Assignment 1: Modernizing Fortran   Drew Mainprize

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        For the first assignment, I reengineered a program that generates a forest fire weather index based on weather metrics. The task with this assignment was to modernize the Fortran program and make it more readable. Some of the tasks that went into this assignment involved converting everything to lowercase, using updated syntax that complies with the F95 standards, including removing go-to statements, labels, arithmetic if statements and explicitly declaring all variables.

        One of the biggest issues I ran into while refactoring the code was simply following all the GO-TO's and arithmetic if's that jumped all over the place. This caused me to run into a few issues in refactoring as I wasn't exactly sure of the logic that I was implementing without slowly tracing through each conditional statement. I noticed that the readability of older Fortran code was significantly poorer to the modernized code that I refactored. Also, unrelated to Fortran itself but more to the program itself was the insignificant variable names. Single letter names and double letter names that didn't give very good hints as to what data the variable was assigned to made translation difficult once again. Luckily the documentation provided with the code had most of these variables explained but there were still a few that left me scratching my head.

        Some of the features of Fortran that I found particularly nice about the language were the easy array syntax/implementation and that once the code was modernized it was very easy to follow. In C-based programming languages, arrays can be difficult to work with at times, but I was pleased to find out that Fortran had very easy array syntax and didn't cause me any issues implementing. In terms of the readability, this one is subjective. Before starting this assignment, I would have said Fortran is impossible to read and very confusing, however after modulating the code and making it appear more like a C-based language, I found it very easy to follow and the only issues I had were with the complicated formulae that the program was implementing.

        Overall, I enjoyed learning Fortran as an alternative to the main languages we see today that all look and feel very similar. With the programming background that I have, I found it quite easy to learn the logic and flow of Fortran. It was a little bit of a challenge dealing with some of the nuances of the language from what I am used to such as more complex I/O formatting but seeming as most of that was already done well by the original programmers I didn't have to deal with that too much.