
```

Inheritance

<u>object</u> de de JsonController

Implements

ISerializeDeserialize, IReadWriteController

Inherited Members

<u>object.Equals(object)</u> <u>object.Equals(object, object)</u> <u>object.GetHashCode()</u> <u>object.MemberwiseClone()</u> <u>object.ReferenceEquals(object, object)</u> <u>object.MemberwiseClone()</u> <u>ob</u>

Constructors

JsonController(string)

public JsonController(string filePath)

Parameters

filePath <u>string</u> ♂

Methods

Deserialize<T>(string)

public static T Deserialize<T>(string file)

Parameters

file string♂

```
Returns
Τ
Type Parameters
Τ
ReadData<T>()
 public Task<T> ReadData<T>()
Returns
<u>Task</u>♂<T>
Type Parameters
Τ
Serialize<T>(T)
 public static string Serialize<T>(T obj)
Parameters
obj T
Returns
Type Parameters
Τ
```

ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

A string that represents the current object.

WriteData<T>(T)

public Task<OperationStatus> WriteData<T>(T content)

Parameters

content T

Returns

<u>Task</u> < <u>OperationStatus</u> >

Type Parameters

Τ

Class ProductionUnitJsonConverter

Namespace: <u>Heatington.Controllers</u>

Assembly: Heatington.dll

public class ProductionUnitJsonConverter : JsonConverter<ProductionUnit>

Inheritance

 $\underline{object} \boxtimes \leftarrow \underline{JsonConverter} \boxtimes \leftarrow \underline{JsonConverter} \boxtimes \leftarrow \underline{ProductionUnit} > \leftarrow \underline{Produc$

Inherited Members

 $\underline{JsonConverter < ProductionUnit > .CanConvert(\underline{Type})} \square ,$

JsonConverter<ProductionUnit>.ReadAsPropertyName(ref Utf8JsonReader, Type,

<u>JsonSerializerOptions</u>) □ ,

JsonConverter<ProductionUnit>.WriteAsPropertyName(Utf8JsonWriter, ProductionUnit,

<u>JsonSerializerOptions</u>) □ ,

object.Equals(object) ♂, object.Equals(object, object) ♂, object.GetHashCode() ♂,

 $\underline{object.GetType()} {!} "" , \underline{object.MemberwiseClone()} "" , \underline{object.ReferenceEquals(object, object)} "" , \underline{object$

<u>object.ToString()</u> □

Methods

Read(ref Utf8JsonReader, Type, JsonSerializerOptions)

Reads and converts the JSON to type ProductionUnit.

public override ProductionUnit Read(ref Utf8JsonReader reader, Type typeToConvert, JsonSerializerOptions options)

Parameters

reader <u>Utf8JsonReader</u> ☑

The reader.

typeToConvert <u>Type</u>♂

The type to convert.

options <u>JsonSerializerOptions</u> ☑

An object that specifies serialization options to use.

Returns

ProductionUnit

The converted value.

Write(Utf8JsonWriter, ProductionUnit, JsonSerializerOptions)

Writes a specified value as JSON.

public override void Write(Utf8JsonWriter writer, ProductionUnit productionUnit, JsonSerializerOptions options)

Parameters

writer <u>Utf8JsonWriter</u>♂

The writer to write to.

productionUnit ProductionUnit

options <u>JsonSerializerOptions</u>
☑

An object that specifies serialization options to use.

Namespace Heatington.Controllers.Enums Enums

OperationStatus

Documentation in Documents/Heatington/Controllers/Enums/OperationStatus.md

Enum OperationStatus

Namespace: <u>Heatington.Controllers.Enums</u>

Assembly: Heatington.dll

Documentation in Documents/Heatington/Controllers/Enums/OperationStatus.md

public enum OperationStatus

Fields

FAILURE = 2

LOADING = 1

SUCCESS = 0

Namespace Heatington.Controllers. Interfaces

Interfaces

<u>IReadWriteController</u>

Documentation in Documents/Heatington/Controllers/Interfaces/IReadWriteController.md

<u>ISerializeDeserialize</u>

Interface IReadWriteController

Namespace: <u>Heatington.Controllers.Interfaces</u>

Assembly: Heatington.dll

Documentation in Documents/Heatington/Controllers/Interfaces/IReadWriteController.md

public interface IReadWriteController

Methods

ReadData<T>()

Task<T> ReadData<T>()

Returns

<u>Task</u> < T>

Type Parameters

Τ

ToString()

string? ToString()

Returns

<u>string</u> ♂

WriteData<T>(T)

Task<OperationStatus> WriteData<T>(T content)

