https://rocap87.github.io/Roberto-PGCertportfolio.github.io/generic%20Secure%20Software%20Development%20(Computer%20Science).html

Reflective piece (Word count 1042)

This report presents my reflections on the module “Secure Software Development” (SSD). The layout focuses on the main learning activities that captured my attention and how the skills I acquired have and will influence me personally and professionally.

I started this module with a lot of excitement because I was very interested in learning about the different aspects of SSD, including the risks associated with the choice of programming language and the techniques that can be used for code testing and validation. This was important to me both out of personal interest as a programmer and professionally as a Cyber Senior Research Analyst.

Collaborative discussion 1

In the first weeks of the module I was involved in a collaborative discussion for which I had to choose one of the coding weaknesses identified by the OWASP and create a flowchart showcasing how it occurred.

I found this activity exciting for two reasons:

- I could apply the knowledge acquired in the module “Object-oriented Design” to create a sequence diagram for my discussion.
- Two months before beginning this module I started my role as Cyber Senior Research Analyst in the financial sector. At the time I was reading a lot about numerous cyber events reported in the financial industry. The activity made me realise how most of the events I analyse and discuss at work are connected and caused by weaknesses identified by OWASP.

Thanks to this activity I discovered OWASP, which led me to review the cyber event definitions currently in use by my organisation and our clients. I prepared a proposal to update some of the definitions, which are currently mainly based on the NIST framework, by adding some definitions referencing the OWASP and MITRE frameworks.

Moreover, I found the posts of my peers interesting to read and comment on. It gave me the opportunity to see how they approached the topic and what kind of UML diagrams they created to showcase the chosen weaknesses. I enjoyed reviewing these to reflect on whether I would have chosen the same representation.

Team design document and coding output

The core module activity was a group project as part of which we had to develop an application providing a secure repository for an organisation. I found this activity challenging yet incredibly useful and engaging. For the first time in my academic career I participated in a remote group project with students living in different timezones and with different professional and academic backgrounds.

It was fundamental to find a suitable time slot to meet weekly and ensure that everybody could attend, which we were able to do. Our group consisted originally of five students but, unfortunately, one student left the course after one week. I was concerned because of the workload of the assignment but, in retrospect, I believe that this event turned out in our favour. Everyone in the remaining team was pulling their weight to prove that, despite losing a member, we could deliver a good project outcome.

The design document we had to create benefitted from our different knowledge and backgrounds and each of us could put their own experience to good use. We were all conscious that the document was fundamental for creating the right coding output.

The five weeks while working on the coding output were intense. It was the first time I was working on developing an application and I was aware that I had to rely on our team leader to understand how to approach the activity and meet all the requirements.
The group decided to write the application in react.js, which is a Javascript library used to build interfaces (Reactjs.org, 2019). I was concerned that I had never used the language before and wanted to make sure that I delivered the right level of contribution to the assignment. I am an ambitious person and give not up easily, and so I decided to put in the extra work to understand how to write in react.js.

The extra study, in combination with support from our group specialist to clarify certain concepts, helped me in actively contributing to the coding output. I particularly enjoyed creating the validation scripts for our code. At the end of the activity I was very happy because I was able to learn a new language and understand the logic behind it. More importantly, I was able to contribute with good quality code to the realisation of the

application.

Overall considerations and future plans

The module was very intense and the group project needed most of my attention. I found some of the other activities more interesting than others. I preferred the testing activities on Codio and the implementation of the recursion and regex over the collaborative discussion on the case study on Truecrypt. I think the reason is that some activities and topics are more relevant to my current occupation.

The module made me realise how important it is to manage time for work, study and leisure. On more than one occasion I felt overwhelmed by the volume of work required for the module because of the amount of activities and reading materials, some of which I found quite technical. I found it appropriate for a full-time student rather than a remote part-time student in full-time employment.

The only way I found my work, study and private commitments manageable was by applying an iterative agile approach. Knowing the SCRUM approach to System Development Life Cycles, which requires a good level of communication with other team members, the sharing of tasks, and daily communication about any progress (My-course.co.uk, 2020), helped me to stay on top of work and study. Moreover, I gave more consideration to planning my working hours, having time to study in the evenings (often until late at night), and being able to help my wife and enjoy some time with our newborn.

I started the PGCert Computer Science because I wanted to change my career path and during the second module I started my new job. I now plan to use the knowledge acquired

during the module in my research and analysis in the cyber security field. It helps me to better understand risks, weaknesses, and exposures, which also benefits the discussions I have been having on risk and IT investment trends in the financial industry.

REFERENCES

My-course.co.uk. (2020). *Introduction to Secure Software Development*. [online] Available from: https://www.my-course.co.uk/Computing/Computer%20Science/SSDCS/SSDCS%20Lecturecast%201/content/index.html#/lessons/Vk4-hjj0_ei6J421yEa2T_MPurNqq6Fo [Accessed 1 September 2022].

Reactjs.org. (2019). *React – A JavaScript library for building user interfaces*. [online] Available at: https://reactjs.org. [Accessed 2 September 2022].