

## Examples of useful Roslyn Source Code Generator

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## About this book

### Content of the book

You will find in this book code examples about >10 Roslyn Source Code Generator (RSCG ) that can be usefull for you. That means, you will write more elegant and concise code - even if the generators code is not always nice to look.

### Are those examples ready for production ?

I have done due diligence to test the RSCG that I have show to you here. However, I cannot guarantee that will fit your code . That means that you can test it for your case and, because all are open source on Github.com , you can contribute to improve them ;-)

### How to read this book

For each chapter, you will find

1. Name of the RSCG and link to the NuGet package / GitHub repository
2. What the RSCG can do
3. What will be the initial code
4. How to use the Code generated by RSCG
5. Code Generated by RSCG
6. Link to the downloadable code to practice

### I have a suggestion for a new RSCG that is worth mentioning in this book . What can I do ?

Please send me an email to ignatandrei@yahoo.com

### I want to make a RSCG that will be useful. How can I do ?

In the introduction I have put the links to get you started with RSCG .

And, if you bought this book from Amazon , you are entitled to have 1 hour free of consultancy with me . I can help you make one.

Examples of useful Roslyn Source Code Generator

# Introduction

## What is a Roslyn Source Code Generator ?

A Roslyn Source Code Generator (RSCG ) is a program that generates code in the compile time, based on the previous source code and/or another data . This new source code is added to the compilation and compile with the previous source code.

## How can I make a Roslyn Source Code Generator ?

For creating the RSCG you will simply create a .NET Standard 2.0 project,add those 2 references

```
<PackageReference Include="Microsoft.CodeAnalysis.Analyzers" Version="3.3.1" PrivateAssets="all" />
<PackageReference Include="Microsoft.CodeAnalysis.CSharp" Version="3.8.0" />
```

and start implementing

```
public interface ISourceGenerator
{
    void Initialize(GeneratorInitializationContext context);
    void Execute(GeneratorExecutionContext context);
}
```

Start from examples at <https://github.com/dotnet/roslyn-sdk/tree/main/samples/CSharp/SourceGenerators>

Also, you can read the source code for the RSCG presented in this book.

## Show me some code for RSCG

Start read

<https://github.com/dotnet/roslyn/blob/main/docs/features/source-generators.md>

and

<https://github.com/dotnet/roslyn/blob/main/docs/features/source-generators.cookbook.md> .

After that , you can play with the examples from <https://github.com/dotnet/roslyn-sdk/tree/main/samples/CSharp/SourceGenerators> or from <https://sourcegen.dev/> ( see AutoNotify in the dropdown )

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## **How the RSCG can help me to write faster / better the code ?**

Glad that you asked. You can see in action a RSCG for automatically generating code for automating testing ( see DynamicMocking ) , parsing enum ( see Enum ) , generating controllers actions from a interface ( SkinnyControllers ), currying functions and many more. In this book you will find more than 10 examples of some RSCG that can help you. Also, you can find the source code of the examples at [https://github.com/ignatandrei/RSCG\\_Examples](https://github.com/ignatandrei/RSCG_Examples).

## Examples of useful Roslyn Source Code Generator

# RSCG number 1 : ThisAssembly

Nuget :

<https://www.nuget.org/packages/ThisAssembly>

link : <https://www.clarius.org/ThisAssembly/>

author :Daniel Cazzulino

## What can do

The ThisAssembly.Info allows you access to the Assembly Information as constants, instead of going to reflection each time. I found useful to see the assembly version right away in any project that I have.

## The code that you start with is



```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
<PropertyGroup>
<Version>2021.2.15.800</Version>
</PropertyGroup>//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/ThisAssembly/ExistingCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/ThisAssembly/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator



```
//Usage  
//https://github.com/ignatandrei/RSCG_Examples  
var strVersion=ThisAssembly.Info.Version;  
Console.WriteLine(strVersion); //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/ThisAssembly/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/ThisAssembly/Usage.cs)

The code that is generated is

## Examples of useful Roslyn Source Code Generator

```
//GeneratedCode
//https://github.com/ignatandrei/RSCG_Examples
/// <summary>
/// Provides access to the current assembly information as pure constants,
/// without requiring reflection.
/// </summary>
partial class ThisAssembly
{
    /// <summary>
    /// Gets the AssemblyInfo attributes.
    /// </summary>
    [GeneratedCode("ThisAssembly.AssemblyInfo", "1.0.0")]
    [CompilerGenerated]
    public static partial class Info
    {
        public const string Company = @"RSCG_Version";
        public const string Configuration = @"Debug";
        public const string FileVersion = @"2021.2.15.800";
        public const string InformationalVersion = @"2021.2.15.800";
        public const string Product = @"RSCG_Version";
        public const string Title = @"RSCG_Version";
        public const string Version = @"2021.2.15.800";
    }
} //RSCG
```

[code](http://ignatandrei.github.io/RSCG_Examples/images/ThisAssembly/GeneratedCode.cs) ([http://ignatandrei.github.io/RSCG\\_Examples/images/ThisAssembly/GeneratedCode.cs](http://ignatandrei.github.io/RSCG_Examples/images/ThisAssembly/GeneratedCode.cs))

Example Code: [https://github.com/ignatandrei/RSCG\\_Examples/tree/main/ApplicationVersion](https://github.com/ignatandrei/RSCG_Examples/tree/main/ApplicationVersion)  
[\(https://github.com/ignatandrei/RSCG\\_Examples/tree/main/ApplicationVersion\)](https://github.com/ignatandrei/RSCG_Examples/tree/main/ApplicationVersion)

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)  
[\(https://github.com/ignatandrei/RSCG\\_Examples/\)](https://github.com/ignatandrei/RSCG_Examples/)

Examples of useful Roslyn Source Code Generator

## RSCG number 2 : Enum

Nuget :

<https://www.nuget.org/packages/AOPMethodsCommon/>

<https://www.nuget.org/packages/AOPMethodsGenerator/>

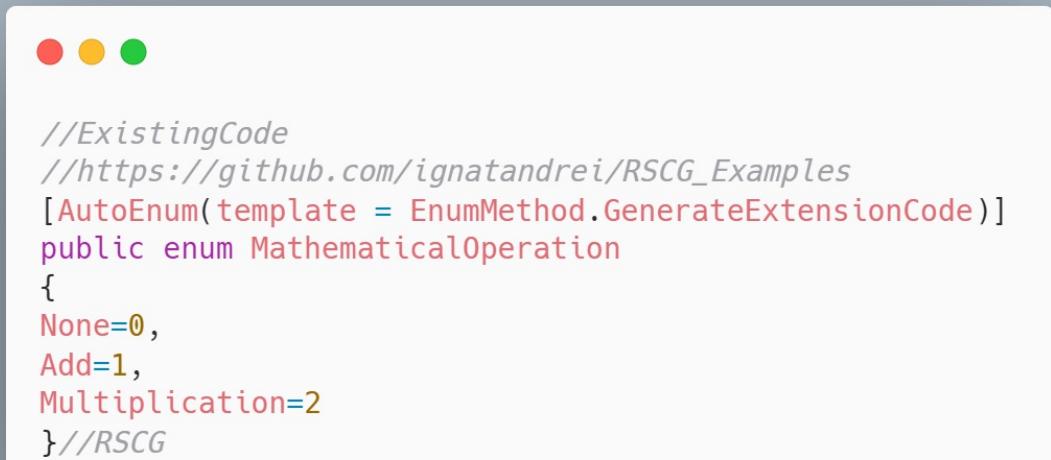
link : <http://msprogrammer.serviciipeweb.ro/category/roslyn/>

author :Andrei Ignat

### What can do

This will generate code to fast parsing a int or a string to an enum

### The code that you start with is



```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
[AutoEnum(template = EnumMethod.GenerateExtensionCode)]
public enum MathematicalOperation
{
    None=0,
    Add=1,
    Multiplication=2
}//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/Enum/ExistingCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/Enum/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator



