SharpDevelop

C# Coding Style Guide

Version 0.2

C# 编码风格指南（中文版）

Version 0.2

说明：

　　C# 的确是.Net 开发中的新宠儿，看看网上关于它的资料和讨论就知道了。由于工作的需要和自己的兴趣，现在也学习 C# 编程了。我个人喜欢在学习之前搜索一大堆的资料，无论是视频也好，电子书也好，总之是"有杀错，没放过"。而且自己一直比较关注编码上的风格问题，不是说要代码怎么花俏，怎么好看。但是最基本的排版和适量的注释我认为是必须的，而不是可有可无的事。现在的实际工作也遇上了这样的问题。之前公司中所开发的系统，几千行的代码中竟然没有一句注释，系统也没有任何软件工程中出现的架构图、流程图等等的说明性文档。在维护这个系统的过程中异常辛苦，常常是花几个小时的时间来阅读代码，而为的只是添加一个查询的小功能而已。这也导致了我对编码风格重要性的体会更加真实。我之前翻译的《汇编程序员之代码风格指南》中作者说的一句话我到现在还映像深刻："可读性很重要是因为程序是拿来读的（而且，一行代码被典型地阅读 10 次比写一行代码更常见）。进一步来说，考虑到许多程序都需要被其他程序员阅读和维护的事实（Steve McConnell 声称在一个真实的程序世界里程序员需要 10 次以上的代码维护工作，直到它们被重写；而且，他们算出在他们的工作中有 60%的工作是花在代码的简单性上）"。

　　有一点还是需要说一下的，原文所讲的代码风格偏向于 SharpDevelop。也许国内的 C# 程序员还不了解这个开发工具。它是开源的 C# RAD。我觉得初学者一开始可以选用这个开发工具，一方面是它小，另一方面它功能强大。如果使用 VS2003 或 VS2005 的 IDE，IDE 在很大程度上自动帮你排版和格式化，但是再好的宝剑在一个农夫手里也只能用来砍柴而已。还是让我们看看别人的风格是怎样的吧，认为好的就拿来用，认为不好的就思考一下为什么不好，我应该怎样做才能做好，仅此而已。

<div align="right">jhkdiy
2008-2-27</div>

（题外话：本人承接软件开发领域的英文翻译工作，具体事项可以先用邮件联系我，然后再洽谈相关事宜。）

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目录

（译注：目录页码为原文的页码）

1：关于 SharpDevelop C# 编码风格指南

《SharpDevelop C# 编程风格指南》由 Mike Krueger 编写。文档也可以当成是编写健壮的和可读程序的指南来阅读。本文的焦点放在 C# 编写的程序，但即使你用其它编程语言，文章中的许多规则和原理也对你很有用。

2：文件组织

2.1 C# 源文件

保持你的类/文件简短，不要超过 2000 LOC （jhkdiy 译注：LOC 为代码行数，也就是文件最好不要超过 2000 行的代码）。保持你的结构清晰。将类放到一个单独的文件中并将文件名命名为类似于类名（当然扩展名为 .cs ）。

2.2 目录布局

为每个命名空间建立一个文件夹（例如，MyProject.TestSuite.TestTier 就用不带点的命名空间 sMyProject/TestSuite/TestTier 作为文件路径，）。

3：缩进

3.1 一行代码的长度

考虑避免（如果可能）一行超过 80 个字符，可以设置编辑器的横宽来进行管理，如果有需要的话就换行。

3.2 换行

当一个表达式不能在一行中写完时，可以根据这些常规的原理进行中断：
- 在一个逗号后中断
- 在一个操作数后中断
- 宁愿进行高级中断也不要低级中断
- 在前一行的同一级别上将新行对齐表达式的开始位置

中断方法调用的示例：
```
longMethodCall( expr1, expr2, expr3,
                expr4, expr5);
```

中断一个数学表达式的示例。第一个是可取的，因为中断出现在括号表达式的外面（高级规则）：
```
var = a * b / (c - g + f) +
    4 * z;          // 可取
var = a * b / (c - g +
    f) + 4 * z;        // 避免
```

3.3 空格

还没有人完全建立使用空格缩进的标准。有些人说 2 个空格，有些人说 4 个，有些则坚持 8 个，或者更多空格。我说：使用 Tab。OK，你不喜欢 tab，但是 tab 字符有它的优点：

- 每个人都可以自己设置缩进级别
- 它只有一个字符而不是 2,4,8，因此它可以减少输入（即使是智能缩进有时你也要手工设置，或者回退或者是其它事）
- 如果你想对已选取的一块代码递增缩进（或递减），可以使用 Tab 来进行缩进，按 Shift-Tab 来进行反缩进，几乎所有的文本编辑器都可以做到。

Ok，这就足够了，我不想启动 TAB 和空格的大战，我将 Tab 定义成标准的缩进字符。

!!! 不要使用空格来缩进，使用 TAB!!!

