

# LinksPlatform's Platform.RegularExpressions.Transformer.CSharpToCpp Class Library

## ./Platform.RegularExpressions.Transformer.CSharpToCpp/CSharpToCppTransformer.cs

```
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Text.RegularExpressions;
5
6 #pragma warning disable CS1591 // Missing XML comment for publicly visible type or member
7
8 namespace Platform.RegularExpressions.Transformer.CSharpToCpp
9 {
10     public class CSharpToCppTransformer : Transformer
11     {
12         public static readonly IList<ISubstitutionRule> FirstStage = new List<SubstitutionRule>
13         {
14             // // ...
15             //
16             (new Regex(@"(\r?\n)?[ \t]+//+.", ""), null, 0),
17             // #pragma warning disable CS1591 // Missing XML comment for publicly visible type
18             // or member
19             (new Regex(@"^-s*?#pragma[sa-zA-Z0-9]+$"), "", null, 0),
20             // [MethodImpl(MethodImplOptions.AggressiveInlining)]
21             //
22             (new Regex(@"$s+[MethodImpl\(MethodImplOptions\.AggressiveInlining\)"]), "",
23             // null, 0),
24             // [Fact]
25             //
26             (new Regex(@"$s+[Fact\]"), "", null, 0),
27             // {
28             //
29             (new Regex(@"${s+[\r\n]+}"), "{" + Environment.NewLine, null, 0),
30             // Platform.Collections.Methods.Lists
31             // Platform::Collections::Methods::Lists
32             (new Regex(@"(namespace[^\r\n]+?)\.([^\r\n]+?)"), "$1::$2", null, 20),
33             // public abstract class
34             // class
35             (new Regex(@"(public abstract|static) class"), "class", null, 0),
36             // class GenericCollectionMethodsBase {
37             // class GenericCollectionMethodsBase { public:
38             (new Regex(@"class ([a-zA-Z0-9]+)(\s+){", "class $1$2{" + Environment.NewLine + "
39             // public:", null, 0),
40             // class GenericCollectionMethodsBase<TElement> {
41             // template <typename TElement> class GenericCollectionMethodsBase { public:
42             (new Regex(@"class ([a-zA-Z0-9]+)<([a-zA-Z0-9]+)>([^\s]+){", "template <typename $2>
43             // class $1$3{" + Environment.NewLine + " public:", null, 0),
44             // static void
45             // TestMultipleCreationsAndDeletions<TElement>(SizedBinaryTreeMethodsBase<TElement>
46             // tree, TElement* root)
47             // template<typename T> static void
48             // TestMultipleCreationsAndDeletions<TElement>(SizedBinaryTreeMethodsBase<TElement>
49             // tree, TElement* root)
50             (new Regex(@"static ([a-zA-Z0-9]+) ([a-zA-Z0-9]+)<([a-zA-Z0-9]+)>\((([^\s])+\))\)",
51             // "template <typename $3> static $1 $2($4)", null, 0),
52             // (this
53             // (
54             (new Regex(@"\((this ", "(", null, 0),
55             // Func<TElement> treeCount
56             // TElement(*treeCount)()
57             (new Regex(@"Func<([a-zA-Z0-9]+)> ([a-zA-Z0-9]+)", "$1(*$2)()", null, 0),
58             // Action<TElement> free
59             // void (*free)(TElement)
60             (new Regex(@"Action<([a-zA-Z0-9]+)> ([a-zA-Z0-9]+)", "void (*$2)($1)", null, 0),
61             // private const int MaxPath = 92;
62             // static const int MaxPath = 92;
63             (new Regex(@"private const ([a-zA-Z0-9]+) ([_a-zA-Z0-9]+) = ([a-zA-Z0-9]+);"),
64             // "static const $1 $2 = $3;", null, 0),
65             // protected virtual
66             // virtual
67             (new Regex(@"protected virtual"), "virtual", null, 0),
68             // protected abstract TElement GetFirst();
69             // virtual TElement GetFirst() = 0;
