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Capstone Project Report

[**wolfesamk.github.io**](https://github.com/wolfesamk/wolfesamk.github.io/upload/master)

Professional Self-Assessment

When analyzing my capstone project and the Computer Science program for Southern New Hampshire University I have several key impressions about my abilities. Before expanding upon those subjects, I always feel it is a good idea to bring attention to how I believe one should discuss their ability. When ever I must discuss my talents, abilities, or education I always strive to bring the interviewer an honest and factual interpretation. I insist that everyone understand that I know my current limits but also that I know how to expand those limits given appropriate support.

Related to the capstone project I found that my initial ability to create the project was limited. This was due to a combination of several factors, chief of which was a general lack of knowledge in how the code language LUA worked. Once I rectified this issue my limited ability to create the project towards the beginning came down to being rusty in developing a program as a whole. This ties into the Southern New Hampshire University Computer Science program as a whole quite well.

Overall the program leaves one with all the basic knowledge and ability to understand and learn on our own within the Computer Science field. I could not ask the program to do more than that. I would have liked to have more custom projects along our path as well as updated classes on several different subjects, the two that come to mind is the mobile app development class as well as the class about programing graphics using OpenGL. In both cases the majority of the class was left to struggle on our own as the professors never seemed to understand that the program IDE available to us today is not the same as what the course content guides say, and in several cases the content provided to use as a base was out of date even more so. There were several classes where this was the case but the professor had been made aware of this factor and worked hard to provide us with quality solutions so we could learn our material.

The largest impact this had on me is I genuinely have a hard time working with complex API. I understand how to do so on a technical level but being that our class to work with API was the aforementioned mobile app development class I could not get the version of Google Maps API required for following the school guides to work as Google and Android no longer supported it at all.

The benefit of these struggles and others I had throughout this program is that I am now an incredibly strong troubleshooter and update conversion specialist. While it may not have been an intended skill for me to learn I have learned it quite well.

In picking my capstone project I settled on my complex script because it would require me to learn a new programming language, specifically a sub variant of that language, utilize an unfamiliar API, and showcase my ability to manage a project from the ground up. At this point I happily present my script as a well-used work vehicle. It is not a sleek refined piece of code, but it does get the job done and has modular abilities to be adapted across more than one application.

The project as a whole helped me come to understand what I enjoy most about programming and that is starting a project at the ground level and working my way through its creation from start to finish. I am excited to present my project when ever asked by future employers.

Artifact Narrative

The artifact I have chosen to create for my ePortfolio is a singular program. Specifically custom character sheet script that accesses a local database within a Unity Engine video game called Tabletop Simulator. While there are many options out there for digital character sheets to use within Tabletop Simulator each has various issues to my eye that make use difficult. The artifact was created September 16, 2020 and I have been working on it in every moment I have had spare time.

I believe it is a valid inclusion in my ePortfolio because I am developing a full script and database on my own. There is not a school guide or other students to work with. It showcases my development skills from the ground up, including limited UI design and art asset design. My version of the 5 Edition (5e) Dungeons and Dragons Character Sheet Digital Script expands what data you are allowed to use the sheet with as well as how you input the data. A lot of the other sheets out there for the public to use require use of limited SRD (System Reference Document, the basic and limited free core rules) content to provide 5e information or as my current OpenSource one has, requirements of dropping tiny digital cubes with very specific data on them onto the character sheet within Tabletop Simulator and if you mess up you have to start all over. My character sheet, once finished, will be a raw template for anyone to fill out as if they had the papers in front of them. I am eliminating as many gimmicks as possible while retaining the functionality desired.

When developing programs I strongly believe they should stand alone as much as possible, which is why I designed my 5e Character Sheet script to be as dry as possible. It only requires you to plug in basic information and is ready for play. One of the critical features of my character sheet is the addition of custom attack rolls capable of allowing players to attack with any base attribute and a rudimentary dice roll system for rolling any miscellaneous dice during play.

I have learned quiet a lot about how LUA works as a programming language and the multitude of uses it has, especially in game design. Many of the surface level AI functions used in video games developed on the Unity Engine rely on LUA scripts to function. The greatest challenge was learning the language syntax to make it produce the outcomes desired. One example would be that in Java I could have created an array, then searched that array for both the list name and the list contents for a desired query and then specifically pulled the list name. While that is possible with LUA, it was not done in near the same way and I spent several frustrated hours working on it.

Also through the development of this script I have learned that creating an entire complex program within a single object for a program is an insane idea and became incredibly messy very quickly. I have done my best to annotate with comments as well as organize the flow of the functions to the best of my ability but there will always be a slightly better way to order the program.