



# Module 1 Day 3

Expressions, Statements, Blocks and Branching

# Statements

- The actions that a program takes are expressed in statements. Common actions include declaring variables, assigning values, calling methods, looping through collections, and branching to one or another block of code, depending on a given condition
- <https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/statements-expressions-operators/statements>

# Statement Blocks

- Multiple statements grouped together as a block
- { } delimit a “code block”
- Blocks can be nested within blocks through many levels
- Variable scope
  - Variable is “in scope” until the block it was declared in exits
  - Inner blocks can access variables declared in outer blocks
  - Not vice-versa
- A method body is a code block
  - E.g., our Main method in Program.cs

# Methods

- Method header
  - Access modifier
  - Method return type
    - Any data type or “void”
  - Method parameters (zero or more of these):
    - Data type
    - Parameter name
- Method Body
  - The “code block”
  - Return statement(s)

	Return Type	Method Name	Parameter List	
<code>public</code>	<code>int</code>	<code>MultiplyBy</code>	<code>(int multiplicand, int multiplier)</code>	<code>{</code>
			<code>int result = multiplicand * multiplier;</code>	
			<code>return result;</code>	
				<code>}</code>

# Calling Methods

- Call (aka Invoke) a method

```
int product = MultiplyBy(100, 30);
```

- Pass in parameters (arguments)

- Can be literal (as above) or variable names
- Variable names do not need to match (they are matched by position)

```
int width = 12;
```

```
int length = 20;
```

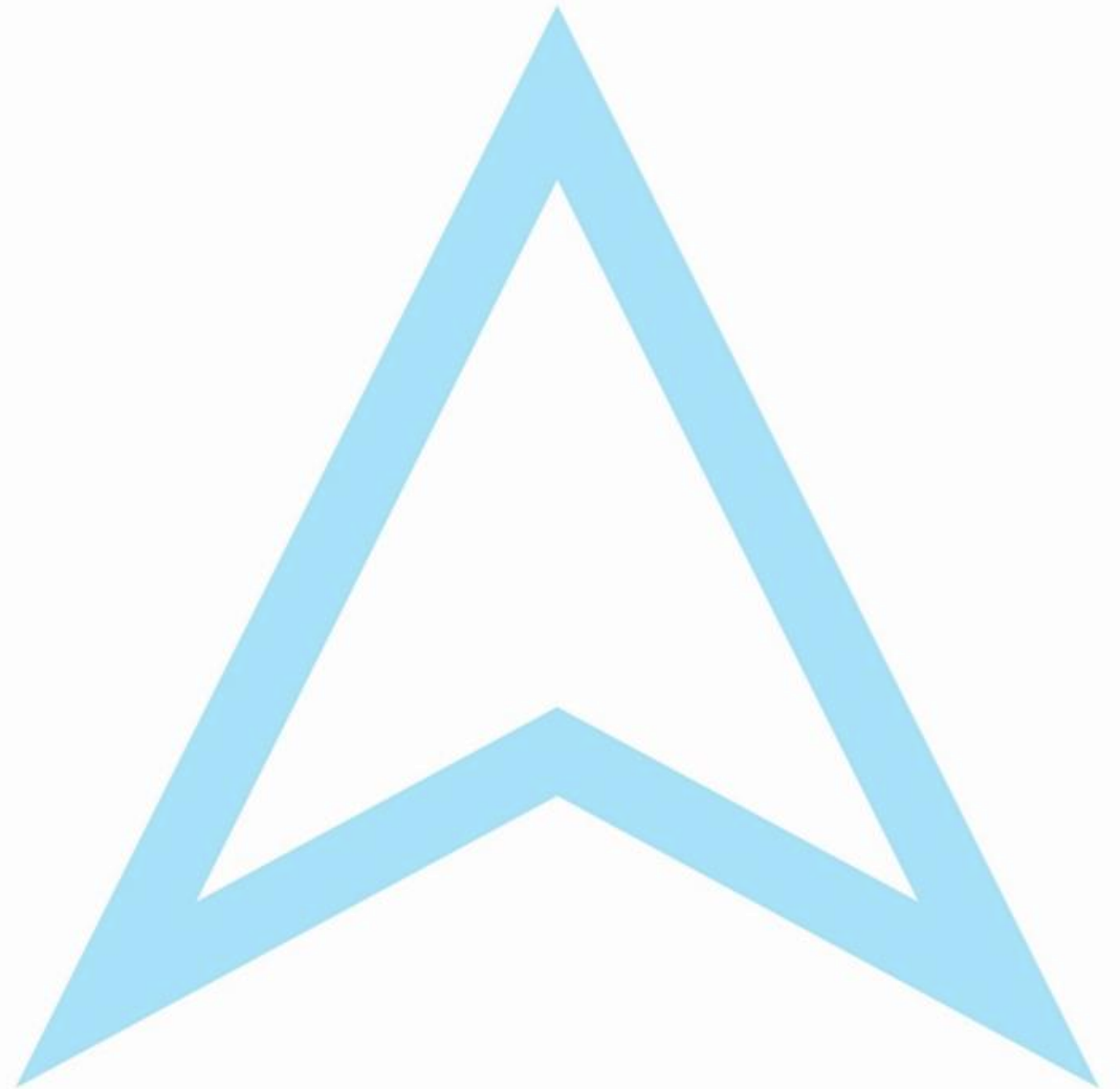
```
int area = MultiplyBy(width, length);
```

# Boolean Expressions

- Comparison
  - `==, !=, <, <=, >, >=`
- Comparisons can be combined using Logical Operators
  - `&&, ||, !, ^`
- Precedence
  - `!, ^, &&, ||`
  - Just use parentheses!

# Conditional Code

- if
- if – else
- if – else if
- if – else if – else



# Ternary Operator

```
int number = 3;
string backgroundColor;
if (number % 2 == 0)
{
    backgroundColor = "gray";
}
else
{
    backgroundColor = "white";
}
```

```
int number = 3;
string backgroundColor = number % 2 == 0 ? "gray" : "white";
```