

Project Report

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Introduction

This document will be covering the final submission of my Project. I will discuss a description of the submitted project and cover what I achieved and what I did not achieve. I will also cover any issues I encountered while doing this project and how I worked to resolve them as well as review how I felt the project went and what I would do differently if I were to start again. This report will also provide the technical and personal learning outcomes.

Description of Submitted Project

What you achieved

The project that I will be submitting will have the following features and code

- Registration
- Login
- Logging
- File Selection
- Directory Copying
- Hashing
- Manual Encryption/Decryption

The features listed above are what I have got working within my project, the only two that are here that were not originally planned are the Hashing and the Manual Encryption/Decryption both were added near the end. The first 5 functions also all work off a basic GUI I created myself.

What I did not achieve

Some features that were originally planned for this project, but I was unable to achieve include:

- Metadata Collection
- Geo Coordinates from Metadata
- Brute Force Decryption
- Automatic Encryption/Decryption

I also did not achieve the level of GUI I was hoping to achieve as I struggled to create a GUI as it is not something I was very familiar with when beginning this project. I would have hoped for a much more complex and visually appealing GUI but was unable to do so.

Learning Outcomes

Technical Outcomes

For this project I had chosen to create it in Python which to me was a new language, a lot of the base code itself was not difficult but learning the new language and all its rules caused a lot of issues throughout the process but over the duration of this project I have familiarised myself these rules and the way Python functions. A good portion of the development time consisted of Learning Python and trying to find resolutions to issues online when I was not 100% certain of some terminology.

Although I had done a basic GUI for a calculator before I was no confident in my ability to create a GUI for this project, but after using many online resources I managed to learn the basics of GUI creation in Python through the use of TKInter. Originally, I had tried to use QT creator for my Python GUI but had run into too many issues with this, so I switched to using TKInter. Now I am a lot more confident in my ability to create a basic GUI and potentially given more time create a much more advanced GUI.

Personal Outcomes

Over the course of this project, I learned many lessons, the biggest of these for me was learning to be more organized and to keep to a planning schedule. This was something I struggled with at the beginning but over time I got better at this. Having my weekly plan organized and what work/research I had to do each week was incredibly important especially when we had a lot of other projects given to us and trying to manage that work with the project would not have been possible if I had not planned my weeks in advance.

This project came with a lot of challenges that I had to face, and I had to learn how to work better under pressure and the fact I was learning a new programming language I had to improve my research skills immensely. Also knowing what information to use off the internet was something I had to learn as many different people have different perspectives on how certain things should be done.

Review of the Project

Development Challenges

One big challenge when it came to the development of the application was the fact, I had never used the Python Language before, so trying to create a project using python provided a big challenge, especially in the early stages. Nearer the end of the project as my understanding of python grew, I was able to get more code working. Although it was a bit of a setback learning Python will be a great asset to have going forwards. With many online resources such as Stack Overflow being freely available.

Another setback in development was my access to consistent Wi-Fi, as where I live has very temperamental Wi-Fi connections, there were days where I could not gain access to the internet and this put a serious halt to my progress on certain days as if I ran into an error I was unable to find online resources for assistance until a day later, this meant some weeks I was able to get more done than other and it was really disheartening to not be able to do anything on days I had intended on doing a few hours of work. I tried my best by trying to fix errors myself through trial and error but in some situations, this causes more issues than it fixed.

Report of any differences from my earlier design, and any additional research that was required

When I started this project, I did not realise how much research would be required to get some features working, due to this my end product is drastically different to my original vision. This was mainly due to the features I had hoped to have working causing so many issues. One big difference is I had hoped for automatic encryption/decryption in my application but was unable to get this working, although I did manage to get it working manually. While my main aim was to have this application work specifically on a desktop connected to a mobile phone it also works on the desktop itself.

My original view for the GUI also did not come to fruition due to many errors and complications it was causing me. So, the end product is a very simple basic GUI.

What I would do differently if starting again

If I were to start this entire project again, I would organise my time a lot better, I now know which parts of the project require a lot more time and research so I would start the actual coding earlier as I had only started in December, also my understanding of Python is much now and having found very useful resources I believe I would be able to get all of the features working correctly. I also stressed out a lot about the GUI which hindered my development, and I would focus less on that until the end once I had all the features going.

Over the course of the year, we were given many projects for other subject, and I poorly managed my time which led to me falling behind schedule, starting again I would try to not fall as far behind as I did. I would also focus the project less on targeting a specific device which was the original intention and have it work on a broader array of devices but also work on multiple Operating Systems. Asking for assistance earlier on in the development is something I would do as there are just some errors, I was not able to solve by myself and they really held back the development and my own progress for the project.

More research early on especially regarding how calling classes works in python as they are something I left a bit last minute. This would be extremely important as it would have helped me speed up the development from the beginning.

Acknowledgement

I would like to thank all of my lectures at IT Carlow for their constant support throughout the year, during these challenging and unprecedented times, understanding the difficulties of remote learning especially with unpredictable Wi-Fi connections.

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