```
//Usage  
//https://github.com/ignatandrei/RSCG_Examples  
var fromInt = enumMathematicalOperation.ParseExactMathematicalOperation(1);  
var fromString = enumMathematicalOperation.ParseExactMathematicalOperation("add");  
Console.WriteLine(fromInt + "-" +fromString); //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/Enum/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/Enum/Usage.cs)

The code that is generated is

## Examples of useful Roslyn Source Code Generator

```
//GeneratedCode
//https://github.com/ignatandrei/RSCG_Examples
[GeneratedCode("AOPMethods", "")]
[CompilerGenerated]
public static partial class enumMathematicalOperation{
/*
    public static int idMathematicalOperation(){
        System.Diagnostics.Debugger.Break();
        return 1;
    }
*/
    public static RSCG_Enum.MathematicalOperation ParseExactMathematicalOperation(this long value,
RSCG_Enum.MathematicalOperation? defaultValue = null){
        if(0 == value)
            return RSCG_Enum.MathematicalOperation.None;
        if(1 == value)
            return RSCG_Enum.MathematicalOperation.Add;
        if(2 == value)
            return RSCG_Enum.MathematicalOperation.Multiplication;

        if(defaultValue != null)
            return defaultValue.Value;

        throw new ArgumentException("cannot find " + value +" for RSCG_Enum.MathematicalOperation ");
    }

    public static RSCG_Enum.MathematicalOperation ParseExactMathematicalOperation(this string value,
RSCG_Enum.MathematicalOperation? defaultValue = null){
        //trying to see if it is a value inside
        //if(!string.IsNullOrWhiteSpace)
        if(long.TryParse(value, out long valueParsed)){
            return ParseExactMathematicalOperation(valueParsed);
        }

        if(0==string.Compare("None" , value, StringComparison.InvariantCultureIgnoreCase))
            return RSCG_Enum.MathematicalOperation.None;
        if(0==string.Compare("Add" , value, StringComparison.InvariantCultureIgnoreCase))
            return RSCG_Enum.MathematicalOperation.Add;
        if(0==string.Compare("Multiplication" , value,
StringComparison.InvariantCultureIgnoreCase))
            return RSCG_Enum.MathematicalOperation.Multiplication;

        if(defaultValue != null)
            return defaultValue.Value;
        throw new ArgumentException("cannot find " + value +" for RSCG_Enum.MathematicalOperation ");
    }
/*
*/
}

}//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/Enum/GeneratedCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/Enum/GeneratedCode.cs)

Example Code: [\(https://github.com/ignatandrei/RSCG\\_Examples/tree/main/Enum\)](https://github.com/ignatandrei/RSCG_Examples/tree/main/Enum)

All Generators: [\(https://github.com/ignatandrei/RSCG\\_Examples/\)](https://github.com/ignatandrei/RSCG_Examples)

Examples of useful Roslyn Source Code Generator

## RSCG number 3 : JsonByExampleGenerator

Nuget :

<https://www.nuget.org/packages/JsonByExampleGenerator/>

link : <https://github.com/hermanussen/JsonByExampleGenerator/>

author :Robin Hermanussen

### What can do

This will generate C# classes from json files.

### The code that you start with is



```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
{
    "FirstName": "Andrei",
    "LastName": "Ignat",
    "Blog": "http://msprogrammer.serviciipeweb.ro/" //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/JsonByExampleGenerator/ExistingCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/JsonByExampleGenerator/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator

```
//Usage  
//https://github.com/ignatandrei/RSCG_Examples  
var p1 = new Person();  
p1.Blog = "http://msprogrammer.serviciipeweb.ro/";  
var config = new ConfigurationBuilder()  
    .AddJsonFile("persons.json")  
    .Build();  
  
var p = config.Get<Person>();  
var p2 = Person.FromConfig(config); //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/JsonByExampleGenerator/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/JsonByExampleGenerator/Usage.cs)

The code that is generated is

```
//GeneratedCode  
//https://github.com/ignatandrei/RSCG_Examples  
[DataContract(Name = "Person", Namespace = "JsonToClass.Json.Persons")]  
public partial class Person  
{  
    [DataMember(Name = "FirstName", EmitDefaultValue = false, Order = 0)]  
    public string FirstName { get; set; }  
    [DataMember(Name = "LastName", EmitDefaultValue = false, Order = 1)]  
    public string LastName { get; set; }  
    [DataMember(Name = "Blog", EmitDefaultValue = false, Order = 2)]  
    public string Blog { get; set; }  
  
    public static Person FromConfig([System.Diagnostics.CodeAnalysis.NotNull] IConfiguration config)  
    {  
        return config.Get<Person>();  
    }  
} //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/JsonByExampleGenerator/GeneratedCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/JsonByExampleGenerator/GeneratedCode.cs)

## Examples of useful Roslyn Source Code Generator

Example Code: [https://github.com/ignatandrei/RSCG\\_Examples/tree/main/JsonToClass](https://github.com/ignatandrei/RSCG_Examples/tree/main/JsonToClass)  
[\(https://github.com/ignatandrei/RSCG\\_Examples/tree/main/JsonToClass\)](https://github.com/ignatandrei/RSCG_Examples/tree/main/JsonToClass)

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples)  
[\(https://github.com/ignatandrei/RSCG\\_Examples/\)](https://github.com/ignatandrei/RSCG_Examples)

Examples of useful Roslyn Source Code Generator

## RSCG number 4 : CopyConstructor + Deconstructor

Nuget :

<https://www.nuget.org/packages/AOPMethodsCommon/>

<https://www.nuget.org/packages/AOPMethodsGenerator/>

link : <http://msprogrammer.serviciipeweb.ro/category/roslyn/>

author :Andrei Ignat

### What can do

This will generate code for a POCO to generate copy constructor and deconstructor

### The code that you start with is

```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
[AutoMethods(template = TemplateMethod.CustomTemplateFile, CustomTemplateName =
"CopyConstructorDestructor.txt")]
partial class Person
{
    public string FirstName { get; set; }
    public string LastName { get; set; }
} //RSCG
```

[code \(\[http://ignatandrei.github.io/RSCG\\\_Examples/images/CopyConstructor + Deconstructor/ExistingCode.cs\]\(http://ignatandrei.github.io/RSCG\_Examples/images/CopyConstructor + Deconstructor/ExistingCode.cs\)\)](http://ignatandrei.github.io/RSCG_Examples/images/CopyConstructor + Deconstructor/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator



```
//Usage
//https://github.com/ignatandrei/RSCG_Examples
var p0ldPerson = new Person();
p0ldPerson.FirstName = "Andrei";
p0ldPerson.LastName = "Ignat";
var newPerson = new Person(p0ldPerson);
Console.WriteLine(newPerson.FirstName);
var (_, last) = newPerson;
Console.WriteLine(last); //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/CopyConstructor + Deconstructor/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/CopyConstructor + Deconstructor/Usage.cs)

The code that is generated is

## Examples of useful Roslyn Source Code Generator

```
//GeneratedCode
//https://github.com/ignatandrei/RSCG_Examples
public Person () {
    OnConstructor();
}

public Person(IPerson other):base(){
    BeforeCopyConstructor(other);
    CopyPropertiesFrom(other);
    AfterCopyConstructor(other);

}

public void CopyPropertiesFrom(IPerson other){

    this.FirstName = other.FirstName;
    this.LastName = other.LastName;
}

public void Deconstruct( out string FirstName, out string LastName)
{
    FirstName = this.FirstName;
    LastName = this.LastName;
}//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/CopyConstructor + Deconstructor/GeneratedCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/CopyConstructor + Deconstructor/GeneratedCode.cs)

