

Language Map for C#

Variable Declaration <i>Is this language strongly typed or dynamically typed? Provide at least three examples (with different data types or keywords) of how variables are declared in this language.</i>	<ul style="list-style-type: none">- It is strongly typed, variable definitions are enforced resulting in errors if type mismatch occurs.- <code>int myNum = 7;</code>- <code>char myChar = 'C';</code>- <code>string myName = "Cassidy";</code>
Data Types <i>List all of the data types (and ranges) supported by this language.</i>	byte – 8-bit unsigned sbyte - 8 bit signed short – 16 bit signed ushort – 16 bit unsigned long – 64 signed ulong – 64 bit unsigned char – 16 bit Unicode string – 2 bytes per character int – 32 bit signed uint - 32 bit unsigned decimal – 128 bit float – 32 bit single precision double – 64 bit double precision long - 8 byte bool - 8 bit logical true/false
Selection Structures <i>Provide examples of all selection structures supported by this language (if, if else, etc.) Don't just list them, show code samples of how each would look in a real program.</i>	If, If-Else, Else-If, Switch ----- <pre>//If int myNum = 100; if (myNum == 100) { Console.WriteLine(" The number is 100"); }</pre> ----- <pre>//If-Else int myNum = 100;</pre>

```
if (myNum == 100)
{
    Console.WriteLine("The number is 100");
}
else
{
    Console.WriteLine("The number is not 100");
}
```

```
//Else-If
int myAge = 34;
if (otherAge < 34)
{
    Console.WriteLine("They are younger");
}
else if (otherAge == 34)
{
    Console.WriteLine("They are the same age");
}
else
{
    Console.WriteLine("They are older");
}
```

```
//Switch
int x = 10;

switch (x)
{
    case 5:
        Console.WriteLine("Value of x is 5");
        break;
    case 10:
        Console.WriteLine("Value of x is 10");
        break;
    case 15:
        Console.WriteLine("Value of x is 15");
        break;
}
```

	<pre> default: Console.WriteLine("Unknown value"); break; } </pre>
<p>Repetition Structures</p> <p><i>Provide examples of all repetition structures supported by this language (loops, etc.) Don't just list them, show code samples of how each would look in a real program.</i></p>	<p>While loop, Do loop, For Loop, For Each Loop</p> <p>-----</p> <pre> //While Loop int myNum = 0; while (myNum < 5) { Console.WriteLine(myNum); myNum++; } </pre> <p>-----</p> <pre> //Do Loop int myNum = 0; do { Console.WriteLine(myNum); myNum++; } while (myNum < 5); </pre> <p>-----</p> <pre> //For Loop using System; public class ForExample { public static void Main(string[] args) { for(int myNum=1; myNum <=10; myNum++){ Console.WriteLine(myNum); } } } </pre>

	<pre> //For Each Loop using System; namespace ForEachLoop { class ForEachLoop { public static void Main(string[] args) { char[] Array1 = {'1','2','3','4','5'}; foreach(char ch in Array1) { Console.WriteLine(ch); } } } } </pre>
Arrays <i>If this language supports arrays, provide at least two examples of creating an array with a primitive or String data types (e.g. float, int, String, etc.) If the language supports declaring arrays in multiple ways, provide an example of way.</i>	<pre> char[] Array1 = {'1','2','3','4','5'}; string[] Array2 = {"C","a","s","s","i","d","y"}; // Declare Array with blank values string[] Array1 = new string[7]; // Declare array and fill at the same time string[] Array2 = {"C","a","s","s","i","d","y"}; </pre>
Data Structures <i>If this language provides a standard set of data structures, provide a list of the data structures and their Big-Oh complexity (identify what the complexity represents).</i>	<p> Array , Stack , Queue , Hashtable , Dictionary . Linked List </p>
Objects <i>If this language support object-orientation, provide an example of how you would write a simple object with a default constructor and then how you would instantiate it.</i>	<p>C# is object oriented.</p> <pre> class Paint { string color = "red"; } </pre>

	<pre>static void Main(string[] args) { Paint myObj = new Paint(); Console.WriteLine(myObj.color); } }</pre>
Runtime Environment <i>What runtime environment does this language compile to? For example, Java compiles to the Java Virtual Machine.</i> <i>Do other languages also compile to this runtime? If so, what these other languages?</i>	.NET core, lots of languages use this. Visual Basic and F#.
Libraries/Frameworks <i>What are the popular libraries or frameworks used by programmers for this language? List at least three (3) and describe what they are used for.</i>	Automapper - popular object-to-object mapper library used to map the properties of two different objects. This will reduce developer work and help us avoid unwanted code when mapping values. ASP.net - Web development Dapper - A simple object mapper for .NET that can be used for database access in web applications.
Domains <i>What industries or domains use this programming language? Provide at least three specific examples of companies that use this language and what they use it for. E.g. Company X uses C# for its line of business applications.</i>	Humana – Mobile/Desktop Apps Microsoft – MWS and Game Development. Stack Overflow – Web Apps