Parameters

content T

Returns

<u>Task</u> < <u>OperationStatus</u> >

Type Parameters

Т

Interface ISerializeDeserialize

Namespace: <u>Heatington.Controllers.Interfaces</u> Assembly: Heatington.dll public interface ISerializeDeserialize Methods Deserialize<T>(string) public static abstract T? Deserialize<T>(string file) **Parameters** file <u>string</u> ♂ Returns Τ Type Parameters Τ

Serialize<T>(T)

public static abstract string? Serialize<T>(T obj)

Parameters

obj T

Returns

<u>string</u> ♂

Type Parameters

٦

Namespace Heatington.Controllers. Serializers

Classes

CsvConstructorAttribute

Class CsvConstructorAttribute

Namespace: <u>Heatington.Controllers.Serializers</u> Assembly: Heatington.dll [AttributeUsage(AttributeTargets.Constructor, AllowMultiple = false)] public sealed class CsvConstructorAttribute : Attribute **Inheritance Inherited Members** <u>Attribute.Equals(object)</u> ¬ <u>Attribute.GetCustomAttribute(Assembly, Type)</u> ¬ , Attribute.GetCustomAttribute(Assembly, Type, bool) , Attribute.GetCustomAttribute(MemberInfo, Type) , <u>Attribute.GetCustomAttribute(MemberInfo, Type, bool)</u> , <u>Attribute.GetCustomAttribute(Module, Type)</u> ✓, Attribute.GetCustomAttribute(ParameterInfo, Type) , <u>Attribute.GetCustomAttribute(ParameterInfo, Type, bool)</u> , , Attribute.GetCustomAttributes(Assembly) . Attribute.GetCustomAttributes(Assembly, bool) . Attribute.GetCustomAttributes(Assembly, Type) , <u>Attribute.GetCustomAttributes(Assembly, Type, bool)</u> , , Attribute.GetCustomAttributes(MemberInfo, bool) , Attribute.GetCustomAttributes(MemberInfo, Type, bool) ..., <u>Attribute.GetCustomAttributes(Module)</u> darbibute.GetCustomAttributes(Module, bool) darbibutes(Module, bool) da Attribute.GetCustomAttributes(Module, Type) ♂, Attribute.GetCustomAttributes(Module, Type, bool) , Attribute.GetCustomAttributes(ParameterInfo, bool) d., Attribute.GetCustomAttributes(ParameterInfo, Type) , <u>Attribute.GetCustomAttributes(ParameterInfo, Type, bool)</u> do , <u>Attribute.GetHashCode()</u> do , Attribute.IsDefined(Assembly, Type, bool) , Attribute.IsDefined(MemberInfo, Type) , <u>Attribute.IsDefined(MemberInfo, Type, bool)</u> , <u>Attribute.IsDefined(Module, Type)</u> , Attribute.IsDefined(Module, Type, bool) do , Attribute.IsDefined(ParameterInfo, Type) do ,

<u>Attribute.IsDefined(ParameterInfo, Type, bool)</u> , <u>Attribute.Match(object)</u> , <u>Attribute.TypeId</u> ,

 $\underline{object.Equals(object,object)} \, \underline{\sigma} \, \, , \, \underline{object.GetType()} \, \underline{\sigma} \, \, , \, \underline{object.ReferenceEquals(object,object)} \, \underline{\sigma} \, \, , \, \underline{object.ToString()} \, \underline{\sigma} \, \, , \, \underline{\sigma} \, \underline$

Namespace Heatington.Data Interfaces

<u>IDataSource</u>

Interface IDataSource

Namespace: <u>Heatington</u>.<u>Data</u>

Assembly: Heatington.dll

public interface IDataSource

Methods

GetDataAsync(string)

Task<List<DataPoint>?> GetDataAsync(string filePath)

Parameters

filePath <u>string</u> ♂

Returns

Task C Task C C C D D T D C D T D D C D <p

SaveData(List<DataPoint>, string)

void SaveData(List<DataPoint> data, string filePath)

Parameters

data <u>List</u> < <u>DataPoint</u> >

filePath <u>string</u>♂

Namespace Heatington.Helpers Classes

<u>Utilities</u>

Class Utilities

Namespace: <u>Heatington</u>.<u>Helpers</u>

Assembly: Heatington.dll

public static class Utilities

Inheritance

<u>object</u> de Utilities

Inherited Members

<u>object.Equals(object)</u> <u>object.Equals(object, object)</u> <u>object.GetHashCode()</u> <u>object.MemberwiseClone()</u> <u>object.ReferenceEquals(object, object)</u> <u>object.MemberwiseClone()</u> <u>ob</u>

Methods

ConvertObject<T>(object?)

public static T ConvertObject<T>(object? obj)

Parameters

obj <u>object</u>♂

Returns

Τ

Type Parameters

Τ

DisplayException(string)

public static void DisplayException(string message)

Parameters

