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CS-499

February 17, 2025

Professional Self-Assessment

Creating a professional portfolio is important for my future endeavors in many ways. The biggest way is that it allows me to showcase my abilities and talent in various key aspects of software development and design. The artifacts that are included in my portfolio come from the courses in the Computer Science program, and each represent my understanding of the subject matter. Through the creation and finalization of my portfolio, I showed that I am able to properly design, develop, and deliver professional quality written and visual communication.

One of the first things we did on this course was to identify and design an enhancement plan for the projects we had selected. This phase consisted of performing an informal code review. Prior to this course I hadn't done many code reviews that others would see, so I had to ensure that my review focused on the most important aspects of the enhancements while still going over everything else. Code reviews are useful ways to identify errors and possible solutions. They promote collaboration between developers by creating discussion about a system. The code review was a walk through of my three projects that I was going to enhance, along with an analysis of the current system weaknesses, limitations, and vulnerabilities and the planned improvements. Through the code review video, I continue improving my ability to deliver professional quality communications to effectively create a collaborative environment which is adapted for specific audiences and contexts.

My first enhancements were to my CS-360 project which was to design and create a mobile android application. The project involved the entire software design and development lifecycle. My application is an inventory tracking system that allows the user to create, read, update, and delete items from their inventory. Furthermore, the system uses the android session manager to keep users signed in and the android notification system to send users updates about their inventory. This project was created using the Android Studio IDE along with JAVA and two SQLite databases. The project allowed me to demonstrate my ability to create a system that is not only technically sound but also adapted to specific audiences and contexts. Through the design and development of the project I was anticipating potential users' needs by integrating features that offer additional functions they may want or need. The system is also created in a way that will allow future updates or features to be added to the system with minimal changes to the current functionality. Since the application runs on Android 14 there were limitations that I had to stay within and leverage the system and device limitations along with the Java limitations. Since Android 14 has some differences in how it interacts with databases, ensuring that the system properly sent queries to them was important. Other things like the app permissions had been updated and required adjustments to work properly. Creating a secure login procedure for the application also ensures that only authorized users are given access and only they stay logged in. If the user chooses to log out, then the system erases their shared preference profile and will send them back to the login page. Lastly default values were set for each of the three item fields. The system first verifies that the input is valid, if it is not then the system will pass in the default values. By anticipating potential exploitations in these enhancements I am able to prevent them before they happen.

The second enhancements were for my IT-145 project, which was selected for category two, algorithms and data structure. The artifact highlights my approach and evaluation of computer solutions that solve a specific problem. I demonstrated various skills with the artifact. The first is my overall understanding of system logic and how it relates to data structures to create a proper object-oriented system that adheres to industry standards. It also demonstrates my ability to manage data directly from an application itself and manage the various system resources to process items faster, while reducing strain on the system overall. This artifact is a JAVA program, so it further shows my proficiency in the Java programming languages as well as my ability to use the various features that the Eclipse IDE has available. This artifact uses the best Java programming practices, such as inheritance, to properly design a system that is scalable. By updating the system from an Array List to a HashMap the system can manage its memory more efficiently while keeping resource usage low.

The final enhancements were for my CS-340 project which was to create an animal database with a user interface. This artifact was chosen for category three, databases. This enhancement was to move the database and interface from a Linux system to the Windows system. The artifact consists of the animal database, a testing class, a driver class, a user dashboard, and a README file. Through this artifact I demonstrate various skills. First the system is created using Python and MongoDB, so it shows my ability to create a Mongo database, while also connecting to it through a separate program, such as my Python driver class. It demonstrates my ability to test the various system functions via the testing class. Through the README file it allows me to show that I can create proper system documentation for technical and non-technical users alike to ensure the system can be installed on their local machine. By creating the user dashboard I demonstrate my ability to use well-founded and innovative

techniques to implement a computer solution that delivers value and accomplishes the goal of giving users a way to easily view the database's information.

Overall I find that my ePortfolio properly demonstrates my abilities to meet all the course outcomes. Through the code review my ability to employ strategies for building collaborative environments was demonstrated. I was able to design and evaluate computing solutions that solve specific problems through the user of algorithmic principles and computer science best practices and standards while managing system requirements. My enhancements all maintain a level of security that ensure that no unauthorized commands can be done, while also ensuring that input is validated before being accepted or passed to other connected systems. Furthermore, my enhancements seek to offer innovative solutions to specific audiences and/or contexts through the use of programming standards and system requirements to provide a cohesive system that provides value.