

## Language Evaluation

In evaluating C#, the programming language's readability, writability, and reliability (from chapter 1) needs to be considered. Readability refers to how understandable written code is in a certain language. This is correlated to language syntax and documentation. Writability refers to how easy and efficient code can be written in a certain language. Flexibility of paradigms and ease of debugging all help a languages writability. Reliability refers to how well a language facilitates. Type safety and memory management are a few aspects that fall into the reliability of a language.

Considering readability, C# is a very readable programming language. A user that's familiar with programming and new to C# would not have a difficult time reading and understanding a program written in this language. The syntax of the code aids in readability, and the abstraction that C# allows for helps as well. Before doing this case study, I did not have much experience with C#. When reading through methods and programs in C# for the first time, I thought they were very understandable. I think C# being similar to Java and C helps with the readability of the language, as long as a new user is familiar with Java and C.

Along with readability, C# has good writability. It has good simplicity, and it doesn't have too many ways of writing code that are out of the ordinary. When writing code in C# for the first time, I found it to be easy to write. This could have been due to the similarities C# shares with Java and C. Regardless, I think a new programmer would be able to use this language to learn the basic skills of programming.

The reliability of C# is also very good. C# has a type checking system that runs at compile time, and this is beneficial for catching errors early. Memory management in C# is also

handled very well and this boosts the reliability of the language. The automatic memory management and garbage collector aid the languages efficiency. C#'s exception handling management also aids in reliability. Overall, C# is a balanced language between readability, writability, and reliability. Each factor is well established and helps make C# a well-rounded programming language.

Continuing with the evaluation of C#, I would say that C# is a suitable as a language for creating an application that manages the student records of about 5000 students a year and allows registration for classes and grade reporting as well as transcript reports. The capabilities that LINQ brings into C# would help in the creation of an application like this. The programmer would be able to use LINQ to express complex queries needed for the data set. Although there are other languages that are more specific towards querying, C# would be capable of creating and establishing the application.

I also believe that C# would be a good programming language to use for the development of a mobile app to report the closest bus stop to the user's current location. C# would have all the programming capabilities needed to create this application since it is a multiparadigm programming language. Asynchronous programming could be a useful tool to help the programmer in the creation of this mobile application. Although you could create this application in a handful of other programming languages, C# would be a good choice for it.

For the final application of C#, I think that it could be a good language to use in the Computer Science 1 course at Xavier University. It is a very well-rounded language considering readability, writability, and reliability, and it has abstractions that help the programmer understand the language easier. When learning Java and C at Xavier, it would be beneficial if the programmer previously learned C# in a past course (since the languages are similar). I think

using C# as the language in Computer Science 1 could help with this. If C# is not used in Computer Science 1, I still believe it would be beneficial for it to be used in at least one computer science course at Xavier. I believe that it is beneficial to be familiar with C# since there are many companies around the U.S that use this language.

I thought my learning experience of C# throughout this case study was very beneficial. C# is a very balanced programming language, with it having good qualities in its readability, writability, and reliability. C# can also be used for a wide variety of applications, and this helps in its popularity. It is used across many different companies and programmers. C# is a programming language that I believe is beneficial for programmers to know and understand.