```
message <u>string</u> ♂
```

GeneratePathToFileInAssetsDirectory(string)

public static string GeneratePathToFileInAssetsDirectory(string fileName)

Parameters

fileName <u>string</u> ♂

Returns

GetAbsolutePathToAssetsDirectory()

public static string GetAbsolutePathToAssetsDirectory()

Returns

ToString()

public static string ToString()

Returns

<u>string</u> ♂

Namespace Heatington. Models Classes

DataPoint

ResultHolder

Class DataPoint

Namespace: <u>Heatington.Models</u>

Assembly: Heatington.dll

public class DataPoint

Inheritance

object

← DataPoint

Inherited Members

Constructors

DataPoint(string, string, string)

```
public DataPoint(string startTime, string endTime, string heatDemand,
string electricityPrice)
```

Parameters

startTime <u>string</u>♂

 $endTime \ \underline{string} \ \underline{ \ }$

heatDemand <u>string</u> ☑

electricityPrice <u>string</u>♂

Properties

ElectricityPrice

```
public double ElectricityPrice { get; }
```

Property Value

EndTime

```
public DateTime EndTime { get; }
```

Property Value

HeatDemand

```
public double HeatDemand { get; }
```

Property Value

StartTime

```
public DateTime StartTime { get; }
```

Property Value

<u>DateTime</u> □

Class ResultHolder

Namespace: <u>Heatington.Models</u>

Assembly: Heatington.dll

public class ResultHolder

Inheritance

<u>object</u>

✓ ResultHolder

Inherited Members

<u>object.Equals(object)</u> , <u>object.Equals(object, object)</u> , <u>object.GetHashCode()</u> , <u>object.MemberwiseClone()</u> , <u>object.ReferenceEquals(object, object)</u>

Constructors

ResultHolder(DateTime, DateTime, double, double, double, List<ProductionUnit>)

public ResultHolder(DateTime startTime, DateTime endTime, double heatDemand, double
electricityPrice, double netProductionCost, List<ProductionUnit> boilers)

Parameters

startTime <u>DateTime</u>

☑

endTime DateTime♂

heatDemand doubled

electricityPrice <u>double</u>♂

netProductionCost doubled

boilers List ProductionUnit>

Properties

Boilers

```
public List<ProductionUnit> Boilers { get; set; }
```

Property Value

<u>List</u> < <u>ProductionUnit</u> >

ElectricityPrice

```
public double ElectricityPrice { get; }
```

Property Value

EndTime

```
public DateTime EndTime { get; }
```

Property Value

HeatDemand

```
public double HeatDemand { get; }
```

Property Value

NetProductionCost

```
public double NetProductionCost { get; set; }
```

Property Value

StartTime

```
public DateTime StartTime { get; }
```

Property Value

Methods

ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

A string that represents the current object.

Namespace Heatington.Optimizer Classes

<u>Opt</u>

Class Opt

Namespace: <u>Heatington.Optimizer</u>

Assembly: Heatington.dll

