

# Internship Portfolio



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# Summary

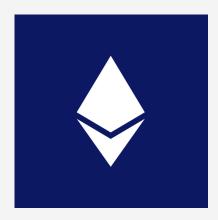
#### Cale Budd: Internship Portfolio

My role as a business management intern with Security Lit started on the 15th of November 2021 and included 400 hours of work over 10 weeks, concluding on the 11th of February 2022. My work at Security Lit was varied and was spread across three main areas: an eLearning project, an NFT project, and penetration testing. I was involved in both administration and technical work including report writing, research, meetings, financial planning, public speaking, programming, and penetration testing.



#### **eLearning Project**

My primary task throughout the duration of the internship was to prepare a business plan including financial forecasts and marketing planning for an online cybersecurity education platform Security Lit plans to develop.



#### **NFT Project**

A secondary project I was involved in was an NFT artwork project where my tasks included programming, working with smart contracts, and working with the IPFS protocol.



### **Penetration Testing**

The final part of my internship included learning and applying penetration testing skills by identifying technical vulnerabilities in clients' websites and generating reports based on these findings.

# eLearning Project

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At the beginning of my internship I was introduced to a concept of an online cybersecurity education platform that I would be creating a business plan for. This would be the primary task for the duration of my internship and I would work on this report whenever I had no other tasks to do and was given the duration of my internship to complete this. In addition to writing the plan I was also tasked with arranging funding and conducting primary research through presentations and surveys.



### Final Report

The final business plan was 7,000 words and was entirely created by me during my time at Security Lit. This project was challenging as it was a new idea for Security Lit so the project lacked clear planning and direction. Creating the plan required significant market research, financial planning, graphic design, and product testing.

### **Presentation**

This PowerPoint was created by me in support of my presentation to the Ethical Hackers of Aotearoa group. The presentation aimed to provide insight into what people wanted from the platform. It involved speaking about the platform and then seeking feedback from the group to incorporate into the plan.

### **Funding Application**

Another aspect of creating the business plan was arranging funding for the project. With online platform development costs being extremely high, part of my role was to apply for funding the platform qualified for. This involved research into opportunities, video calls with potential funding organisers, and submitting funding applications.

# **NFT Project**

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The second biggest task I had during my internship at Security Lit was working on multiple aspects of an NFT project. My work on this project included programming art generation, uploading images and metadata to IPFS, connecting a smart contract to the images, and testing the smart contract on a test network. These tasks required me to learn a lot about JavaScript, Solidity, and IPFS as these were all new concepts to me with steep learning curves.



### **Art Generation Programming**

My first task in the NFT project was to generate 10,000 images and metadata files from a collection of layers drawn by an artist. I used an existing tool written in JavaScript to do this, however the tool did not do exactly what Security Lit needed. I modified the program and added features to the program to generate the images.

### **IPFS Upload**

My second task in the NFT project was to host all 10,000 images and metadata files on IPFS (interplanetary file share). This was a challenge because most upload services had limits on file size or destroyed directory structure. To overcome this I used tools to compress the images and metadata and upload them in content-addressed archives.

### Smart Contract Testing

My final task within this project was to link a smart contract (written by a developer) to the images and metadata I had uploaded. This was a challenge because the original code did not link to the images automatically. This meant I had to modify the code written in Solidity to link the images and test the smart contract on a test network.

# **Penetration Testing**

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The final and most stimulating aspect of my internship at Security Lit was penetration testing. This is Security Lit's primary operating activity which involves testing a client's website or network for vulnerabilities, writing finding reports, and advising solutions. I was involved in the penetration testing process for a client from the initial introduction meeting, through physical testing, all the way to writing the final report. The final report is 3,500 words long but is unavailable to be shared do to client confidentiality.



### **Onboarding Client**

To onboard a new client for penetration testing there are lots of meetings and documents which outline the scope and agreements for testing. Part of my role was attending introduction meetings and overhauling the forms for onboarding clients. This involved designing and creating new forms that captured all necessary information.

### **Penetration Testing**

Penetration testing requires a lot of cybersecurity technical skills to attempt to break into a network and this was my first opportunity to test my skills in a real engagement. I was part of the core testing team which required a mixture of manual testing and use of automated tools to find and exploit vulnerabilities.

### Final Report

My final role in this part of my internship was to create the final report summarising our findings from the penetration test. The report had to be delivered within a time frame and to a high standard. My role was to collate all the issues we had found into one document, format it, and provide appropriate recommendations to the client.

### Discussion

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My time spent at Security Lit was extremely beneficial for my own personal, professional, and technical development. I worked with a talented, multicultural team over a mixture of tasks both inside and outside my comfort zone. The way Security Lit approaches something new is with determination to learn and this was an awesome culture to be a part of. This experience has also made me sure that a management role in the technology field is what I want to pursue. My role at Security Lit provided perfect balance between business and technology which made the 10 weeks pass extremely quickly.

My favourite part of the internship was the penetration testing part as it incorporated all of my technical skills and my business skills. It required a professional approach to meetings, guidelines, and contracts, then utilised technical skills for testing, and then required report writing skills for both depth and clarity in the final report. I found this internship to be really insightful due to the depth of involvement I had in the company. Being a small business meant that often everything was out in the open and I had the opportunity to see the bigger picture rather than just working on an individual aspect. This is both refreshing and motivating and will be invaluable insight for me moving further into the business world.

I was fortunate enough to work with a team I respected and who treated me with mutual respect. As a result I have been offered a further contract position with Security Lit with details yet to be confirmed.



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