70             (new Regex(@"protected abstract ([^\s;]+);"), "virtual $1 = 0;", null, 0),
71             // public virtual
72             // virtual
73             (new Regex(@"public virtual"), "virtual", null, 0),
74             // protected readonly
```

```

66 //
67 (new Regex(@"protected readonly "), "", null, 0),
68 // protected readonly TreeElement[] _elements;
69 // TreeElement _elements[N];
70 (new Regex(@"(protected|private) readonly ([a-zA-Z<>0-9]+)([\\[\\]]+)
71   ↳ ([_a-zA-Z0-9]+);"), "$2 $4[N];", null, 0),
72 // protected readonly TElement Zero;
73 // TElement Zero;
74 (new Regex(@"(protected|private) readonly ([a-zA-Z<>0-9]+) ([_a-zA-Z0-9]+);"), "$2
75   ↳ $3;", null, 0),
76 // private
77 //
78 (new Regex(@"(\W)(private|protected|public|internal) "), "$1", null, 0),
79 // SizeBalancedTree(int capacity) => a = b;
80 // SizeBalancedTree(int capacity) { a = b; }
81 (new Regex(@"(^s+)(override )?(void )?([a-zA-Z0-9]+)\(((^([\\])\\s+=>s+([~;]+);"),
82   ↳ "$1$2$3$4($5) { $6; }", null, 0),
83 // () => Integer<TElement>.Zero,
84 // () { return Integer<TElement>.Zero; },
85 (new Regex(@"\\([\\])\\s+=>s+([~\\r\\n;]+?);"), " { return $1; }", null, 0),
86 // => Integer<TElement>.Zero;
87 // { return Integer<TElement>.Zero; }
88 (new Regex(@"\\([\\])\\s+=>s+([~\\r\\n;]+?);"), " { return $1; }", null, 0),
89 // () { return avlTree.Count; }
90 // []()-> auto { return avlTree.Count; }
91 (new Regex(@"\\([\\]) { return ([~;]+); }"), " { return $1; }", null, 0),
92 // Count => GetSizeOrZero(Root);
93 // GetCount() { return GetSizeOrZero(Root); }
94 (new Regex(@"([A-Z][a-z]+)\\s+=>s+([~;]+);"), "Get$1() { return $2; }", null, 0),
95 // var
96 // auto
97 (new Regex(@"(\\W)var(\\W)"), "$1auto$2", null, 0),
98 // unchecked
99 //
100 (new Regex(@"[\\r\\n]{2}\\s*?unchecked\\s*?$"), "", null, 0),
101 // $"
102 // "
103 (new Regex(@"\\$"""), "\\\"", null, 0),
104 // Console.WriteLine("...")
105 // printf("...\\n")
106 (new Regex(@"Console\\.WriteLine\\(\"([~\"']+)\")"), "printf(\"$1\\n\")", null, 0),
107 // throw new InvalidOperationException
108 // throw std::exception
109 (new Regex(@"throw new (InvalidOperationException|Exception)"), "throw
110   ↳ std::exception", null, 0),
111 // override void PrintNode(TElement node, StringBuilder sb, int level)
112 // void PrintNode(TElement node, StringBuilder sb, int level) override
113 (new Regex(@"override ([a-zA-Z0-9 \\*+]+)\\(([^\\)]+?)\\)", "$1$2 override", null, 0),
114 // string
115 // char*
116 (new Regex(@"(\\W)string(\\W)"), "$1char*$2", null, 0),
117 // sbyte
118 // std::int8_t
119 (new Regex(@"(\\W)sbyte(\\W)"), "$1std::int8_t$2", null, 0),
120 // uint
121 // std::uint32_t
122 (new Regex(@"(\\W)uint(\\W)"), "$1std::uint32_t$2", null, 0),
123 // char*[] args
124 // char* args[]
125 (new Regex(@"([_a-zA-Z0-9:~*+]?)\\[\\] ([a-zA-Z0-9]+)"), "$1 $2[]", null, 0),
126 // using Platform.Numbers;
127 //
128 (new Regex(@"([\\r\\n]{2}|^~)\\s*?using [\\_a-zA-Z0-9+;\\s*?$]"), "", null, 0),
129 // struct TreeElement { }
130 // struct TreeElement { };
131 (new Regex(@"(struct|class) ([a-zA-Z0-9]+)\\(\\s+){([\\sa-zA-Z0-9;:_]+?)}([~;])"), "$1
132   ↳ $2$3{$4};$5", null, 0),
133 // class Program { }
134 // class Program { };
135 (new Regex(@"(struct|class) ([a-zA-Z0-9]+)[^\\r\\n]*([\\r\\n]+(?<indentLevel>[\\t
136   ↳ ]*))?\\{([\\S\\s]+?[\\r\\n]+\\k<indentLevel>)\\}([~;]|$)"), "$1 $2$3{$4};$5", null, 0),
137 // class SizedBinaryTreeMethodsBase : GenericCollectionMethodsBase
138 // class SizedBinaryTreeMethodsBase : public GenericCollectionMethodsBase
139 (new Regex(@"class ([a-zA-Z0-9]+) : ([a-zA-Z0-9]+)"), "class $1 : public $2", null,
140   ↳ 0),
141 }.Cast<ISubstitutionRule>().ToList();
142
143