```
public class Opt
```

Inheritance

<u>object</u>

✓ Opt

Inherited Members

Properties

Results

```
public List<ResultHolder>? Results { get; }
```

Property Value

Methods

CalculateNetProductionCost()

```
public void CalculateNetProductionCost()
```

LoadData()

```
public void LoadData()
```

LogDataPoints()

```
public void LogDataPoints()
```

LogProductionUnits()

```
public void LogProductionUnits()
```

LogResults()

```
public void LogResults()
```

OptimizeScenario1()

public void OptimizeScenario1()

Namespace Heatington.SourceDataManager Classes

<u>SourceDataManager</u>

Class SourceDataManager

Namespace: <u>Heatington.SourceDataManager</u>

Assembly: Heatington.dll

public class SourceDataManager

Inheritance

Inherited Members

Constructors

SourceDataManager(IDataSource, string)

```
public SourceDataManager(IDataSource dataSource, string filePath)
```

Parameters

dataSource IDataSource

filePath <u>string</u> ♂

Properties

TimeSeriesData

```
public List<DataPoint>? TimeSeriesData { get; set; }
```

Property Value

<u>List</u> < <u>DataPoint</u> >

Methods

ConvertApiToCsv(List<DataPoint>)

public void ConvertApiToCsv(List<DataPoint> dataFromApi)

Parameters

dataFromApi <u>List</u>♂<<u>DataPoint</u>>

FetchTimeSeriesDataAsync()

public Task FetchTimeSeriesDataAsync()

Returns

<u>Task</u> ☑

LogTimeSeriesData()

public void LogTimeSeriesData()

Namespace Heatington.Tests Classes

<u>UnitTest1</u>

Class UnitTest1

Namespace: <u>Heatington.Tests</u>
Assembly: Heatington.Tests.dll

```
public class UnitTest1
```

Inheritance

Inherited Members

Methods

Test1()

```
[Fact]
public void Test1()
```

Namespace Heatington.Tests.Controllers Classes

<u>FileControllerTests</u>

Documentation in Documents/Heatington.Tests/Controllers/FileController.Tests.md

Class FileControllerTests

Namespace: <u>Heatington.Tests.Controllers</u>

Assembly: Heatington.Tests.dll

Documentation in Documents/Heatington.Tests/Controllers/FileController.Tests.md

```
public class FileControllerTests : IDisposable
```

Inheritance

<u>object</u> < FileControllerTests

Implements

Inherited Members

Constructors

FileControllerTests()

```
public FileControllerTests()
```

Methods

Dispose()

Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

ReadFileFromPath_ReadFile_ReadsCorrectContent()

```
[Fact]
public void ReadFileFromPath_ReadFile_ReadsCorrectContent()
```

ReadFileFromPath_ReadNotExistingFile_FileNotFound(string)

```
[Theory]
[InlineData(new object[] { "aaa1" })]
[InlineData(new object[] { "test.cvs" })]
[InlineData(new object[] { "csv.ctest" })]
[InlineData(new object[] { "./adsfsaf.json" })]
[InlineData(new object[] { "../../asets" })]
[InlineData(new object[] { "c:\\78fe9lk" })]
[InlineData(new object[] { "/root12" })]
[InlineData(new object[] { "./Jsons" })]
[InlineData(new object[] { "./Jsons" })]
[InlineData(new object[] { "./123" })]
public void ReadFileFromPath_ReadNotExistingFile_FileNotFound(string wrongFileName)
```

Parameters

wrongFileName <u>string</u>♂

WriteFileFromPath_WriteEmptyStringToFile_CreatesFile()

```
[Fact]
public void WriteFileFromPath_WriteEmptyStringToFile_CreatesFile()
```

WriteFileFromPath_WriteFile_WritesCorrectContent()

```
[Fact]
public void WriteFileFromPath_WriteFile_WritesCorrectContent()
```

WriteToFileFromPath_WriteToTheSameFileTwice_CreatesTw o()

```
[Fact]
public void WriteToFileFromPath_WriteToTheSameFileTwice_CreatesTwo()
```