Example Code: [\(https://github.com/ignatandrei/RSCG\\_Examples/tree/main/CopyConstructor\)](https://github.com/ignatandrei/RSCG_Examples/tree/main/CopyConstructor)

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)  
[\(https://github.com/ignatandrei/RSCG\\_Examples/\)](https://github.com/ignatandrei/RSCG_Examples/)

Examples of useful Roslyn Source Code Generator

## **RSCG number 5 : GeneratedMapper**

Nuget :

<https://www.nuget.org/packages/GeneratedMapper/>

link : <https://github.com/ThomasBleijendaal/GeneratedMapper>

author : Thomas Bleijendaal

### **What can do**

AutoMapping from a POCO to a DTO. Lots of customizations

### **The code that you start with is**

## Examples of useful Roslyn Source Code Generator

```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
public class Department
{
    public int ID { get; set; }
    public string Name { get; set; }

    public List<string> Employees { get; set; }
}

[IgnoreInTarget("Employees")]
[MapFrom(typeof(Department))]
public class DepartmentDTO
{
    public int ID { get; set; }
    public string Name { get; set; }

    [MapWith("Employees", typeof(ResolverLength))]
    public int EmployeesNr { get; set; }
}

public class ResolverLength
{
    public int Resolve(List<string> input)
    {
        return ((input?.Count) ?? 0);
    }
}//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/GeneratedMapper/ExistingCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/GeneratedMapper/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator

```
//Usage  
//https://github.com/ignatandrei/RSCG_Examples  
static void Main(string[] args)  
{  
    var dep = new Department();  
    dep.Name = "IT";  
    dep.ID = 1;  
    dep.Employees = new List<string>();  
    dep.Employees.Add("Andrei");  
    var dto = dep.MapToDepartmentDTO();  
    Console.WriteLine(dto.Name + "=>" + dto.EmployeesNr);  
}//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/GeneratedMapper/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/GeneratedMapper/Usage.cs)

The code that is generated is

## Examples of useful Roslyn Source Code Generator

```
//GeneratedCode
//https://github.com/ignatandrei/RSCG_Examples
namespace DTOMapper

{
    public static partial class DepartmentMapToExtensions
    {
        public static DTOMapper.DepartmentDTO MapToDepartmentDTO(this DTOMapper.Department self)
        {
            if (self is null)
            {
                throw new ArgumentNullException(nameof(self), "DTOMapper.Department -> DTOMapper.DepartmentDTO: Source is null.");
            }

            var resolverLength = new DTOMapper.ResolverLength();

            var target = new DTOMapper.DepartmentDTO
            {
                ID = self.ID,
                Name = (self.Name ?? throw new GeneratedMapper.Exceptions.PropertyNullException("DTOMapper.Department -> DTOMapper.DepartmentDTO: Property Name is null.")),
                EmployeesNr = resolverLength.Resolve((self.Employees ?? throw new GeneratedMapper.Exceptions.PropertyNullException("DTOMapper.Department -> DTOMapper.DepartmentDTO: Property Employees is null."))),
            };

            return target;
        }
    }
}//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/GeneratedMapper/GeneratedCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/GeneratedMapper/GeneratedCode.cs)

Example Code: [https://github.com/ignatandrei/RSCG\\_Examples/tree/main/DTOMapper](https://github.com/ignatandrei/RSCG_Examples/tree/main/DTOMapper)  
[https://github.com/ignatandrei/RSCG\\_Examples/tree/main/DTOMapper](https://github.com/ignatandrei/RSCG_Examples/tree/main/DTOMapper)

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)  
[https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)

Examples of useful Roslyn Source Code Generator

## RSCG number 6 : Skinny Controllers

Nuget :

<https://www.nuget.org/packages/SkinnyControllersCommon/>

<https://www.nuget.org/packages/SkinnyControllersGenerator/>

link : <http://msprogrammer.serviciipeweb.ro/category/roslyn/>

author :Andrei Iagnat

### What can do

This will generate code for WebAPI for each method of a field in the controller

### The code that you start with is

```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
public class PersonRepository
{
    public async Task<Person> Get( int id )
    {
        await Task.Delay( 1000 );
        return new Person()
        {
            ID = id,
            Name = "Andrei " + id
        };
    }

    //add more functions here to make the demo
} //RSCG
```

[code \(\[http://ignatandrei.github.io/RSCG\\\_Examples/images/Skinny%20Controllers/ExistingCode.cs\]\(http://ignatandrei.github.io/RSCG\_Examples/images/Skinny%20Controllers/ExistingCode.cs\)\)](http://ignatandrei.github.io/RSCG_Examples/images/Skinny%20Controllers/ExistingCode.cs)

## Examples of useful Roslyn Source Code Generator

The code that you will use is

```
//Usage  
//https://github.com/ignatandrei/RSCG_Examples  
[AutoActions(template = TemplateIndicator.AllPostWithRecord, FieldsName = new[] { "*" }, ExcludeFields  
= new[] { "_logger" })]  
[ApiController]  
[Route("[controller]/[action]")]  
public partial class PersonController : ControllerBase  
{  
    private readonly PersonRepository pr;  
    private readonly ILogger<PersonController> _logger;  
  
    public PersonController(PersonRepository pr, ILogger<PersonController> logger)  
    {  
        this.pr = pr;  
        _logger = logger;  
    }  
}  
}//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/Skinny Controllers/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/Skinny%20Controllers/Usage.cs)

The code that is generated is

```
//GeneratedCode  
//https://github.com/ignatandrei/RSCG_Examples  
[HttpPost]  
public System.Threading.Tasks.Task<AOPSkinnyController.Classes.Person> Get( recGet_143266108 data ){  
  
    return  
  
    pr.Get(data.id);  
}  
}//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/Skinny Controllers/GeneratedCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/Skinny%20Controllers/GeneratedCode.cs)

Example Code: [https://github.com/ignatandrei/RSCG\\_Examples/tree/main/SkinnyControllers](https://github.com/ignatandrei/RSCG_Examples/tree/main/SkinnyControllers)  
[https://github.com/ignatandrei/RSCG\\_Examples/tree/main/SkinnyControllers](https://github.com/ignatandrei/RSCG_Examples/tree/main/SkinnyControllers)

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)  
[https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)

Examples of useful Roslyn Source Code Generator

## RSCG number 7 : data-builder-generator

Nuget :

<https://www.nuget.org/packages/DasMulli.DataBuilderGenerator/>

link : <https://github.com/dasMulli/data-builder-generator>

author :Martin Andreas Ulrich

### What can do

Implements the Builder Design pattern for any class. Useful , at least, for test projects

### The code that you start with is

```
//ExistingCode
//https://github.com/ignatandrei/RSCG\_Examples
[GenerateDataBuilder]
public class Person
{
    public string FirstName { get; set; }
    public string? MiddleNames { get; set; }
    public string LastName { get; set; }

} //RSCG
```

[code \(\[http://ignatandrei.github.io/RSCG\\\_Examples/images/data-builder-generator/ExistingCode.cs\]\(http://ignatandrei.github.io/RSCG\_Examples/images/data-builder-generator/ExistingCode.cs\)\)](http://ignatandrei.github.io/RSCG_Examples/images/data-builder-generator/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator

```
//Usage  
//https://github.com/ignatandrei/RSCG_Examples  
var pOld = new Person();  
pOld.FirstName = "Andrei";  
pOld.LastName = "Ignat";  
pOld.MiddleNames = "G";  
var build = new PersonBuilder(pOld).WithoutMiddleNames().WithFirstName("Florin");  
var pNew = build.Build();  
Console.WriteLine(pNew.FirstName); //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/data-builder-generator/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/data-builder-generator/Usage.cs)

