



Assignment 01

CY2001

Network and Cyber Security-I

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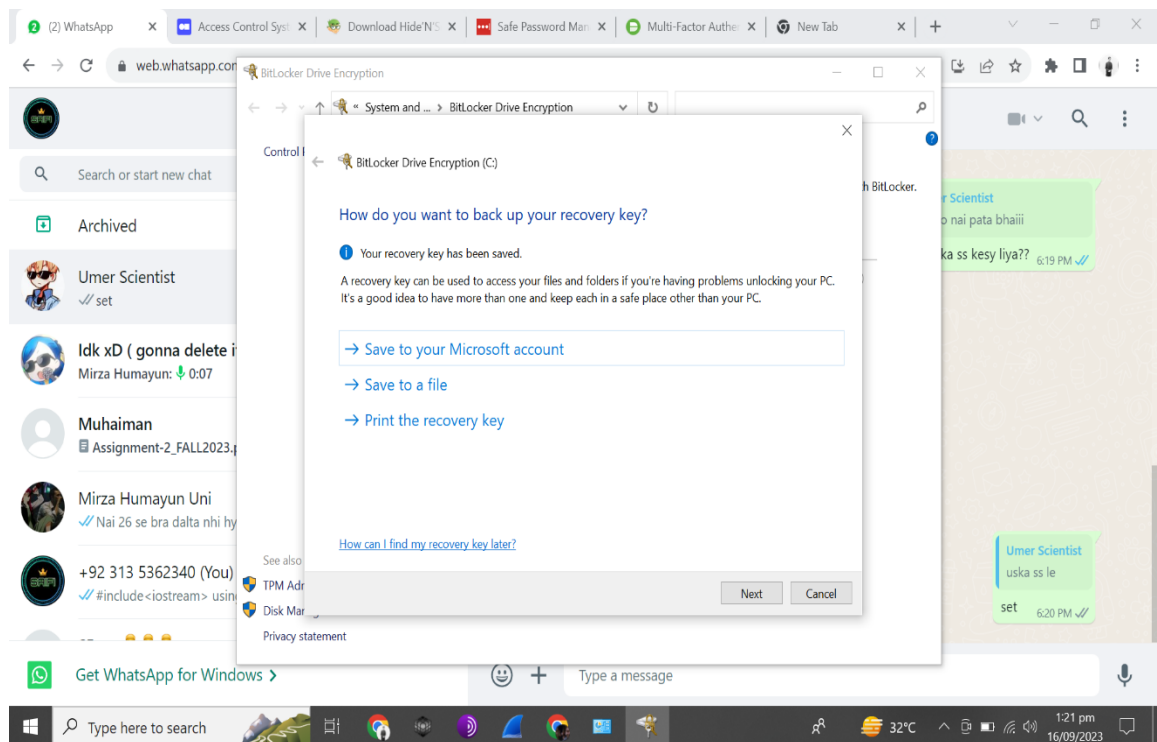
- **Introduction**

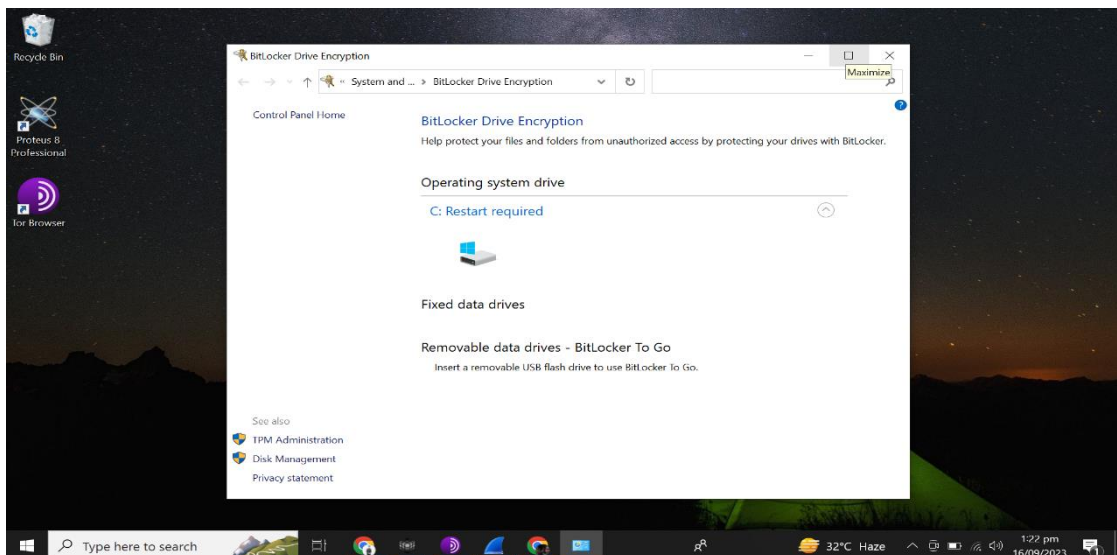
In the initial phase of this assignment, our objective was to acquire a variety of software applications, each offering distinct security services. In the subsequent phase, we were mandated to develop several straightforward encryption algorithms and their corresponding decryption processes using the programming language C++—a choice I made for this particular project

