Southern New Hampshire University

CS-499 Computer Science Capstone

Professor Brooke

ePortfolio Artifact Three Submission

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A. Briefly describe the artifact. What is it? When was it created?

The artifact I’ve selected for this final submission is the same as the previous one, a project from course IT-145: Foundations in Application Development, where employees of a zoo authenticated themselves and were given access to a file depending on their authorization.

B. Justify the inclusion of the artifact in your ePortfolio. Why did you select this item? What specific components of the artifact showcase your skills and abilities in software development? How was the artifact improved?

I chose this artifact because for the previous milestone, I chose to improve the encryption from MD5 to an XOR encryption using a key. For this reason, I chose to further upgrade this system to use a MongoDB database instead of keeping sensitive data in text files. This achieves a more secure system. I also made this program more modular and reusable by adding classes that can be used with minor modifications for other applications beyond a zoo. I added a class specifically made to interface with the database so the other classes didn’t directly interact with the database, limiting the number of requests made to the server to only when absolutely necessary.

C. Did you meet the course objectives you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?

I did meet the course objectives I planned to meet with this enhancement. This artifact meets three course objectives: proficiency in data structures/algorithms, proficiency in software engineering/design, databases, and lastly employs secure coding practices. The proficiency in data structures and algorithms is met in the Encryption.java file as I improved the algorithm and am using an XOR encryption algorithm. This increases the security so it also achieves the secure coding practice objective. The program was upgraded to include the use of a database as opposed to plain text files to store the user credentials and access levels which meets the proficiency in databases and again the proficiency in secure coding practices.

D. Reflect on the process of enhancing and/or modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?

Although I enjoyed working on this artifact, this was likely the most time consuming artifact I had. Before I could even begin coding, I had to setup and configure the database using MongoDB’s cloud solution. I also had to take the time to learn the MongoDB Java driver, BSON, JSON, and BSON Document objects because they would be used while coding. This proved to be an issue because my earlier difficulties with my previous artifact selection left me with limited amounts of time to actually work and prepare on this artifact. I feel as though there are a lot of improvements and changes, I could make to my artifact to make it work better. I feel as though it’s just in a working state which is a mistake on my part by undertaking such a large task in such a short period. If I had chosen this particular artifact from the beginning, I could have begun work on it much earlier. This is a lesson to me in preparedness and adaptability. I need to remember to get as well-prepared as I can ahead of time. In terms of adaptability, I believe I managed the change well but there is room for improvement. In the real world, there are sudden changes that will need to be adapted to, so I believe that although not my original intention, the experience was beneficial for me. Overall, although challenging, I was successful in my artifact update and will try to make more changes to it for when the time comes to seek employment and demonstrate my abilities through this portfolio to future employers.