The code that is generated is

```
//GeneratedCode  
//https://github.com/ignatandrei/RSCG_Examples  
public partial class PersonBuilder  
{  
    private string? _firstName;  
    private string? _middleNames;  
    private string? _lastName;  
    public PersonBuilder()  
    {  
    }  
  
    public PersonBuilder(PersonBuilder otherBuilder)  
    {  
        _firstName = otherBuilder._firstName;  
        _middleNames = otherBuilder._middleNames;  
        _lastName = otherBuilder._lastName;  
    }  
  
    public PersonBuilder(Person existingInstance)  
    {  
        _firstName = existingInstance.FirstName;  
        _middleNames = existingInstance.MiddleNames;  
        _lastName = existingInstance.LastName;  
    }  
  
    public PersonBuilder WithFirstName(string firstName)  
    {  
        var mutatedBuilder = new PersonBuilder(this);  
        mutatedBuilder._firstName = firstName;  
        return mutatedBuilder;  
    }  
  
    public PersonBuilder WithMiddleNames(string? middleNames)
```

## Examples of useful Roslyn Source Code Generator

```
{  
    var mutatedBuilder = new PersonBuilder(this);  
    mutatedBuilder._middleNames = middleNames;  
    return mutatedBuilder;  
}  
  
public PersonBuilder WithoutMiddleNames()  
{  
    var mutatedBuilder = new PersonBuilder(this);  
    mutatedBuilder._middleNames = null;  
    return mutatedBuilder;  
}  
  
public PersonBuilder WithLastName(string lastName)  
{  
    var mutatedBuilder = new PersonBuilder(this);  
    mutatedBuilder._lastName = lastName;  
    return mutatedBuilder;  
}  
  
public Person Build()  
{  
    var instance = new Person();  
    if (!(_firstName is null))  
        instance.FirstName = _firstName;  
    if (!(_middleNames is null))  
        instance.MiddleNames = _middleNames;  
    if (!(_lastName is null))  
        instance.LastName = _lastName;  
    return instance;  
}  
}//RSCG
```

code ([http://ignatandrei.github.io/RSCG\\_Examples/images/data-builder-generator/GeneratedCode.cs](http://ignatandrei.github.io/RSCG_Examples/images/data-builder-generator/GeneratedCode.cs))

Example Code: [https://github.com/ignatandrei/RSCG\\_Examples/tree/main/DP\\_Builder](https://github.com/ignatandrei/RSCG_Examples/tree/main/DP_Builder)  
[https://github.com/ignatandrei/RSCG\\_Examples/tree/main/DP\\_Builder](https://github.com/ignatandrei/RSCG_Examples/tree/main/DP_Builder)

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)  
[https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)

Examples of useful Roslyn Source Code Generator

## RSCG number 8 : Metadata from object

Nuget :

<https://www.nuget.org/packages/AOPMethodsCommon/>

<https://www.nuget.org/packages/AOPMethodsGenerator/>

link : <http://msprogrammer.serviciipeweb.ro/category/roslyn/>

author :Andrei Ignat

### What can do

This will generate code to retrieve the values of properties directly, not by reflection

### The code that you start with is

```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
[AutoMethods(template = TemplateMethod.CustomTemplateFile, CustomTemplateName =
"GenerateFromPOCO.txt")]
public partial class Person
{
    public string FirstName { get; set; }
    public string LastName { get; set; }
} //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/Metadata\\_from\\_object/ExistingCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/Metadata_from_object/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator



```
//Usage  
//https://github.com/ignatandrei/RSCG_Examples  
var p = new Person();  
p.FirstName = "Andrei";  
p.LastName = "Ignat";  
var last = p.ValueProperty(Person_EnumProps.LastName);  
var first = p.ValueProperty("FirstName");  
  
Console.WriteLine(last + " " +first); //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/Metadata from object/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/Metadata from object/Usage.cs)

The code that is generated is

## Examples of useful Roslyn Source Code Generator

```
//GeneratedCode
//https://github.com/ignatandrei/RSCG_Examples
public enum Person_EnumProps{
    None
    ,FirstName // Public
    ,LastName // Public
}
partial class Person{
    public object ValueProperty(Person_EnumProps val){
        if(val == Person_EnumProps.FirstName) {
            return this.FirstName;
        }
        if(val == Person_EnumProps.LastName) {
            return this.LastName;
        }
        throw new ArgumentException("cannot find "+ val);
    }
    public object ValueProperty(string val){
        if(string.Compare("FirstName",val,StringComparison.CurrentCultureIgnoreCase)==0) {
            return this.FirstName;
        }
        if(string.Compare("LastName",val,StringComparison.CurrentCultureIgnoreCase)==0) {
            return this.LastName;
        }
        throw new ArgumentException("cannot find "+ val);
    }
}
}//RSCG
```

code ([http://ignatandrei.github.io/RSCG\\_Examples/images/Metadata from object/GeneratedCode.cs](http://ignatandrei.github.io/RSCG_Examples/images/Metadata from object/GeneratedCode.cs))

Example Code: [https://github.com/ignatandrei/RSCG\\_Examples/tree/main/MetadataFromObject](https://github.com/ignatandrei/RSCG_Examples/tree/main/MetadataFromObject)  
[https://github.com/ignatandrei/RSCG\\_Examples/tree/main/MetadataFromObject](https://github.com/ignatandrei/RSCG_Examples/tree/main/MetadataFromObject)

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)  
[https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)

Examples of useful Roslyn Source Code Generator

## RSCG number 9 : MockSourceGenerator

Nuget :

<https://www.nuget.org/packages/MockSourceGenerator/>

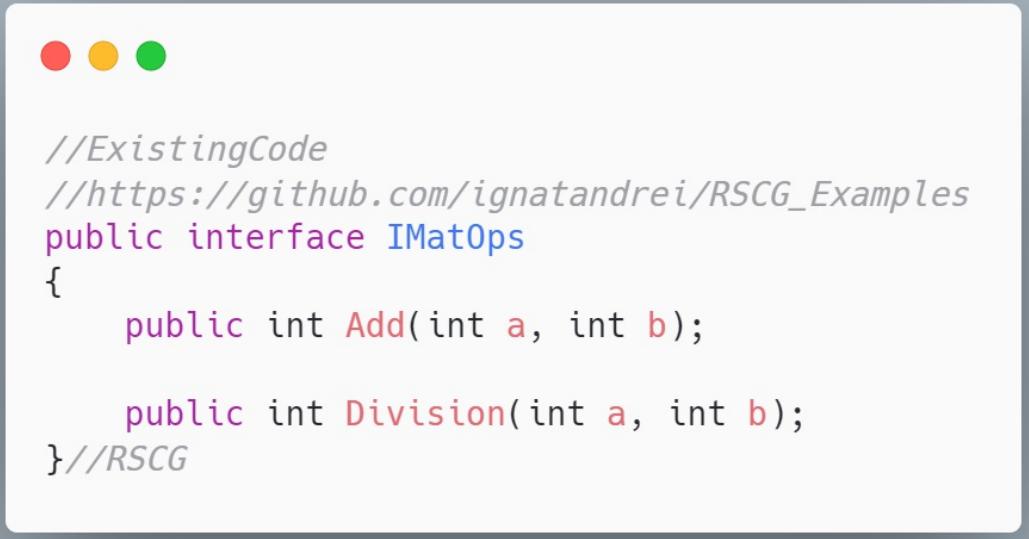
link : <https://github.com/hermanussen/MockSourceGenerator/>

author :Robin Hermanussen

### What can do

This will generate Mock classes directly for any interface - with your implementation.

