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Section 1

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Musical Notation

All of the rules and ideas behind writing music are precise, well thought out, and are put in place for the end goal of producing a product that is enjoyable, and beneficial to the world. Just like musical notation, programming languages have a very similar upbringing and purpose. Each of these languages is a combination of symbols with deeper meaning, is generally written according to predetermined conventions and rules, and exists to produce a functional end product.

In musical notation, you are given a staff, and on it are placed various symbols, each with a different meaning. The type and the position of the symbol will determine the note played, and it's length, or rhythm. Then, composers have the option to add other symbols dictating the note's loudness, softness, or any of its other attributes. There are also symbols in musical notation that indicate to the musicians to repeat a certain section of the song, or to jump to another part of the song, etc… In the same way, programming languages are made up of symbols that give instructions. These symbols are words or characters that define something deeper, whether that be a memory location, a pointer to a memory location, an object, a list of CSS styling properties, etc… There are also various types of loops that will direct the computer in different directions, depending on how the program is designed. In reading through existing code, it is easy to see that there is much more going on behind the scenes.

For musical composers to accurately and efficiently communicate their full idea to the performers, they all have agreed to certain conventions and standards when writing their music. For example, everyone who can read music knows the symbol for a quarter note, and everyone agrees that a quarter note will last for one fourth of a measure. This kind of convention is

crucial, because without it communication would be almost entirely lost between the composer and the musicians. The rules that apply to writing music, are the same that apply to reading music. Similarly in programming, each language has a set of standards, which, if not followed will be rendered basically useless. The way that variables are declared, the syntax for invoking a function, etc… must be done in a certain way in order for the computer to understand what the coder is meaning to accomplish. There are syntactical errors that will not let the program run at all, but there are also errors that will compile, but still not produce the desired result. Keeping in mind that there is an end goal to all of this writing, both for music and programming, the writer must remember to follow the rules of his chosen language.

There is, however, a certain amount of flexibility involved with both types of languages once the writer has become experienced enough. A musician, after having mastered a piece of music, has the freedom to stretch the rules a little bit in order to enhance the quality of the final outcome. For example, a violinist can choose to speed up and slow down the tempo of a solo to convey more emotion, even though the strict rules don't explicitly say to perform it that way. In general, this kind of freedom only comes when the musician is proficient, and understands the rules very well. While programming is still a much different game than playing a piece of music on the violin, there is still a similarity here. When a programmer has become well versed in HTML5, CSS, and Javascript, for example, he understands that a website is great when it both works properly, and looks good. There are so many different ways to make a website look good, just like there are many ways to play a music piece, even though there are still rules to follow. The programmer can now be flexible, given his understanding of the rules, and give the website a good look and feel in whatever way he chooses.

The most important thing to remember in both programming and musical compositions, is to not let the details distract you from the end product. Both languages can be very tedious and involved, but both live to server a larger purpose. The end product of a musical composition

is a piece that is fun to listen to, and in some way makes the world a better place. For programming, code that is written is meant to make someone's life a little better, or a little easier. It is through the small details and nuances of the language and its symbols that we can produce something great.