Language Map for C#

Variable Declaration
Is this language strongly typed or dynamically typed? Provide an example of how variables are declared in this language.
	C# is a strongly typed language.
	int C = 32;
	string name = "Chris";
	double cashOnHand = 85.67D;
	char grade = "B";
	bool taskCompleted = true;
	float temp = 98.2F;
	var color = "blue";

Data Types
List all of the data types (and ranges) supported by this language.

Data Type	Size	Description
int	4 bytes	Stores whole numbers from -2,147,483,648 to 2,147,483,647
long	8 bytes	Stores whole numbers from -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807
float	4 bytes	Stores fractional numbers. Sufficient for storing 6 to 7 decimal digits
double	8 bytes	Stores fractional numbers. Sufficient for storing 15 decimal digits
bool	1 bit	Stores true or false values
char	2 bytes	Stores a single character/letter, surrounded by single quotes
string	2 bytes per character	Stores a sequence of characters, surrounded by double quotes

Selection Structures
Provide examples of all selection structures supported by this language (if, if else, etc.)

int grade;
if ex:
if(grade<=89)

```
{
Console.WriteLine("you did not get an A");
}
```

if else ex:
```
if (grade <=59)
{
 Console.WriteLine("You have a failing grade");
}
else
{
Console.WriteLine("You have a passing grade");
}
```

Switch ex:
```
switch (grade)
{
        case>89:
              Console.WriteLine("You have an A for this class");
              break;

        case>79:
               Console.WriteLine("You have a B for this class");

        case>69:
               Console.WriteLine("You have a C for this class");

        case>59:
               Console.WriteLine("You have a D for this class");

         default:
                Console.WriteLine("You have failed this class");
}
```

Repetition Structures
Provide examples of all repetition structures supported by this language (loops, etc.)
	for loop ex:
	
	`for (int i=0; i <=20, i++0`
	`{`
	`    Console.Write(i);`
	`}`

	foreach loop ex:
	
	``
	var data = new List<int> { 10, 20, 30, 40, 50, 60, 70, 80, 90, 100};
	foreach (int element in data)
	{
	    Console.Write(${element});
	}
	``
	
	do loop ex:
	
	``
	int k = 0;
	do
	{
	    Console.Write(k);
	    K++;
	} while (k<25);
	``
	
	while loop ex:
	
	``
	int p = 0;
	while (p < 15)
	{
	    Console.Write(p);
	    p++;
	}
	``

Arrays
If this language supports arrays, provide an example of creating an array with a primitive data type (e.g. float, int, etc.)
	``
	int[] gradesArray = { 95. 97, 82, 76, 68, 73, 90};
	
	float[] billsArray = new float[20];
	``

Data Structures *If this language provides a standard set of data structures, provide a list of the data structures and their Big-Oh complexity.*	Stack O(n) Queue O(n) Linked List O(n) Dictionary O(logn) Hash Table O(1) for searching

Objects	```
	public class Pet
	{
	    public string Name { get; set;}
	``

If this language support object-orientation, provide an example of how to create a simple object with a default constructor.	```csharp
	public string Breed { get; set;}
	public Pet (string name, string breed)
	{
	    Name = name;
	    Breed= breed;
	}
	}
	
	Pet pet1 = new Pet ("Henry", "Bassett Hound");
	``

Runtime Environment *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?*	C# complies using the .NET Framework which uses CLR or Common Language Runtime as its Virtual Machine component. C# was specifically designed for the .NET Framework, but the .NET Framework was also designed to support an almost limitless amount of programming languages. The other prominent languages that use the .NET Framework are F#, Visual Basic, PowerShell and Iron Python.
Libraries/Frameworks *What are the popular libraries or frameworks used by programmers for this language? List at least three (3).*	**PayPal.NET SDK,** allows developers to integrate the use of PayPal in their applications **Bogus,** is a fact data generator that loads your databases or apps with fake data so you can test out your applications. **MSTest** is a framework used for UNIT testing. It allows you to create tests for your applications, run them and view the results in in Visual Studio Code IDE. **Automapper** framework allows the developer to copy information from about anything into a data type object.
Domains *What industries or domains use this programming language? Provide specific examples of companies that use this language and what they use it for.*	C# is one of the most widely used programming languages across all industries. It can be used to create websites, networking services, game development, and workflow applications. C# was created by Microsoft, so it is no surprise that Microsoft programs and websites primarily use C#, in addition Microsoft's gaming console the Xbox uses C# for its game's development. A website that I often reference for this class Stack Overflow uses C# for its Web services and application development. Accenture ,which is a professional services company specializing in technological solutions, uses C# for all their cloud-based services. And finally, I learned during our tech meet and greet that a local company, Texas Roadhouse, uses C# for all their computing needs. This includes internal workflow programs, website and app development, and database and server management.