Summative Assignment 3 –Reflection on Secure Software Development

Author: Simon Bolder

Word Count: 1002

SSD link - https://sbolder77.github.io/Portfolio/ssd.html

ePortfolio - https://sbolder77.github.io/Portfolio

This is my reflection summarising my experiences upon completing the Secure Software Development module of the Postgraduate Certificate program in Computer Science. It discusses and analyses what has been learned through critical analysis of the work completed. Furthermore, my participation in team and collaborative activities and the impact on my personal and professional development using reflective practice as defined by Rolfe et al. 2001, to evaluate my learning through the SSD module.

The completion of the SSD (Secure Software Development) module has allowed me to extend the learning achieved in the OOP (Object Oriented Programming) module. I have achieved a greater understanding of the use of several security practices, protocols and methodologies in modern application development and architectures. Additionally, understanding the SDLC (Software Development Life Cycle) and the use of Scrum and Agile has given further clarity on the application of these methodologies in software development. The most rewarding aspect of the module and the various activities was the development of a secure application and more specifically an API as part of the team development project. From design to development and taking responsibility for the API it allowed me to learn new and develop existing skills. It enabled me to analyse and troubleshoot development issues and consider libraries and features of the Python programming

language beyond the criteria of the assignment. One of the criteria was to use Flask for an API. Kornienko et al. 2021 discuss in detail the capabilities and definitions of Restful API development. I was able to use this research to select an approach to API development using FastAPI and discuss with the team how it related to the project and the benefits compared to Flask. This also allowed me to provide positive and constructive feedback on the final outputs of the development assignment as well as reflect on the agreed approach versus the original design. This developed my problem-solving skills and decision making allowing me to produce more effective code across the full solution. By being pragmatic and applying these decisions I was able to further understand and appreciate the development process. Additionally, asking for peer feedback on my development, providing feedback on others' work and interacting with the team created an efficient working environment further developing emotional intelligence.

In addition to the summative team development project the module also consisted of formative discussions, forums, coding activities and written assignments. Completing the assigned tasks and the overall module proved to be very fulfilling as I was able to use a lot of my professional experience alongside newly learned skills and knowledge. Critical thinking played a large part in these formative activities as well as the final development project as I had to consider the complexity of certain aspects and devotion of time to specific tasks. However, on reflection, I could have invested more time in the reading materials and formative assignments. Given the scale of the team development project I invested more time and prioritised the summative assignments and as such improvements could have been made in the additional assignments. My time management was tested by balancing study, work, and family commitments however, I think I approached this

well by scheduling meetings for the team therefore structuring my time. As we divided the work on the team development, I felt I could have been more hands-on with other development tasks my peers were working on but also had to remain mindful of my peers' learning and contribution to the development. I do feel however that my understanding of APIs, their use and technologies is now much greater than before and will benefit me in future learning and my professional career.

Collaborative work was a significant part of this module. Drawing on my technical experience and professional skills I was able to take an active lead in the technical aspects of the project and support my peers by encouraging participation through active listening and feedback. The team held regular meetings outside of working and study hours which allowed me to keep a log of meetings, discussions and decisions made. By actively taking the lead on some of these calls as well as allowing others to take the lead the team were able to identify strengths and weaknesses. Through honest and fair discussion and feedback we were able to quickly identify and allocate tasks fostering strong collaboration and teamwork. The meetings also allowed individuals to raise concerns and ask questions. I was also able to support my peers on several individual 1:1 calls to discuss various technical queries around the use of GitHub and collaborative development.

Completing the SSD module has further enhanced my professional development as well as my technical understanding of computer science and the real-world application of APIs. I have developed my emotional intelligence through discussions with peers and lecturers as well as dealing with and understanding people, their emotions, and skills on the team assignment. This development will support me further in my career and professional development outside of study. It

has also encouraged me to actively continue my self-learning and study in my career, especially around software development and practices.

Finally, the development of my ePortfolio has been challenging but ultimately rewarding. Through constructive feedback, I have adapted my approach to the structure, content, and features from the previous module. It has allowed me to understand the importance of balance between objectives, how this is reflected in the ePortfolio and how it is presented to prospective employers. Building on the existing structure of the ePortfolio additional technologies and features were used including JavaScript to present content and a deeper understanding of HTML development. These tools and understanding will allow me to incorporate more of my content from professional experience in addition to Postgraduate learning. Through the experience of this module, I have made several conclusions. Technological learning, problem-solving, perseverance and teamwork are all important aspects of any development project. By understanding these conclusions, I will ensure I apply them in my career and will commit to developing myself personally and professionally through continuous learning.

References:

Rolfe, G., Freshwater, D. & Jasper, M. (2001). Critical Reflection for Nursing and the Helping Professions: A User's Guide. Palgrave.

Di Silvestro, F. & Nadir, H. (2021) The Power of ePortfolio Development to Foster Reflective and Deeper Learning in an Online Graduate Adult Education Program. Adult Learning 32(4):154-164.

Kornienko, D.V., Mishina, S.V., Shcherbatykh, S.V. & Melnikov, M.O. 2021, Principles of securing RESTful API web services developed with Python frameworks. In Journal of Physics: Conference Series (Vol. 2094, No. 3, p. 032016). IOP Publishing.