- **Softwares and Use Examples**

BitLocker

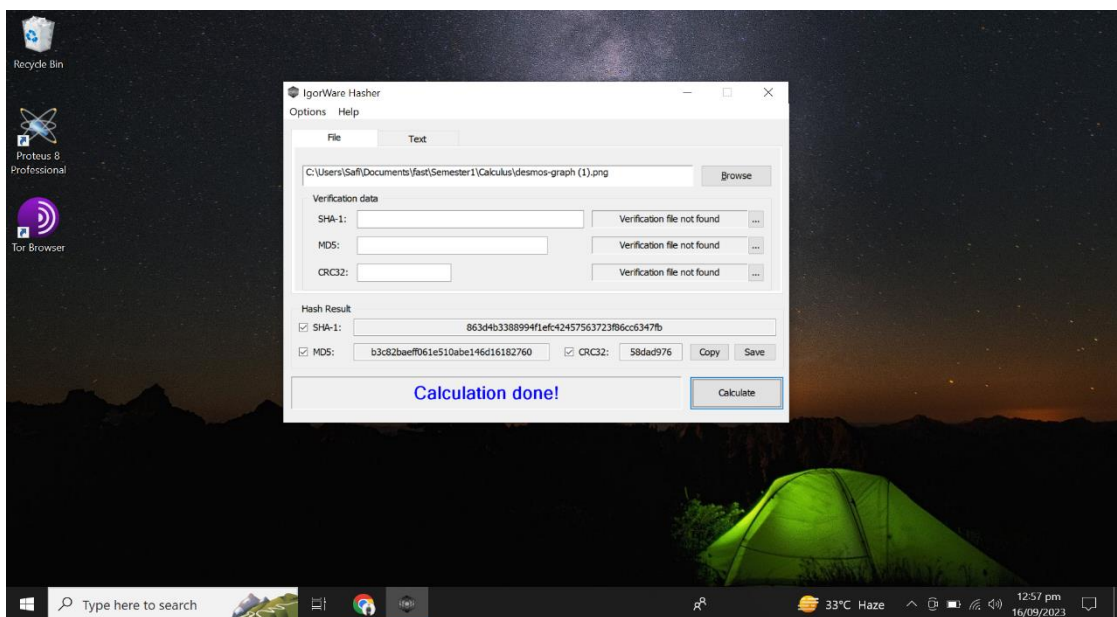
BitLocker, an integrated Windows encryption tool, is specifically crafted to safeguard entire volumes, assuring the security of data. It effectively mitigates potential threats like data breaches arising from lost or stolen devices. In essence, this software guarantees confidentiality through robust encryption measures.