### The code that you start with is



```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
public interface IMatOps
{
    public int Add(int a, int b);

    public int Division(int a, int b);
} //RSCG
```

[code \(\[http://ignatandrei.github.io/RSCG\\\_Examples/images/MockSourceGenerator/ExistingCode.cs\]\(http://ignatandrei.github.io/RSCG\_Examples/images/MockSourceGenerator/ExistingCode.cs\)\)](http://ignatandrei.github.io/RSCG_Examples/images/MockSourceGenerator/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator

```
//Usage  
//https://github.com/ignatandrei/RSCG_Examples  
var mock = (IMatOps)new MatOpsMock  
{  
    MockAdd = (a, b) => a+b,  
    MockDivision = (a,b)=> a/b  
};//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/MockSourceGenerator/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/MockSourceGenerator/Usage.cs)

The code that is generated is

```
//GeneratedCode  
//https://github.com/ignatandrei/RSCG_Examples  
public partial class MatOpsMock : global::MatOps.IMatOps  
{  
    /// <summary>  
    /// Set this to true, if you want members that don't have a mock implementation  
    /// to return a default value instead of throwing an exception.  
    /// </summary>  
    public bool ReturnDefaultIfNotMocked { get; set; }  
  
    private System.Collections.Generic.List<HistoryEntry> historyEntries = new  
    System.Collections.Generic.List<HistoryEntry>();  
    public System.Collections.ObjectModel.ReadOnlyCollection<HistoryEntry> HistoryEntries  
    {  
        get  
        {  
            return historyEntries.AsReadOnly();  
        }  
    }  
  
    /// <summary>  
    /// Implemented for type global::MatOps.IMatOps (Public, same assembly: False)  
    /// </summary>  
    public Func<int,int,int>? MockAdd { get; set; }  
    public int Add(int a, int b)  
    {  
        historyEntries.Add(new HistoryEntry("Add", new [] { $"{a}", $"{b}" }));  
        if (MockAdd == null)  
    }
```

## Examples of useful Roslyn Source Code Generator

```
if (ReturnDefaultIfNotMocked)
{
    return default(int);
}
else
{
    throw new NotImplementedException("Method 'MockAdd' was called, but no mock
implementation was provided");
}

return MockAdd(a, b);

/// <summary>
/// Implemented for type global::MatOps.IMatOps (Public, same assembly: False)
/// </summary>
public Func<int,int,int>? MockDivision { get; set; }
public int Division(int a, int b)
{
    historyEntries.Add(new HistoryEntry("Division", new [] { $"{a}", $"{b}" }));

    if (MockDivision == null)
    {
        if (ReturnDefaultIfNotMocked)
        {
            return default(int);
        }
        else
        {
            throw new NotImplementedException("Method 'MockDivision' was called, but no mock
implementation was provided");
        }
    }

    return MockDivision(a, b);
}
}//RSCG
```

code ([http://ignatandrei.github.io/RSCG\\_Examples/images/MockSourceGenerator/GeneratedCode.cs](http://ignatandrei.github.io/RSCG_Examples/images/MockSourceGenerator/GeneratedCode.cs))

Example Code: [https://github.com/ignatandrei/RSCG\\_Examples/tree/main/DynamicMocking](https://github.com/ignatandrei/RSCG_Examples/tree/main/DynamicMocking)  
[https://github.com/ignatandrei/RSCG\\_Examples/tree/main/DynamicMocking](https://github.com/ignatandrei/RSCG_Examples/tree/main/DynamicMocking)

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)  
[https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)

Examples of useful Roslyn Source Code Generator

## RSCG number 10 : Method decorator

Nuget :

<https://www.nuget.org/packages/AOPMethodsCommon/>

<https://www.nuget.org/packages/AOPMethodsGenerator/>

link : <http://msprogrammer.serviciipeweb.ro/category/roslyn/>

author :Andrei Ignat

### What can do

This will generate code to decorate methods with anything you want ( stopwatch, logging , authorization...)

### The code that you start with is

```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
[AutoMethods(template =TemplateMethod.CustomTemplateFile,MethodPrefix ="prv" ,CustomTemplateName
="MethodDecorator.txt")]
public partial class Person
{
    public string FirstName{ get; set; }
    public string LastName { get; set; }

    private string prvFullName()
    {
        return FirstName + " " + LastName;
    }
}//RSCG
```

[code \(\[http://ignatandrei.github.io/RSCG\\\_Examples/images/Method\\\_decorator/ExistingCode.cs\]\(http://ignatandrei.github.io/RSCG\_Examples/images/Method\_decorator/ExistingCode.cs\)\)](http://ignatandrei.github.io/RSCG_Examples/images/Method_decorator/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator



```
//Usage  
//https://github.com/ignatandrei/RSCG_Examples  
var p = new Person();  
p.FirstName = "Andrei";  
p.LastName = "Ignat";  
Console.WriteLine(p.FullName()); //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/Method\\_decorator/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/Method_decorator/Usage.cs)

The code that is generated is

## Examples of useful Roslyn Source Code Generator

```
//GeneratedCode
//https://github.com/ignatandrei/RSCG_Examples
[GeneratedCode("AOPMethods", "2021.2.22.1125")]

[CompilerGenerated]
public partial class Person{

    public string FullName (

        [CallerMemberName] string memberName = "",
        [CallerFilePath] string sourceFilePath = "",
        [CallerLineNumber] int sourceLineNumber = 0){
        var sw=Stopwatch.StartNew();
        try{
            Console.WriteLine("--prvFullName start ");
            Console.WriteLine("called from class :" +memberName );
            Console.WriteLine("called from file :" +sourceFilePath );
            Console.WriteLine("called from line :" +sourceLineNumber );
            prvFullName();
        }
        catch(Exception ex){
            Console.WriteLine("error in prvFullName:" + ex.Message);
            throw;
        }
        finally{
            Console.WriteLine($"-----prvFullName end in {sw.Elapsed.TotalMilliseconds}");
        }
    }

    } //end FullName

} //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/Method\\_decorator/GeneratedCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/Method_decorator/GeneratedCode.cs)

Example Code: [https://github.com/ignatandrei/RSCG\\_Examples/tree/main/MethodDecorator](https://github.com/ignatandrei/RSCG_Examples/tree/main/MethodDecorator)  
[\(https://github.com/ignatandrei/RSCG\\_Examples/tree/main/MethodDecorator\)](https://github.com/ignatandrei/RSCG_Examples/tree/main/MethodDecorator)

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)  
[\(https://github.com/ignatandrei/RSCG\\_Examples/\)](https://github.com/ignatandrei/RSCG_Examples/)

Examples of useful Roslyn Source Code Generator

## RSCG number 11 : PartiallyApplied

Nuget :

<https://www.nuget.org/packages/PartiallyApplied/>

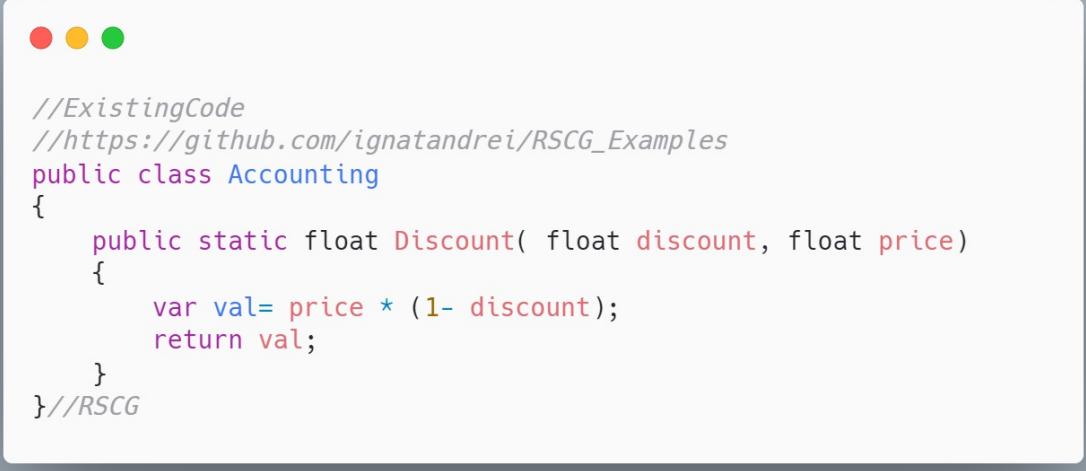
link : <https://github.com/JasonBock/PartiallyApplied>

author :Andrei Ignat

### What can do

This will generate curry for your functions

### The code that you start with is