4：注释

4.1 块注释

我尝试避免块注释，当要讲解时，我使用 C# 标准的 /// 注释来进行描述。当你有意想使用块注释的时候你最好使用下面的风格：

```
/* Line 1
 * Line 2
 * Line 3
 */
```

或者是（在这种情况下应该有个回车紧跟随后，不要将注释放在代码前面）：

```
/* blabla */
```

4.2 行尾注释

你应该使用 // 注释风格来"外注释"代码（SharpDevelop 有此功能，Alt + / ）。它也同样可以用于注释一段代码。

4.3 文档注释

文档注释可以查看 Microsoft 文档

5：声明

5.1 每行的声明数量

提倡每行只有一个声明，因为这样可以更好地注释。换句话说：

```
int level;   // 缩进级别
int size;    // 表格的大小
```

不要将不同类型的声明放在同一行上。

例如：

```
int a, b;      // 不恰当!
```

5.2 初始化

尽量在声明局部变量的时候初始化它们，例如：

```
string name = myObject.Name;
```

或者

```
int val = time.Hours;
```

5.3 类和接口的声明

当编写 C# 类和接口的时候，应该遵循下面的格式规则：

在方法名和开始参数列表的括号"（"之间没有空格。

开花括号"{"出现在声明语句的下一行，关花括号"}"自己独立一行，并与开花括号"{"对应。

例如：

```
class MySample : MyClass, IMyInterface
{
    int myint;
    public MySample(int myint)
    {
        this.myint = myint;
    }
    void Inc()
    {
        ++myint;
    }
    void EmptyMethod()
    {
    }
}
```

6 语句

6.1 简单语句

每一行应该只包含一条语句。

6.2 Return 语句

一个 Return 语句不应该使用圆括号

6.3 If, if-else, if else-if else 语句

If, if-else, if else-if else 语句看起来应该像这样：

```
if (条件) {
    做某事();
    …
}

if (条件) {
    做某事();
    …
} else {
    做另外一些事();
    …
}

if (条件) {
    做某事();
    …
} else if (条件) {
    做另外一些事();
    …
} else {
    再次做另外一些事();
    …
}
```

jhkdiy 译注：另外一种格式是花括号对应并单独一行：

```
if (条件)
{
    做某事();
    ...
}
else
{
    做另外一些事();
    ...
}
```

jhkdiy：这两种风格都有很多支持者，不过我们不必讨论这两种风格那种好，那种不好了，你愿意用那种就继续用吧，只要能将流程层次体现出来即可。

6.4 For / Foreach 语句

一个 for 语句应该有下面的格式：

```
for (int i = 0; i < 5; ++i) {
    ...
}
```

或者单独一行：

```
for (initialization; condition; update) ;
```

一个 foreach 语句应该是这样的：

```
foreach (int i in IntList) {
    ...
}
```

6.5 While/do-while 语句

一个 while 语句应该像这样：

```
while (条件) {
    ...
}
```

一个空的 while 应该像这样：

```
while (条件) ;
```

一个 do-while 语句应该像这样：

```
do {
    ...
} while (条件);
```

6.6 Switch 语句

一个 switch 语句应该像这样：

```
switch (条件) {
    case A:
        ...
        break;
    case B:
        ...
        break;
    default:
        ...
        break;
}
```

6.7 Try-catch 语句

一个 try-catch 语句应该像这样：

```
try {
    ...
} catch (Exception) {}
```

或者是：

```
try {
    ...
} catch (Exception e) {
    ...
}
```

或者：

```
try {
    ...
} catch (Exception e) {
    ...
} finally {
    ...
}
```

7.1 空行

空行可以改良可读性，将逻辑上相关的代码进行分段。

下面的这些情况应该使用两行空行：

- 一个源文件中的多节
- 类和接口定义

一个空行可以应用在下面这些情况：

- 方法
- 在方法里的局部变量和它的第一条语句
- 在方法里面的逻辑块里使用也可以改良可读性

7.2 内部空格

最好在一个逗号","或一个分号";"之后有个空格，例如：

TestMethod(a, b, c);　　不要这样做：　TestMethod(a,b,c)

或者

TestMethod(a, b, c);

单个空格可以包围操作符，例如：

a = b; // 不要使用：　a=b;

for (int i = 0; i < 10; ++i)　// 不要使用 for (int i=0; i<10; ++i)
　　　　　　　　　　　　　　　　// 或者
　　　　　　　　　　　　　　　　// for(int i=0;i<10;++i)

7.3 类似表格的格式化

数行组成的一个逻辑块应该格式化的像表格一样：

```
string      name        = "Mr. Ed";
int         myValue      = 5;
Test        aTest        = Test.TestYou;
```

8 命名约定

8.1 以大写字母开头的风格

8.1.1 Pascal 风格

这种约定是将每个单词的第一个字符大写（如 TestCounter）

8.1.2 Camel 风格

这种约定除了第一个单词的首字母不大写外，其它单词的首字母都大写（如 testCounter）

8.1.3 大写字母

只有当标识符包含两个或一个长单词的缩写时才能使用大写字母，标识符的第三个或随后的字符还是应该使用 Pascal 风格来代替。

例如：
```
public class Math
{
        public const PI = ...
        public const E = ...
}
```