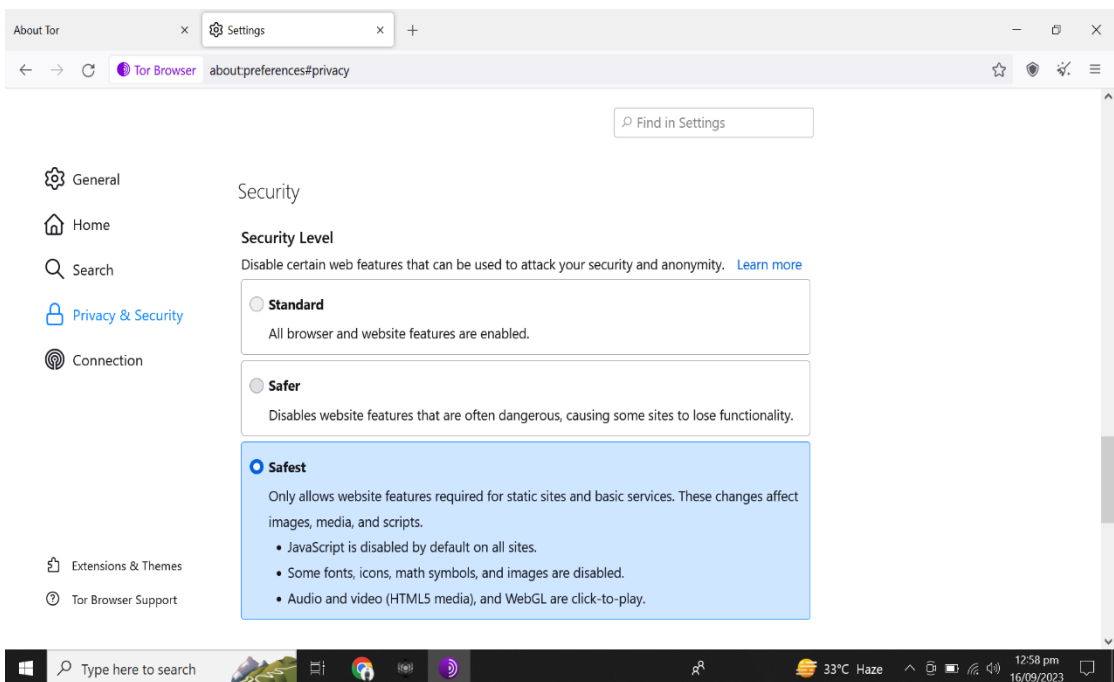
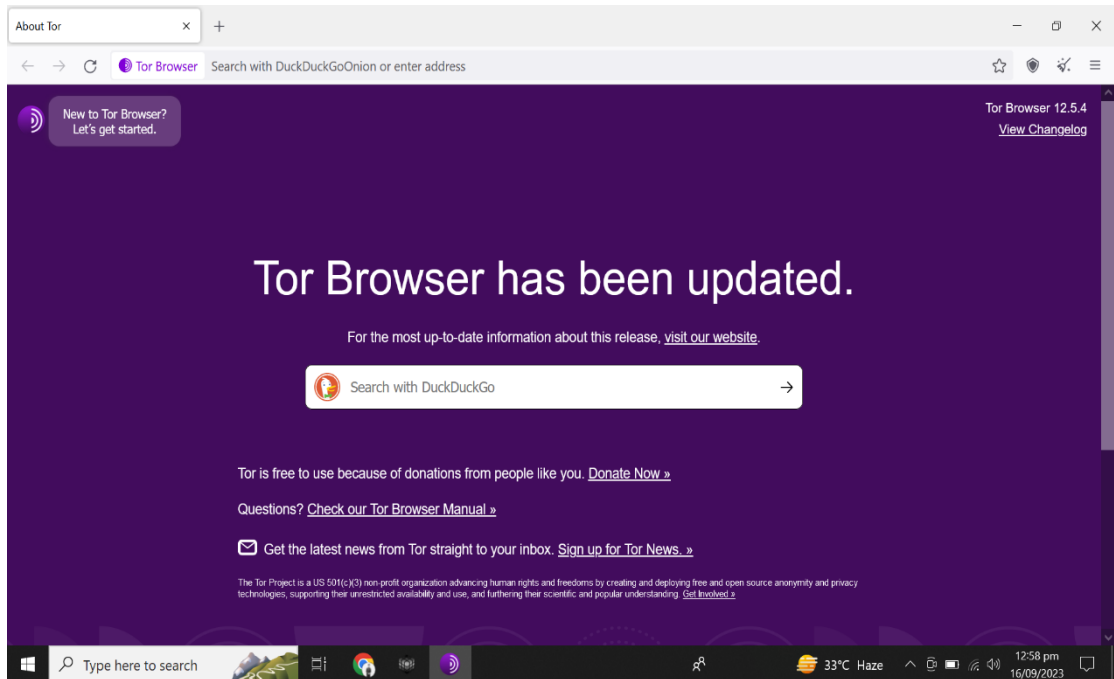
Igor Ware Hasher

This software enables users to create checksums or hashes for files, employing algorithms like SHA, and others. These hash values act as distinctive markers for files and serve the purpose of confirming the accuracy and legitimacy of the data contained within those files. Consequently, this tool guarantees the integrity of the data it processes.



