MODULE 7 Professional Self-Assessment

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In 2021, I completed coding courses focusing on full stack development using Python (Django), Java (Spring Boot) and MERN. But after completing these courses, I had very superficial knowledge of programming languages, algorithms, and development tools, so in January 2023, I decided to join the Computer Science program to improve my skills in software development. During this time, I improved my understanding of the concept of object-oriented programming (OOP). I also learned about the software development lifecycle (SDLC), workflow, coding standards and industry best practices for writing high-quality, maintainable, and efficient code. I applied these concepts and improved my coding, debugging, and troubleshooting skills in the projects we worked on throughout each course.

During my previous experience as a sales engineer, I have proven my abilities to employ strategies to create effective collaborative environments which are intertwined with professional, high-quality communications that are appropriately tailored to the specific audiences and contexts. I have strong organizational and time-management skills to multitask under time constraints. I also understand the importance of developing a culture where security is a priority, where everyone is actively involved in proactively remediating vulnerabilities and building robust software systems. I believe that a combination of programming, development skills and experience, as well as strong organizational and time management skills, can be applied at each stage of the SDLC, ensuring effective planning, design and development of higher quality software projects.

My major is Software engineering. I found it more interesting to work as a software engineer focusing on building web applications using the Python-based Django framework. As I

learned, Django developers need strong Python programming skills, familiarity with the Django framework, knowledge of MySQL database, and frontend technologies such as CSS, JavaScript and HTML. That is why, in my capstone course, I decided to implement artifacts from three categories and combined all enhancements into one project. My final project integrates the knowledge and skills gained and developed over the years of studying Computer Science at SNHU. It reflects my growth as a Software Engineer and demonstrates my skills with high-quality results in three categories: Software Design and Engineering, Algorithms and Data Structures and Databases.

Though the computer science program and the CS-499 assignments, I increased my abilities to learn new skills in a short period of time. During the program, I didn't have the opportunity to work on projects using the Django framework, but the skills I have acquired over the years helped me get started with a project using the official Django documentation and sharpen my computer and technology skills. In the Software Engineering and Design category, I expanded the complexity of the artifact from CS-465: Full Stack Development. I demonstrated the ability to collect requirements for a new system, determine necessary functionality, and use innovative technical skills and tools to develop a software application that solves a given problem. I applied my knowledge of logistic industry and designed a Python software application that will help manage equipment information, driver files, and accounting information, such as basic payroll calculations and rout planning.

In the Algorithms and Data Structures category, the idea was to develop and evaluate computational solutions that solve a payroll problem using algorithmic principles and computer science practices and standards appropriate to the solution, while managing the trade-offs associated with design choices. In payroll process, I aligned business goals with user needs to

create a positive experience. By ensuring the application was intuitive to use, I was able to optimize a complex payroll problem in an effective and logical way.

To achieve the course outcomes in the Databases category, I expanded the complexity of CS-465: Full Stack Development course and demonstrated the ability to use well-founded and innovative techniques, skills, and tools in computing practices for the purpose of implementing computer solutions that deliver value and accomplish industry-specific goals. The Django framework uses MySQL as a database backend through an Object-Relational Mapper (ORM), that allows interaction with the database using Python objects. In my project, I defined the structure of the database tables by creating five models (driver, truck, trailer, load, payroll), and I linked the Driver model and the Load model (same as Driver and Payroll) using a ForeignKey relationship to represent the connection between these entities. This approach allows applications to access and manipulate related data within defined relationships, which was very helpful in solving the payroll problem. Overall, adopting more advanced MySQL concepts can significantly improve database management skills and allow developers to build more efficient, scalable, and secure applications. This is essential for optimizing resources and reducing infrastructure costs, as well as managing the trade-offs involved in design choices.

References

Django. (2025). *Django Documentation.* https://docs.djangoproject.com/en/5.2/

SNHU Media. (2024, May 23). *CS 499 Milestone Two Code Review Overview Approach Assistance.* https://www.youtube.com/watch?v=229TiLwyipI&ab_channel=SNHUMedia