```



```

8 using System.Reflection;
9
10 [assembly: System.Reflection.AssemblyConfigurationAttribute("Release")]
11 [assembly: System.Reflection.AssemblyCopyrightAttribute("Konstantin Diachenko")]
12 [assembly: System.Reflection.AssemblyDescriptionAttribute("LinksPlatform\'s
↳ Platform.RegularExpressions.Transformer.CSharpToCpp Class Library" +
13 "")]
14 [assembly: System.Reflection.AssemblyFileVersionAttribute("0.0.2.0")]
15 [assembly: System.Reflection.AssemblyInformationalVersionAttribute("0.0.2")]
16 [assembly: System.Reflection.AssemblyTitleAttribute("Platform.RegularExpressions.Transformer.CSh
↳ arpToCpp")]
17 [assembly: System.Reflection.AssemblyVersionAttribute("0.0.2.0")]

```

./Platform.RegularExpressions.Transformer.CSharpToCpp.Tests/CSharpToCppTransformerTests.cs

```

1 using Xunit;
2
3 namespace Platform.RegularExpressions.Transformer.CSharpToCpp.Tests
4 {
5     public class CSharpToCppTransformerTests
6     {
7         [Fact]
8         public void HelloWorldTest()
9         {
10             const string helloWorldCode = @"using System;
11 class Program
12 {
13     public static void Main(string[] args)
14     {
15         Console.WriteLine("Hello, world!");
16     }
17 }";
18             const string expectedResult = @"class Program
19 {
20     public:
21     static void Main(char* args[])
22     {
23         printf("Hello, world!\n");
24     }
25 };";
26             var transformer = new CSharpToCppTransformer();
27             var actualResult = transformer.Transform(helloWorldCode, new Context(null));
28             Assert.Equal(expectedResult, actualResult);
29         }
30     }
31 }

```

./Platform.RegularExpressions.Transformer.CSharpToCpp.Tests/obj/Release/netcoreapp3.0/Platform.RegularExpres

```

1 //-----
2 // <auto-generated>
3 //     Generated by the MSBuild WriteCodeFragment class.
4 // </auto-generated>
5 //-----
6
7 using System;
8 using System.Reflection;
9
10 [assembly: System.Reflection.AssemblyCompanyAttribute("Platform.RegularExpressions.Transformer.C
↳ SharpToCpp.Tests")]
11 [assembly: System.Reflection.AssemblyConfigurationAttribute("Release")]
12 [assembly: System.Reflection.AssemblyFileVersionAttribute("1.0.0.0")]
13 [assembly: System.Reflection.AssemblyInformationalVersionAttribute("1.0.0")]
14 [assembly: System.Reflection.AssemblyProductAttribute("Platform.RegularExpressions.Transformer.C
↳ SharpToCpp.Tests")]
15 [assembly: System.Reflection.AssemblyTitleAttribute("Platform.RegularExpressions.Transformer.CSh
↳ arpToCpp.Tests")]
16 [assembly: System.Reflection.AssemblyVersionAttribute("1.0.0.0")]

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