Cyber Security research essay – research intro prior knowledge about Cyber Security concepts

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# Introduction

Coming into this semester I expected most of the information to come from the ICT & Infrastructure field. Therefore, I went back to the Infrastructure Engineering Orienting course from semester 1 on canvas. Given that this was my first and last contact with Infrastructure concepts, it was the sensible step to take. The main purpose was to remember as many concepts as possible before the start of the specialization semester. By doing so, my work throughout the semester has become significantly easier. This semester has been a difficult one for me given that I have only done software engineering at a more advanced level. Re-reading some security concepts has helped me understand the new topics much faster than normal, which means that I would start working on the practical assignments quicker, since the time for theoretical study had reduced.

# Topics that returned in semester 4

* **Operating systems and virtual machines**

This is where I have had the very first contact with a virtual machine. I learned what it is, how it works and why it is useful. Going back through the exercises I made and the topic learned was helpful because most of my work in semester 4 has been on one or more virtual machines.

* **Introduction to networking**

As the title says, this has been an introduction to network layers (TCP/IP), along with an explanation about what a network is. It was my first contact with Wireshark, a program that I will extensively use throughout semester 4. I learned the basics about it and because of that I was able to jump straight into the Wireshark exercises without having to stop and study it first. This workshop contained explanations about protocols, information about Linux, and Netkit.

* **Internet protocol and network devices**

This was a deeper dive into the internet protocols. After a brief explanation of TCP/IP, this workshop talked more in detail about IP, ARP and ICMP. Along the way, I would remember more and more useful Linux commands.

* **Transport protocols: TCP and UDP**

Another workshop that proved to be useful, given that I have been working with TCP on my Body of Knowledge documents and with UDP during the second phase of the group project. The slides from that lesson helped me remember what these protocols are and how they work so I can have a better understanding of what I have been requested throughout semester 4.

* **HTTP**

This lesson contains information about the Client-Server model. It explains how the HTTP protocol works in detail, containing information about HTTP flow, requests and responses. JSON is also explained in those slides, another useful topic for not just this semester, but for all that followed.

# How this research helped me

By investing time at the very beginning of the semester, I saved time throughout the rest of the semester. Not having done anything related to ICT & Infrastructure, I did not really remember much of the topics related. By looking at the old slides and exercises that I did, a lot of information came back and that helped me understand the new concepts better and quicker.