8.1.4 拼写统计：

类型	适用情况	备注
类 / 结构	Pascal 风格	
接口	Pascal 风格	从 I 字母开头
枚举值	Pascal 风格	
枚举类型	Pascal 风格	
事件	Pascal 风格	
异常类	Pascal 风格	用 Exception 结束
Public 域	Pascal 风格	
方法	Pascal 风格	
命名空间	Pascal 风格	
属性	Pascal 风格	
Protected/private 域	Camel 风格	
参数	Camel 风格	

8.2 类和类成员

　　平时使用的下划线和匈牙利表示法不能再用了。匈牙利表示法定义了一组前缀，这些前缀应用到变量名上以便反映该变量的类型，但如果你遵循本手册的话就不允许这样做了。而且要记得：

　　能解释语义的是一个好的命名，而不是类型。

8.2.1 类命名指南
 – 类名必须是名词或名词短语
 – 使用 Pascal 风格（看 8.1.1）
 – 不要使用任何的类前缀

8.2.2 接口命名指南
 – 将接口命名为名词或名词短语，或者是能描述行为的形容词（例如
   IComponent or IEnumberable）
 – 使用 Pascal 风格（看 8.1.1）
 – 名称使用 I 字母前缀，名称跟在大写字母之后

8.2.3 枚举命名指南
 – 枚举值的名称和枚举类型名都要使用 Pascal 风格
 – 不要为枚举类型或枚举值添加前缀或后缀
 – 为枚举使用单数名称

–　为位域使用复数名称

8.2.4　只读和常数字段的命名
–　静态域的名称使用名词、名词短语或名词缩略语
–　使用 Pascal 风格（看 8.1.1）

8.2.5　参数/非常数字段的命名
–　使用描述性的名称，也就是能足够反应变量意义和类型的名称。但是最好
　　该名称是建立在反应参数意义上的。
–　使用 Camel 风格（看 8.1.2）

8.2.6　变量命名
–　计数变量更适宜使用 i，j，k，l，m，n（更聪明的命名可以看看 10.2 的例子）
–　使用 Camel 风格（看 8.1.2）

8.2.7　方法的命名
–　方法名使用动词或动词短语
–　使用 Pascal 风格

8.2.8　属性命名
–　属性名使用名词或名词短语
–　使用 Pascal 风格
–　确保属性的命名和它的类型是一致的

8.2.9　事件命名
–　事件处理程序使用 EventHandler 后缀
–　将两个参数命名为 sender 和 e
–　使用 Pascal 风格
–　事件参数中的类使用 EventArgs 后缀
–　事件的命名应该有当前和过去的前后概念
　　（jhkdiy 译注：如 Key_Up、Key_Down、Key_Press 的命名）
–　确保事件名称为一个动词

9　编程实践

9.1　可见性
　　不要将任何的类实例或类变量设为 public，将它们设为 private。可以使用属性来代替。你甚至可以将公共静态域（或常数）看作是一个异常，但这不是规范。

9.2　没有"魔数"
jhkdiy 译注：所谓的魔数是指容易混淆的数字或字符，如：
　　　　　　数字 1 和 字母 l
　　　　　　数字 0 和 字母 O
　　　　　　表示号码的 NO. 和 表示是否的 No

不要使用魔数，用一个包含此数的常数变量来声明：

```
public class MyMath
{
    public const double PI = 3.14159...
}
```

10　代码示例

10.1　花括号布局示例：

```
namespace ShowMeTheBracket {
    public enum Test {
        TestMe,
        TestYou
    }

    public class TestMeClass
    {
        Test test;

        public Test Test {
            get {
                return test;
            }
            set {
                test = value;
            }
        }

        void DoSomething()
        {
            if (test == Test.TestMe) {
                ...
            } else {
                ...
            }
        }
    }
}
```

jhkdiy 译注：注意，Test 方法和 DoSomething 方法使用了不同的花括号布局。

10.2 变量命名示例：

将要替换的：

```
for (int i = 1; i < num; ++i) {
    meetsCriteria[i] = true;
}
for (int i = 2; i < num / 2; ++i) {
    int j = i + i;
    while (j <= num) {
        meetsCriteria[j] = false ;
        j += i;
    }
}
for (int i = 0; i < num; ++i) {
    if (meetsCriteria[i]) {
        Console.WriteLine(i + " meets criteria");
    }
}
```

试试更聪明的命名：

```
for (int primeCandidate = 1; primeCandidate < num; ++primeCandidate) {
    isPrime[primeCandidate] = true;
}
for (int factor = 2; factor < num / 2; ++factor) {
    int factorableNumber = factor + factor;
    while (factorableNumber <= num) {
        isPrime[factorableNumber] = false ;
        factorableNumber += factor;
    }
}
for (int primeCandidate = 0; primeCandidate < num; ++primeCandidate) {
    if (isPrime[primeCandidate]) {
        Console.WriteLine(primeCandidate + " is prime.");
    }
}
```

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