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* 1. <https://en.wikipedia.org/wiki/Common_Language_Runtime>, <https://en.wikipedia.org/wiki/Common_Type_System>
  2. The CLR is Microsoft’s “virtual machine component of Microsoft’s .NET framework” and “manages the execution of .NET programs.” Any program written for the .NET framework is run by the CLR. It takes “bytecode” (CIL code) and turns it into native code. Some of the benefits sited by the source are the following:
     1. Language features such as inheritance, interfaces, and overloading
     2. Garbage collection
     3. Type safety in alignment with CTS.

The CTS “is a standard that specifies how type definitions and specific values of types are represented in computer memory.” Its purpose is to set a standard for types to be shared across several different languages. It also exists to provide an OOP model.

* 1. The most important things I discovered from the sources were (1) that source code is converted to bytecode, then from bytecode to native code, and (2) the Common Type System enables multiple programming languages to share types. Understanding that each programming language compiles into bytecode which can then be mixed and shared showed me how unique the .NET framework really is. It appears to borrow the careful implementation of Java’s object oriented model, but then .NET applies this on a much higher level to entire programming languages. It also uses a single runtime environment (CLR) to execute the program once everything has been converted to native code. As for the latter important point, the idea that you can abstract even the types of programming languages so that you can maintain a degree of interoperability between several languages is very interesting. I think that there must have been some intensive and rigorous planning involved in making a standard to accommodate a central model for types.
  2. <https://msdn.microsoft.com/en-us/library/hfa3fa08(v=vs.110).aspx>
  3. “The .NET Framework includes classes, interfaces, and value types that expedite and optimize the development process and provide access to system functionality.” Any programming language that conforms to CLS may use the .NET Framework libraries. The .NET Framework features components that allow for I/O, Data Structures, GUI’s, and more. The .NET Framework uses namespaces to divide up types, interfaces, and all the components of the framework. For example, the system namespace allows for the use of “Byte, Char, Int32, String” and other standard types familiar to other languages.
  4. The most important point in this article to me is that ANY programming language whose compiler confirms to CLS may tap in and use the .NET framework classes. You could create your own unique programming language with its own standard libraries, but allow it to also pull from some of the feature-rich libraries standard with .NET. I also think it’s incredible that any programming language conforming to the CLS can use the GUI classes. I have experienced this first hand with PowerShell by creating Windows.System.Forms.

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1. <https://msdn.microsoft.com/en-us/library/4w3ex9c2.aspx>
2. “ASP.NET is a unified Web development model that includes the services necessary for you to build enterprise-class Web applications with a minimum of coding.” It’s a part of the .NET framework when doing web development, you can tap in to the other .NET framework classes and types. ASP.NET is composed of web forms, MVC, and web pages. “Each of these frameworks target a different audience.” Web forms allow for a person who has experience in .NET programming but who may not necessarily have experience in HTML or JavaScript rapidly deploy applications. MVC targets business logic. Web Pages allow for dynamic markup rendering for rapid development.
3. I think the two most attractive features ASP.NET brings to the table is the fact that you’re able to rapidly develop web applications with little to no knowledge of CSS/JS/HTML and that you’re able to use the entire .NET library to get the job done. This means that you don’t have to learn an entirely new language for web development (JavaScript) and you can rely on familiar constructs of the .NET language for things as simple as strings or complex as data structures.