```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
public class Accounting
{
    public static float Discount( float discount, float price)
    {
        var val= price * (1- discount);
        return val;
    }
}//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/PartiallyApplied/ExistingCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/PartiallyApplied/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator

```
//Usage  
//https://github.com/ignatandrei/RSCG_Examples  
var disc10Percent = Partially.Apply(Accounting.Discount,  
    10);  
Console.WriteLine(disc10Percent(disc10Percent(100))); //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/PartiallyApplied/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/PartiallyApplied/Usage.cs)

The code that is generated is

```
//GeneratedCode  
//https://github.com/ignatandrei/RSCG_Examples  
public static partial class Partially  
{  
    public static Func<float, float> Apply(Func<float, float, float> method, float discount)  
    => new((price) => method(discount, price));  
} //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/PartiallyApplied/GeneratedCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/PartiallyApplied/GeneratedCode.cs)

Example Code: [https://github.com/ignatandrei/RSCG\\_Examples/tree/main/PartiallyFunction](https://github.com/ignatandrei/RSCG_Examples/tree/main/PartiallyFunction)  
[\(https://github.com/ignatandrei/RSCG\\_Examples/tree/main/PartiallyFunction\)](https://github.com/ignatandrei/RSCG_Examples/tree/main/PartiallyFunction)

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)  
[\(https://github.com/ignatandrei/RSCG\\_Examples/\)](https://github.com/ignatandrei/RSCG_Examples/)

Examples of useful Roslyn Source Code Generator

## RSCG number 12 : IFormattable

Nuget :

<https://www.nuget.org/packages/AOPMethodsCommon/>

<https://www.nuget.org/packages/AOPMethodsGenerator/>

link : <http://msprogrammer.serviciipeweb.ro/category/roslyn/>

author :Andrei Ignat

### What can do

This will generate code to add IFormattable to any class, based on the properties of the class

### The code that you start with is

```
● ● ●  
//ExistingCode  
//https://github.com/ignatandrei/RSCG_Examples  
[AutoMethods(CustomTemplateFileName = "CreateFormattable.txt", template =  
TemplateMethod.CustomTemplateFile)]  
partial class Department  
{  
    public int ID { get; set; }  
    public string Name { get; set; }  
  
}  
[AutoMethods(CustomTemplateFileName = "CreateFormattable.txt", template =  
TemplateMethod.CustomTemplateFile)]  
partial class Employee  
{  
    public int ID { get; set; }  
    public string Name { get; set; }  
  
    public Department dep { get; set; }  
  
} //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/IFormattable/ExistingCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/IFormattable/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator

```
//Usage
//https://github.com/ignatandrei/RSCG_Examples
var e = new Employee();
e.ID = 1;
e.Name = "Andrei";
e.dep = new Department();
e.dep.Name = "IT";

Console.WriteLine(e.ToString("for employee with id = {id} the name is {name} and department is
{dep?.Name}", null));

e.dep = null;

Console.WriteLine(e.ToString("for employee with id = {id} the name is {name} and department is
{dep?.Name}", null));
//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/IFormattable/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/IFormattable/Usage.cs)

The code that is generated is

```
//GeneratedCode
//https://github.com/ignatandrei/RSCG_Examples
[GeneratedCode("AOPMethods", "2021.2.27.640")]
[DebuggerDisplay(" ID = {ID} Name = {Name} dep = {dep}")]
partial class Employee: IFormattable{
    public object ValueProperty(string val){
        val = val.Replace("?", "");
        if(string.Compare("ID", val, StringComparison.CurrentCultureIgnoreCase)==0) {
            return this.ID;
        }
        if(string.Compare("Name", val, StringComparison.CurrentCultureIgnoreCase)==0) {
            return this.Name;
        }
        if(string.Compare("dep", val, StringComparison.CurrentCultureIgnoreCase)==0) {
            return this.dep;
        }
        throw new ArgumentException("cannot find "+ val);
    }

    //adapted from https://haacked.com/archive/2009/01/14/named-formats-redux.aspx/
    private object Eval(string expression, IFormatProvider formatProvider)
    {
        if (expression.Contains(".")) {
            var splut = expression.Split(".");
            bool canBeNull=splut[0].Contains("?");
            dynamic d = ValueProperty(splut[0]);
            if(canBeNull && d == null)
                return null;
            for(var i=1; i<splut.Length;i++){
                canBeNull=splut[i].Contains("?");
                d=d.ToString("{"+splut[i]+"}",formatProvider);
                if(canBeNull && d == null)
                    return null;
            }
        }
    }
}
```

## Examples of useful Roslyn Source Code Generator

```
        . . . . .  
    }  
    return d;  
  
}  
  
return ValueProperty(expression);  
  
}  
  
  
public string ToString(string format, IFormatProvider formatProvider)  
{  
    if (format == null)  
        throw new ArgumentNullException("format");  
  
    List<object> values = new List<object>();  
    string rewrittenFormat = Regex.Replace(format,  
        delegate (Match m)  
    {  
        Group startGroup = m.Groups["start"];  
        Group propertyGroup = m.Groups["property"];  
        Group formatGroup = m.Groups["format"];  
        Group endGroup = m.Groups["end"];  
  
        values.Add((propertyGroup.Value == "0")  
            ? this  
            : Eval(propertyGroup.Value, formatProvider));  
  
        int openings = startGroup.Captures.Count;  
        int closings = endGroup.Captures.Count;  
  
        return openings > closings || openings % 2 == 0  
            ? m.Value  
            : new string('{', openings) + (values.Count - 1)  
                + formatGroup.Value  
                + new string('}', closings);  
    },  
    RegexOptions.Compiled  
    | RegexOptions.CultureInvariant  
    | RegexOptions.IgnoreCase);  
  
    return string.Format(formatProvider, rewrittenFormat, values.ToArray());  
}  
  
}//RSCG
```

code ([http://ignatandrei.github.io/RSCG\\_Examples/images/IFormattable/GeneratedCode.cs](http://ignatandrei.github.io/RSCG_Examples/images/IFormattable/GeneratedCode.cs))

Example Code: [https://github.com/ignatandrei/RSCG\\_Examples/tree/main/IFormattable](https://github.com/ignatandrei/RSCG_Examples/tree/main/IFormattable)  
[https://github.com/ignatandrei/RSCG\\_Examples/tree/main/IFormattable](https://github.com/ignatandrei/RSCG_Examples/tree/main/IFormattable)

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)  
[https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)

Examples of useful Roslyn Source Code Generator

## **RSCG number 13 : AutoInterface**

Nuget :

<https://www.nuget.org/packages/BeaKona.AutoInterfaceGenerator>

link : <https://github.com/beakona/AutoInterface>

author :beakona

### **What can do**

Implement the Design Pattern Decorator. Based on template - you can modify the source code generated

