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CSCI 350

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Reflection Assignment - Complete with Tutorial Assignment 1

1. What does it mean for a language to be type-safe? Is C# type-safe? Is Java type-safe? Is JavaScript type-safe?

**A type-safe language is one that does not allow you to use one data type in place of another. For example, you would not be able to assign a string as an integer (int x = “string”;) or use floats as parameters to a method that accepts strings.**

**Both C# and Java are type-safe, however JavaScript is not.**

1. What is one feature that C# has that Java does not? Describe this feature (research beyond the tutorial).

**One feature that separates C# from Java is delegates. To put it simply, a delegate is an object that is able to call a method using any parameters passed to it. Delegates are often used to pass methods as parameters to other methods.**

1. What is the CLR, and what would its equivalent in Java be?

**The CLR (common language runtime) is a virtual execution system included in the .NET Framework, the framework that runs C# programs. It is Microsoft’s own implementation of an international standard of execution and development environments known as the common language infrastructure (CLI).**

1. What is the assembly?

**The assembly is an executable file (such as .exe, .dll, etc.) that stores C# intermediate language code and resources, as well as information about the assembly itself.**

1. What entity contains a library of over 4000 classes that provide functionality such as file I/O and XML parsing?

**These classes are contained in the .NET Framework.**

1. Did you have any problems installing Visual Studio? If so, how did you overcome them? Which version did you install?

**I had no problems installing Visual Studio; I’m running Windows 10, so I imagine that is why it went so smoothly.**

**I installed Visual Studio 2017, mainly because many of the tutorials are based on it, which should make following them a little easier.**

1. What similarities do you notice between your first C# Hello World program and your old Java Hello World program from CSCI 140?

**Most of the similarities lie in the program’s structure and syntax, and while some of the syntax is different, which is to be expected, it does serve the same function as similar syntax in Java. In line 1, “using” is similar to the “import” statement in Java. In lines 5 and 7, the syntax is exactly what Java would accept: “class Program” declares a class and gives it a name, and “static void Main(string[] args)” declares the main method. Finally, in line 9, “Console.WriteLine(“Hello World!”);” prints “Hello World!” out to the console, just as “System.out.println” would in Java.**

1. What differences do you notice?

**The biggest difference I noticed is that I did not have to type any code; the tutorial had me select a template which created the program for me. Next, the program runs in a separate, Windows-style console window, rather than in Visual Studio itself, unlike Java where it is run inside the IDE. Finally, an expected difference is in some of the syntax, such as “using” instead of “import” or “Console.WriteLine()” instead of “System.out.println()”.**

1. Should you generally test your program in Debug mode or Release mode? Why?

**Testing should be done in Debug mode, as it provides far more error information and tools to the developer.**

1. Why should you also compile and test the Release version of your code?

**You should also test a program in Release mode, as it uses optimizations in the compiler, unlike Debug mode, and it is important to test how these optimizations will affect the program.**

1. Take a screenshot of your command window after examining your published files in the Publish tutorial, similar to the one below:



