

Common C# String Operations and Formatting

Examples and Quick Reference

Prepared by
Mahbubur Rahman Manik

◆ String Operations

1. Concatenation (+ operator or string.Concat)

csharp

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```
string firstName = "John";  
string lastName = "Doe";  
string fullName = firstName + " " + lastName;  
// Output: "John Doe"
```

2. Interpolation (\$ sign)

csharp

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```
string name = "Alice";  
int age = 30;  
string greeting = $"Hello, my name is {name} and I am {age} years old.";  
// Output: "Hello, my name is Alice and I am 30 years old."
```

3. Substring

csharp

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```
string message = "Hello World!";  
string sub = message.Substring(6, 5); // (start index, length)  
// Output: "World"
```



4. Contains / StartsWith / EndsWith

csharp

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```
string text = "The quick brown fox";
bool hasQuick = text.Contains("quick"); // true
bool startsWithThe = text.StartsWith("The"); // true
bool endsWithFox = text.EndsWith("fox"); // true
```

5. IndexOf

csharp

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```
string quote = "Stay hungry, stay foolish.";
int index = quote.IndexOf("hungry"); // index = 5
```

6. Replace

csharp

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```
string original = "I love Java.";
string modified = original.Replace("Java", "C#");
// Output: "I Love C#."
```

7. Split

csharp


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```
string fruits = "apple,banana,orange";
string[] fruitArray = fruits.Split(',');
// fruitArray = ["apple", "banana", "orange"]
```

8. Trim / TrimStart / TrimEnd

csharp

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```
string padded = "  Hello  ";  
string trimmed = padded.Trim(); // "Hello"
```

9. ToLower / ToUpper

csharp

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```
string mixed = "HeLLo WoRLd";  
string lower = mixed.ToLower(); // "hello world"  
string upper = mixed.ToUpper(); // "HELLO WORLD"
```

10. String.IsNullOrEmpty / String.IsNullOrWhiteSpace

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```
string input = "";  
bool isEmpty = string.IsNullOrEmpty(input); // true  
bool isWhiteSpace = string.IsNullOrWhiteSpace("  "); // true
```

◆ String Formatting

1. string.Format

csharp

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```
string formatted = string.Format("Name: {0}, Age: {1}", "John", 28);  
// Output: "Name: John, Age: 28"
```

2. Composite Formatting

csharp

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```
Console.WriteLine("Item: {0}, Price: {1:C}", "Laptop", 1200);  
// Output: "Item: Laptop, Price: $1,200.00"
```

3. Number formatting

csharp

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```
int number = 12345;  
string formatted = number.ToString("N0"); // "12,345"
```

4. DateTime formatting

csharp

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```
DateTime now = DateTime.Now;  
string date1 = now.ToString("yyyy-MM-dd"); // "2025-04-26"  
string date2 = now.ToString("MMMM dd, yyyy"); // "April 26, 2025"
```

5. Padding (PadLeft / PadRight)

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```
string numberString = "42";  
string paddedLeft = numberString.PadLeft(5, '0'); // "00042"
```

- **Join strings** with separator:

csharp

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```
string[] words = { "apple", "banana", "cherry" };  
string joined = string.Join(", ", words);  
// Output: "apple, banana, cherry"
```

- **StringBuilder** for efficient concatenation (good when joining lots of strings):

csharp

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```
var sb = new StringBuilder();  
sb.Append("Hello");  
sb.Append(" ");  
sb.Append("World");  
string result = sb.ToString(); // "Hello World"
```