### **The code that you start with is**

## Examples of useful Roslyn Source Code Generator

```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
public interface ICoffee
{
    public int Price { get; }
    public string Description { get; }
}

public class SimpleCoffee : ICoffee
{
    public SimpleCoffee()
    {
        Price = 3;
        Description = "Simple Coffee";
    }
    public int Price { get; set; }
    public string Description { get; set; }
}

public partial class MilkDecorator : ICoffee
{
    [Beakona.AutoInterface(TemplateLanguage = "scriban", TemplateBody =
SimpleCoffee.TemplateCoffeeDecorator)]
    private readonly ICoffee coffee;

    public int DecoratorPrice { get; set; } = 1;
    public MilkDecorator(ICoffee coffee)
    {
        this.coffee = coffee;
    }
}

public partial class ChocoDecorator : ICoffee
{
    [Beakona.AutoInterface(TemplateLanguage = "scriban", TemplateBody =
SimpleCoffee.TemplateCoffeeDecorator)]
    private readonly ICoffee coffee;

    public int DecoratorPrice { get; set; } = 2;
    public ChocoDecorator(ICoffee coffee)
    {
        this.coffee = coffee;
    }
}

//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/AutoInterface/ExistingCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/AutoInterface/ExistingCode.cs)

The code that you will use is

## Examples of useful Roslyn Source Code Generator

```
//Usage  
//https://github.com/ignatandrei/RSCG_Examples  
SimpleCoffee s = new SimpleCoffee();  
Console.WriteLine(s.Description + " with Price " + s.Price);  
ICoffee withMilk = new MilkDecorator(s);  
Console.WriteLine(withMilk.Description} + " with Price " + withMilk.Price);  
ICoffee withMilkAndChoco = new ChocoDecorator(withMilk);  
Console.WriteLine(withMilkAndChoco.Description + " with Price " + withMilkAndChoco.Price); //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/AutoInterface/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/AutoInterface/Usage.cs)

The code that is generated is

```
//GeneratedCode  
//https://github.com/ignatandrei/RSCG_Examples  
partial class MilkDecorator  
{  
    int ICoffee.Price  
    {  
        get  
        {  
            return ((ICoffee)this.coffee).Price + DecoratorPrice;  
        }  
    }  
  
    string ICoffee.Description  
    {  
        get  
        {  
            var name = this.GetType().Name.Replace("Decorator", "");  
            return ((ICoffee)this.coffee).Description + " with " + name;  
        }  
    }  
}//RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/AutoInterface/GeneratedCode.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/AutoInterface/GeneratedCode.cs)

Example Code: [https://github.com/ignatandrei/RSCG\\_Examples/tree/main/DP\\_Decorator](https://github.com/ignatandrei/RSCG_Examples/tree/main/DP_Decorator)  
[https://github.com/ignatandrei/RSCG\\_Examples/tree/main/DP\\_Decorator](https://github.com/ignatandrei/RSCG_Examples/tree/main/DP_Decorator)

## Examples of useful Roslyn Source Code Generator

All Generators: [https://github.com/ignatandrei/RSCG\\_Examples/](https://github.com/ignatandrei/RSCG_Examples/)  
[\(https://github.com/ignatandrei/RSCG\\_Examples/\)](https://github.com/ignatandrei/RSCG_Examples/)

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## RSCG number 14 : Property Expression Generator

Nuget :

<https://www.nuget.org/packages/AOPMethodsCommon/>  
<https://www.nuget.org/packages/AOPMethodsGenerator/>

link : <http://msprogrammer.serviciipeweb.ro/category/roslyn/>

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### What can do

This will generate code to add function to be used with Entity Framework to search for any property of a class

### The code that you start with is

```
//ExistingCode
//https://github.com/ignatandrei/RSCG_Examples
[AutoMethods(template = TemplateMethod.CustomTemplateFile, CustomTemplateName =
"CreateMetadata.txt")]
public partial class Person
{
    public int ID { get; set; }
    public string FirstName { get; set; }
    public string LastName { get; set; }
    public DateTime? DateOfBirth { get; set; }
} //RSCG
```

[code \(\[http://ignatandrei.github.io/RSCG\\\_Examples/images/Property\\\_Expression\\\_Generator/ExistingCode.cs\]\(http://ignatandrei.github.io/RSCG\_Examples/images/Property\_Expression\_Generator/ExistingCode.cs\)\)](http://ignatandrei.github.io/RSCG_Examples/images/Property_Expression_Generator/ExistingCode.cs)

The code that you will use is

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```
//Usage
//https://github.com/ignatandrei/RSCG_Examples
var queryCnt = Metadata_Person.expr_FirstName_Contains("9");
var pers= await cnt.Person.Where(queryCnt).ToArrayAsync();
Console.WriteLine(pers.Length);

queryCnt = Metadata_Person.expr_LastName_NullOrWhite();
pers = await cnt.Person.Where(queryCnt).ToArrayAsync();
Console.WriteLine(pers.Length);

var queryID = Metadata_Person.expr_ID_Equal(7);
var pId = await cnt.Person.FirstOrDefaultAsync(queryID);
Console.WriteLine(pId.FirstName);

queryID = Metadata_Person.expr_ID_Contains(7,9);
pers = await cnt.Person.Where(queryID).ToArrayAsync();
Console.WriteLine(pers.Length);

var nullBirthDateQuery = Metadata_Person.expr_DateOfBirth_Null();
var birthNull = await
CohsBeeesWniWbeatae(\bltBnNthDateQyehy).ToArrayAsync();

var query = Metadata_Person.FindEx("ID", SearchCriteria.Equal, 99);
pers = await cnt.Person.Where(query).ToArrayAsync();
Console.WriteLine(pers.Length);

query = Metadata_Person.FindEx("DateOfBirth", SearchCriteria.FindNull);
pers = await cnt.Person.Where(query).ToArrayAsync();
Console.WriteLine(pers.Length); //RSCG
```

[code \(http://ignatandrei.github.io/RSCG\\_Examples/images/Property Expression Generator/Usage.cs\)](http://ignatandrei.github.io/RSCG_Examples/images/Property Expression Generator/Usage.cs)

The code that is generated is

```
//GeneratedCode
//https://github.com/ignatandrei/RSCG_Examples
[CompilerGenerated]

public partial class Metadata_Person{
```

## Examples of useful Roslyn Source Code Generator

```
//public const string prop_ID = "ID";
//public static readonly Func<Person,int> func_ID = (it=>it.ID);
//public static readonly Expression<Func<Person,int>> expr_ID = (it=>it.ID);
public static Expression<Func<Person,bool>> expr_ID_Equal(int value)=> (it=>it.ID == value);
public static Expression<Func<Person,bool>> expr_ID_Diff(int value)=> (it=>it.ID != value);
public static Expression<Func<Person,bool>> expr_ID_Contains(params int[] value)=> (it=>
value.Contains(it.ID) );

//int

public static Expression<Func<Person,bool>> expr_ID_Greater(int value)=> (it=>it.ID > value);
public static Expression<Func<Person,bool>> expr_ID_GreaterOrEqual(int value)=> (it=>it.ID >=
value);
public static Expression<Func<Person,bool>> expr_ID_Less(int value)=> (it=>it.ID < value);
public static Expression<Func<Person,bool>> expr_ID_LessOrEqual(int value)=> (it=>it.ID <= value);

//public const string prop_FirstName = "FirstName";
//public static readonly Func<Person,string> func_FirstName = (it=>it.FirstName);
//public static readonly Expression<Func<Person,string>> expr_FirstName = (it=>it.FirstName);
public static Expression<Func<Person,bool>> expr_FirstName_Equal(string value)=> (it=>it.FirstName
== value);
public static Expression<Func<Person,bool>> expr_FirstName_Diff(string value)=> (it=>it.FirstName
!= value);
public static Expression<Func<Person,bool>> expr_FirstName_Contains(params string[] value)=> (it=>
value.Contains(it.FirstName) );

//string

public static Expression<Func<Person,bool>> expr_FirstName_Null()=> (it=>it.FirstName == null);

public static Expression<Func<Person,bool>> expr_FirstName_NullOrWhiteSpace()=>
(it=>string.IsNullOrWhiteSpace(it.FirstName));

public static Expression<Func<Person,bool>> expr_FirstName_Ends(string value)=>
(it=>it.FirstName.StartsWith (value));
public static Expression<Func<Person,bool>> expr_FirstName_Starts(string value)=>
(it=>it.FirstName.EndsWith(value));
public static Expression<Func<Person,bool>> expr_FirstName_Contains(string value)=>
(it=>it.FirstName.Contains(value));

//public const string prop_LastName = "LastName";
//public static readonly Func<Person,string> func_LastName = (it=>it.LastName);
//public static readonly Expression<Func<Person,string>> expr_LastName = (it=>it.LastName);
public static Expression<Func<Person,bool>> expr_LastName_Equal(string value)=> (it=>it.LastName ==
value);
public static Expression<Func<Person,bool>> expr_LastName_Diff(string value)=> (it=>it.LastName !=
value);
public static Expression<Func<Person,bool>> expr_LastName_Contains(params string[] value)=> (it=>
value.Contains(it.LastName) );

//string

public static Expression<Func<Person,bool>> expr_LastName_Null()=> (it=>it.LastName == null);
```