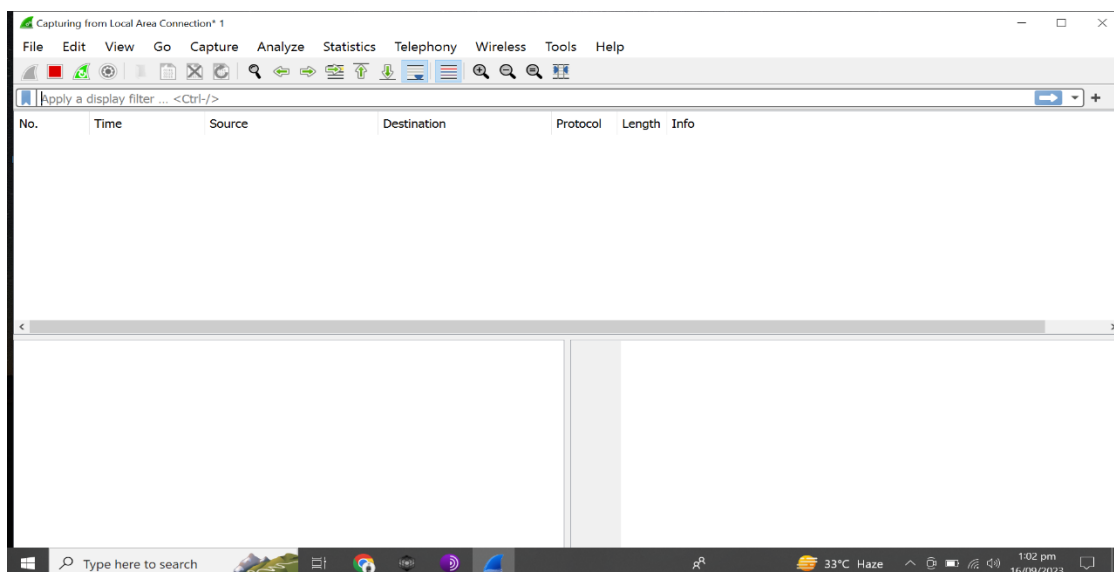
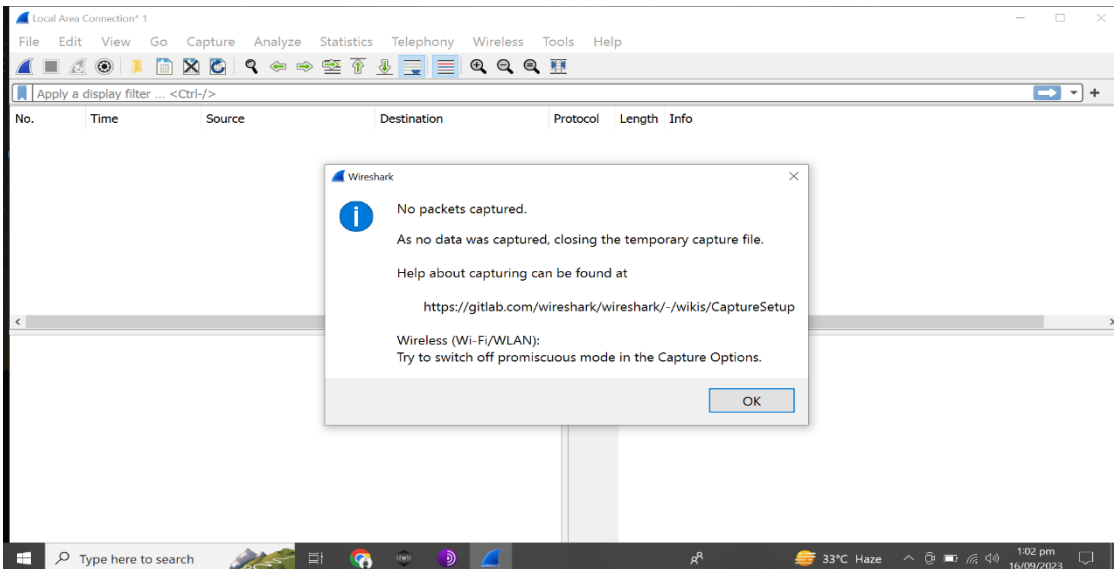
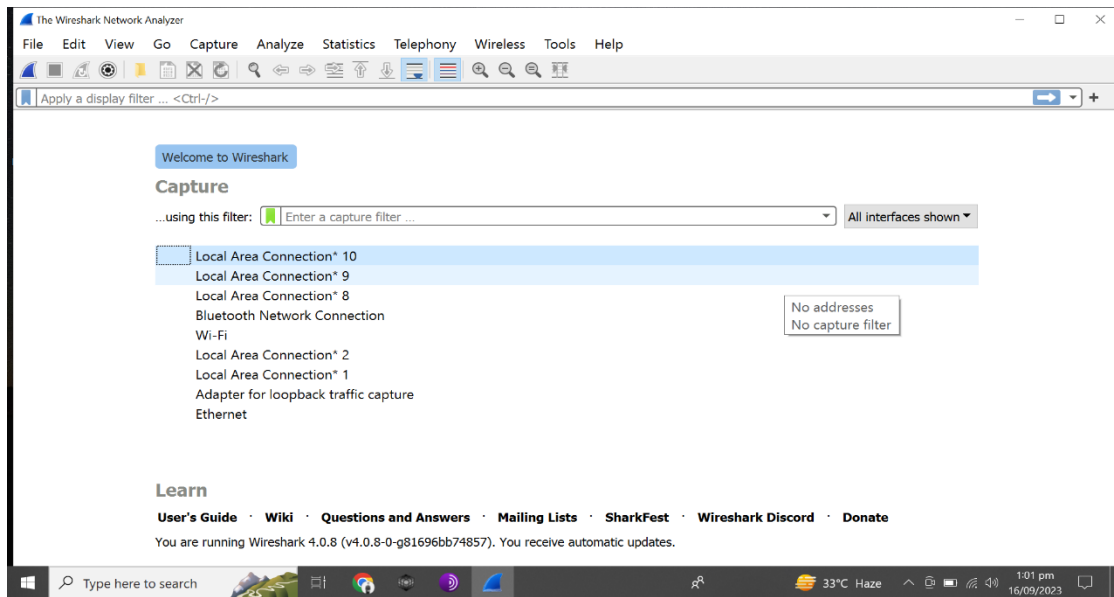
Tor Browser

