Networks and Security

Group Work- Confidentiality, Integrity, and Availability.

Members: Saqib, Aisha, Jeremi

Chosen Case B

Case A – Confidentiality- A massive data breach , attackers gaining unauthorised information

Case B- *Integrity- Stuxnet was first detected in June by a security firm based in Belarus, but may have been circulating since 2009 to late 2010. A sophisticated worm to steal information, this could also be confidentiality as well since information was taken*

The worm targets systems that are not traditionally connected to the internet , it infects windows machines via USB keys Once it has infected a machine on a firm's internal network, it seeks out a specific configuration of industrial control software made by Siemens. Once hijacked, the code can reprogram so-called PLC (programmable logic control) software to give attached industrial machinery new instructions.

https://www.bbc.co.uk/news/technology-11388018

As analyzed by computer security experts around the world, Stuxnet targeted certain "supervisory control and data acquisition" (SCADA) systems manufactured by the German electrical company Siemens AG that control machinery employed in power plants and similar installations. More specifically, the worm targeted only Siemens SCADA systems that were used in conjunction with frequency-converter drives, devices that control the speed of industrial motors, and even then only drives that were made by certain manufacturers in Finland and Iran and were programmed to run motors at very specific high speeds. This combination indicated to analysts that the likely target of Stuxnet was nuclear installations in Iran—either a uranium-enrichment plant at Naṭanz or a nuclear reactor at Būshehr or both—a conclusion supported by data showing that, of the approximately 100,000 computers infected by Stuxnet by the end of 2010, more than 60 percent were located in Iran.

https://www.britannica.com/technology/Stuxnet

Primary Impact: Integrity was significantly compromised in Case B .

Justification: Integrity is guarding against improper information modification or destruction. In Case B a sophisticated worm was designed to steal information and also cause physical damage . It targeted control systems and causing them to subtly malfunction and destroy themselves

Secondary Impacts : Despite the main principle of integrity being violated , we could also argue that the principle of confidentiality was also compromised . This worm was not only used to cause physical damage but also to steal information. Since the worm may have been circulating since 2009 to 2010, it is very possible that the worm was also stealing sensitive information.

C – availability- targeted the main infrastructure , causing traffic

D- availability- massive amounts of sensitive

E-integrity- A Russian-affiliated cybercriminal group exploited a previously unknown ("zero day") vulnerability in a popular file transfer software called MOVEit. This allowed them to steal massive amounts of sensitive data from thousands of organizations worldwide that used the software

F-integrity

2. Assessment Introduction

Graduate Software Engineer - AlphaSights

AlphaSights is a global expert-network / knowledge-on-demand service.

It connects clients (especially investors, consultants, corporates) with subject-matter experts to help with decisions, market understanding, diligence, strategy, etc.

Oliver Bernard - Software Engineer - Computer Science Degree

Oliver Bernard is a specialist technology recruitment & talent solutions firm.

Enlighten Supply Pool - Computer Science Teacher

A teaching job for secondary school students for computer science.

	Skills / Qualifications	**I have this Skill**	**Evidence / Sample**	**How To Develop**
AlphaSights	• You are pursuing a degree in Computer Science • Proven track record • You have practical experience, • Highly driven and proactive • Meticulous	I am pursuing a computer science degree I do not have a track record or practical experience because I have struggled to get an internship or a job at these companies. I am highly drive and meticulous	I am currently studying at Goldsmiths and so far I have done well in my modules, I have struggled in some , but I strive to get better	Apply for internships and challenge myself to boost my skill sets when I am completing coursework
Oliver Bernard	• Experience working with React, TS, Next.js	I have done projects in React and Node.js as	I am currently studying at Goldsmiths and the work I	Apply for internships and challenge

	(commercial or personal) • Worked or experimented with LLMs would be a bonus • AWS experience would also be a huge bonus • Must have a Computer Science degree	personal endeavors. I have not done any work relating to LLM's or in AWS I do am working towards completing my computer science degree	have done is on GitHub	myself to boost my skill sets when I am completing coursework Consider doing projects using LLM's to build skills needed to work with them
Enlighten Supply Pool	• Full-time Computer Science Teacher position with full teaching responsibilities • Suitable for candidates with prior Computer Science teaching experience • Paid to scale in line with current teaching ability • Teach Computer Science across KS3, KS4, and KS5 • Join as an enthusiastic, highly motivated member of the Computer Science Department • Must hold the legal right to work in the UK	I have experience with teaching in a previous job during my gap year	The job is posted on LinkedIn along with a review form a senior member of the company	Research routes into teaching and working with students . Maybe apply to volunteering opportunities that included teaching.

	• Must have a valid, up-to-date DBS check • Must provide a CV • Previous Computer Science teaching experience required			

Action Plan

1. Research into pathways into teaching and possible internships in different companies.- discuss with the career team
2. Consider working with LLMs in projects to build in skills.- familiarise with ai applications – for marking or student interactions
3. Apply for volunteering opportunities – shadowing for a term , emergency covers .

Joint Reflection:

Discussed with the TA :

Upon review of my research and skill set, research is integral. To be successful in this regard, networking is key, and building a strong portfolio is what will help boost my position with employers. A possible guide would be the career team at Goldsmiths to help me find people and jobs in the industry. Secondly, familiarising myself with AI applications, specifically in the teaching sector , such as what is used for marking or student interactions, can also help in understanding LLMs better and working with them. For teaching opportunities, I can ask to shadow for a term or cover for emergencies in order to gain experience.