## Examples of useful Roslyn Source Code Generator

```
public static Expression<Func<Person,bool>> expr_LastName_NullOrWhiteSpace( )=>
(it=>string.IsNullOrWhiteSpace(it.LastName));

public static Expression<Func<Person,bool>> expr_LastName_Ends(string value)=>
(it=>it.LastName.EndsWith (value));
public static Expression<Func<Person,bool>> expr_LastName_Starts(string value)=>
(it=>it.LastName.StartsWith(value));
public static Expression<Func<Person,bool>> expr_LastName_Contains(string value)=>
(it=>it.LastName.Contains(value));

//public const string prop_DateOfBirth = "DateOfBirth";
//public static readonly Func<Person,System.DateTime?> func_DateOfBirth = (it=>it.DateOfBirth);
//public static readonly Expression<Func<Person,System.DateTime?>> expr_DateOfBirth =
(it=>it.DateOfBirth);
public static Expression<Func<Person,bool>> expr_DateOfBirth_Equal(System.DateTime? value)=>
(it=>it.DateOfBirth == value);
public static Expression<Func<Person,bool>> expr_DateOfBirth_Diff(System.DateTime? value)=>
(it=>it.DateOfBirth != value);
public static Expression<Func<Person,bool>> expr_DateOfBirth_Contains(params System.DateTime?[] value)=> (it=> value.Contains(it.DateOfBirth) );

//System.DateTime?

public static Expression<Func<Person,bool>> expr_DateOfBirth_Null()=> (it=>it.DateOfBirth == null);

public static Expression<Func<Person,bool>> expr_DateOfBirth_Greater(System.DateTime? value)=>
(it=>it.DateOfBirth > value);
public static Expression<Func<Person,bool>> expr_DateOfBirth_GreaterOrEqual(System.DateTime? value)=> (it=>it.DateOfBirth >= value);
public static Expression<Func<Person,bool>> expr_DateOfBirth_Less(System.DateTime? value)=>
(it=>it.DateOfBirth < value);
public static Expression<Func<Person,bool>> expr_DateOfBirth_LessOrEqual(System.DateTime? value)=>
(it=>it.DateOfBirth <= value);

public static Expression<Func<Person,bool>> FindEx(string nameProp, SearchCriteria search, object value = null)
{
    if(string.Compare("ID",nameProp,StringComparison.CurrentCultureIgnoreCase) == 0)
        switch(search){
            case SearchCriteria.None:
                return null;

            case SearchCriteria.Equal:
                var orig= (int) value;
                return expr_ID_Equal(orig);
            default:
                throw new ArgumentException("cannot find for ID case "+search);
        }

    if(string.Compare("FirstName",nameProp,StringComparison.CurrentCultureIgnoreCase) == 0)
        switch(search){
            case SearchCriteria.None:
                return null;

            case SearchCriteria.FindNull:
                return expr_FirstName_Null();
        }
}
```

## Examples of useful Roslyn Source Code Generator

```
        case SearchCriteria.Equal:
            var orig= (string) value;
            return expr_FirstName_Equal(orig);
        default:
            throw new ArgumentException("cannot find for FirstName case "+search);
    }

    if(string.Compare("LastName",nameProp,StringComparison.CurrentCultureIgnoreCase) == 0)
    switch(search){
        case SearchCriteria.None:
            return null;

        case SearchCriteria.FindNull:
            return expr_LastName_Null();

        case SearchCriteria.Equal:
            var orig= (string) value;
            return expr_LastName_Equal(orig);
        default:
            throw new ArgumentException("cannot find for LastName case "+search);
    }

    if(string.Compare("DateOfBirth",nameProp,StringComparison.CurrentCultureIgnoreCase) == 0)
    switch(search){
        case SearchCriteria.None:
            return null;

        case SearchCriteria.FindNull:
            return expr_DateOfBirth_Null();

        case SearchCriteria.Equal:
            var orig= (System.DateTime?) value;
            return expr_DateOfBirth_Equal(orig);
        default:
            throw new ArgumentException("cannot find for DateOfBirth case "+search);
    }

    throw new ArgumentException("cannot find property "+nameProp);
}

}//RSCG
```

[code \(\[http://ignatandrei.github.io/RSCG\\\_Examples/images/Property Expression Generator/GeneratedCode.cs\]\(http://ignatandrei.github.io/RSCG\_Examples/images/Property Expression Generator/GeneratedCode.cs\)\)](http://ignatandrei.github.io/RSCG_Examples/images/Property Expression Generator/GeneratedCode.cs)

Example Code:

[https://github.com/ignatandrei/RSCG\\_Examples/tree/main/PropertyExpressionGenerator](https://github.com/ignatandrei/RSCG_Examples/tree/main/PropertyExpressionGenerator)  
[\(https://github.com/ignatandrei/RSCG\\_Examples/tree/main/PropertyExpressionGenerator\)](https://github.com/ignatandrei/RSCG_Examples/tree/main/PropertyExpressionGenerator)

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[\(https://github.com/ignatandrei/RSCG\\_Examples/\)](https://github.com/ignatandrei/RSCG_Examples/)

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# RSCG - worth mention

There are more RSCG that you could see - here is a list that you may want to look at:

1. AutoEmbed <https://github.com/chsienki/AutoEmbed>
2. Cloneable <https://github.com/mostmand/Cloneable>
3. fonderie <https://github.com/jeromelaban/fonderie>
4. Generators.Blazor <https://github.com/excubo-ag/Generators.Blazor>
5. Generators.Grouping <https://github.com/excubo-ag/Generators.Grouping>
6. JsonMergePatch <https://github.com/ladeak/JsonMergePatch>
7. MemoizeSourceGenerator <https://github.com/Zoxive/MemoizeSourceGenerator>
8. MiniRazor <https://github.com/Tyrrrz/MiniRazor/>
9. MockGen <https://github.com/thomas-girotto/MockGen>
10. ProxyGen <https://github.com/Sholtee/ProxyGen>
11. Rocks <https://github.com/JasonBock/Rocks>
12. RoslynWeave <https://github.com/jishun/RoslynWeave>
13. SmallSharp <https://github.com/devlooped/SmallSharp>
14. StaticProxyGenerator <https://github.com/robertturner/StaticProxyGenerator>
15. ValueChangedGenerator <https://github.com/ufcpp/ValueChangedGenerator>
16. Web-Anchor <https://github.com/mattiasnordqvist/Web-Anchor>
17. WrapperValueObject <https://github.com/martinothamar/WrapperValueObject>