

## Language Map for C#

<b>Variable Declaration</b> <i>Is this language strongly typed or dynamically typed?  Provide an example of how variables are declared in this language.</i>	C# is a strongly typed language.  int Num = 15;
<b>Data Types</b> <i>List all of the data types (and ranges) supported by this language.</i>	int      whole numbers from -2,147,483,648 to 2,147,483,647 long     whole numbers from -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807 float    fractional numbers. Sufficient for storing 6 to 7 decimal digits double   fractional numbers. Sufficient for storing 15 decimal digits bool     true or false values char     a single character/letter, surrounded by single quotes string   sequence of characters, surrounded by double quotes sbyte    -128 to 127 short    -32768 to 32767 byte     0 to 255 decimal  decimal values with 28-29 significant digits
<b>Selection Structures</b> <i>Provide examples of all selection structures supported by this language (if, if else, etc.)</i>	if if (condition) {        } else if (condition) {        } else {        } else if if (condition1) {        } else if (condition2) {        } else {        }

	<pre> switch     variable = "";     switch (variable)     {         case 1:             break;         case             break;         case 3:             break;         case 4:             break;         case 5:             break;         case 6:             break;         case 7:             break;     } </pre>
<b>Repetition Structures</b> <i>Provide examples of all repetition structures supported by this language (loops, etc.)</i>	<pre> while     while (condition)     {     }  do while     do     {     }     while (condition);  for     for (int i = 0; i &lt; 20; i++)     {     }  for each     string[] nflTeams= {"Chiefs", "Bills", "Rams", "Jets"};     foreach (string i in nflTeams)     {     } </pre>
<b>Arrays</b> <i>If this language supports arrays, provide an example of creating an array with a primitive data type (e.g. float, int, etc.)</i>	<pre> string[] nflTeams= {"Chiefs", "Bills", "Rams", "Jets"}; </pre>

<b>Data Structures</b> <i>If this language provides a standard set of data structures, provide a list of the data structures and their Big-Oh complexity.</i>	Dictionary - $O(\log n)$ List - $O(\log n)$ Queue - $O(1)$ Stack - $O(1)$ LinkedList - $O(n)$ ObservedCollection - $O(n)$ SortedList - $O(\log n)$ HashSet - $O(\log n)$ SortedSet - $O(\log n)$
<b>Objects</b> <i>If this language support object-orientation, provide an example of how to create a simple object with a default constructor.</i>	C# is an object oriented language.  <pre> Class Team {     public Team()         {         } }  Team Chiefs = new Team(); </pre>
<b>Runtime Environment</b> <i>What runtime environment does this language compile to? For example, Java compiles to the Java Virtual Machine. Do other languages also compile to this runtime?</i>	C# is part of the common language runtime (.NET)  Yes other languages compile to this runtime examples are F# and C++
<b>Libraries/Frameworks</b> <i>What are the popular libraries or frameworks used by programmers for this language? List at least three (3).</i>	.NET Core .NET Framework Mono
<b>Domains</b> <i>What industries or domains use this programming language? Provide specific examples of companies that use this language and what they use it for.</i>	Microsoft - web and game development Stack Overflow - app development and web services Trustpilot - app development and web services City National Bank – cloud based services