The Tor Browser is an excellent choice for safeguarding your online privacy. It effectively conceals your IP address and online activities by rerouting web traffic through a network of nodes, a process that's known for its exceptional security and near-impenetrable tracking protection. Furthermore, the Tor Browser offers a remarkably seamless and efficient browsing experience, expertly managing bridging capabilities to enhance your online security to an unparalleled level



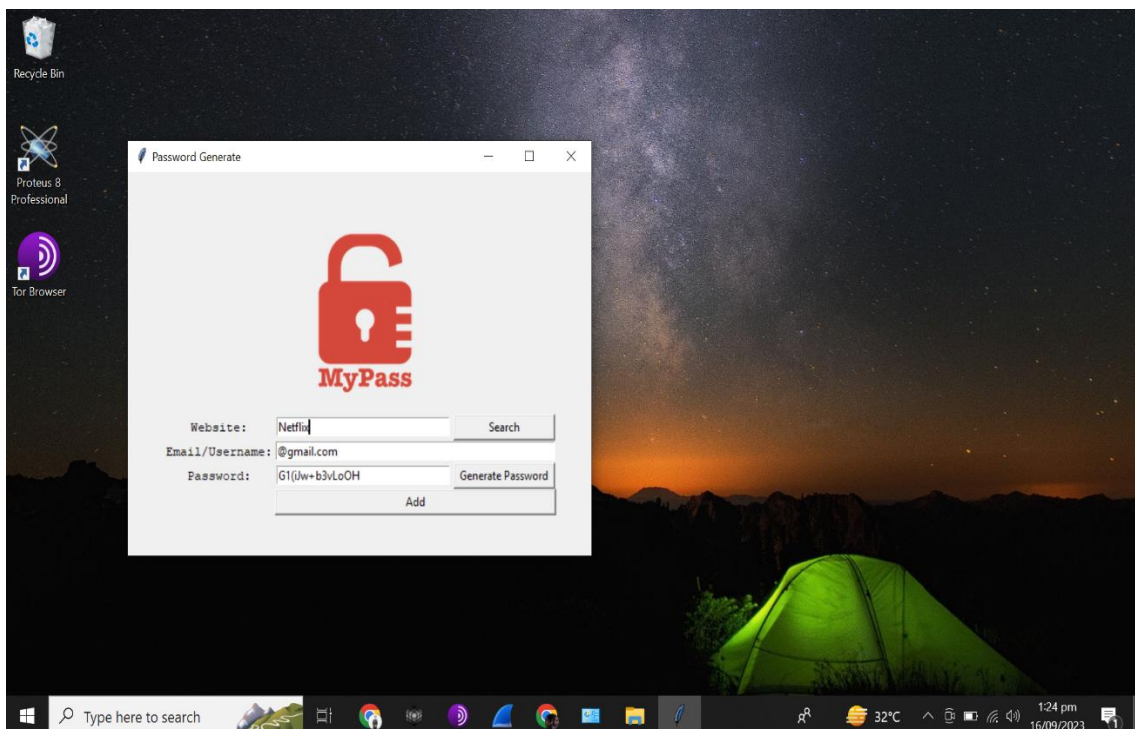
Wireshark

"By using Wireshark for network monitoring and accounting, I was pleased with its ability to provide detailed insights into network traffic. Wireshark's powerful features made it easy to track data packets and effectively manage network activities. It helped optimize performance, detect anomalies, and ensure efficient resource allocation, contributing significantly to network management. I was very pleased to use this tool."



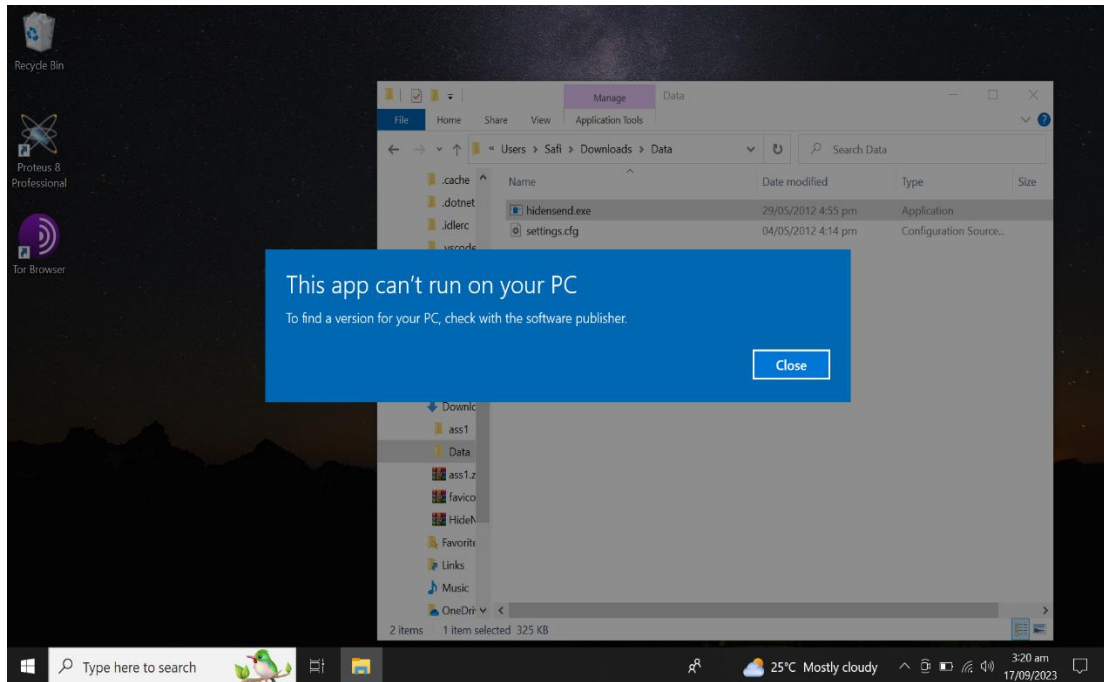
1Password

I haven't had the opportunity to use 1Password due to it being a paid service, but in the past, I created a similar software solution for myself on my local PC. Although my homemade solution may not offer the same level of security as 1Password, it effectively serves the purpose of securely storing and managing passwords for various sites. It can also generate complex random passwords which I can use for signup in websites. This custom software I developed ensures authentication services and has proven to be a practical and efficient tool for my personal needs.



Hide' N' Send

"Hide n Send Steganography Tool" is indeed a software designed for concealing and transmitting secret information within various types of files, such as images or audio. Steganography, as a concept, revolves around the discreet hiding of data within other media in a way that makes it challenging for observers to detect the concealed content. Unfortunately, I wasn't able to use this specific tool on my PC because of certain compatibility issues. However, I can offer information about its functionalities and discuss its utility in the field of digital steganography. It serves as a valuable tool for ensuring the confidentiality of sensitive information in digital communications.



- **Summary**

This assignment underscored the importance of networks and cybersecurity, delving into crucial subjects such as encryption, steganography, and a variety of security services. This understanding plays a critical role in protecting data and systems from ever-evolving cyber threats, establishing a secure digital landscape. Throughout this assignment, I encountered genuine intellectual challenges and honed my problem-solving abilities, resulting in a substantial learning experience.