CAPSTONE PROJECT

SECURING DATA THROUGH STEGANOGRAPHY IN IMAGE

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OUTLINE

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PROBLEM STATEMENT

Steganography is the art of covered, or hidden, writing. The purpose of steganography is **covert communication**—to hide the existence of a message from a third party.

Knowledge of steganography is of increasing importance to individuals in the law enforcement, intelligence, and military communities.

From invisible ink to highly complex algorithms, steganography is all around us. Steganography is a fascinating and often misunderstood technique of concealing information, and it has experienced a revival in the digital world

Cryptography attempts to encode a message, making it difficult or impossible for anyone except the intended recipient to decrypt it. The encoding and decoding process is accomplished using cryptographic keys that translate back and forth between the true message and its encrypted version.

TECHNOLOGY USED

Programming Language-: Python.

Libraries:

OpenCV for image processing.

NumPy for efficient array manipulation.

WOW FACTORS

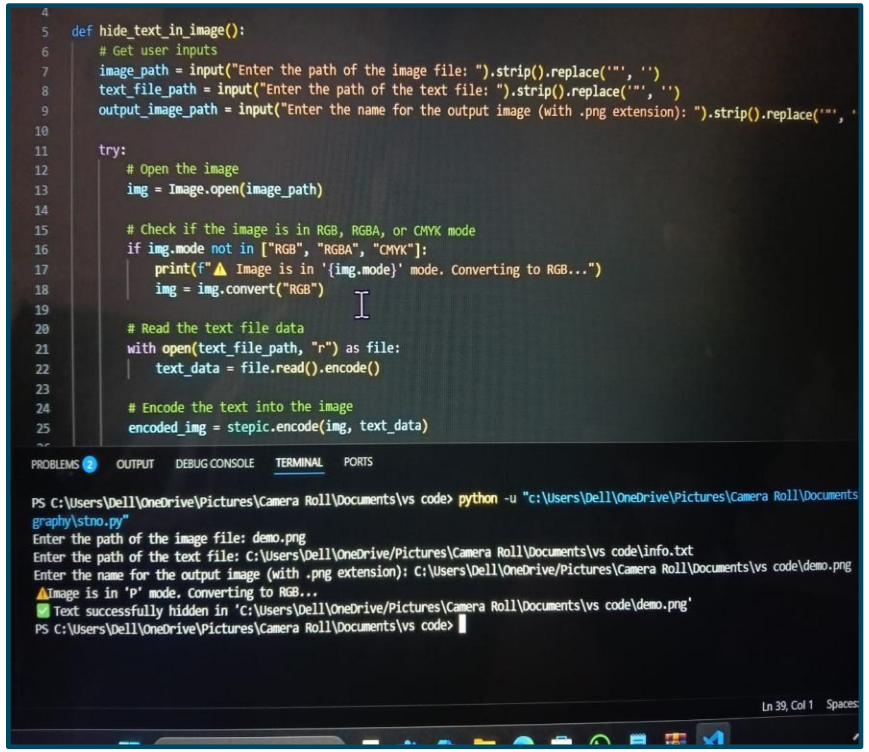
- Steganography is unique compared to other data concealment and encryption techniques in several ways:

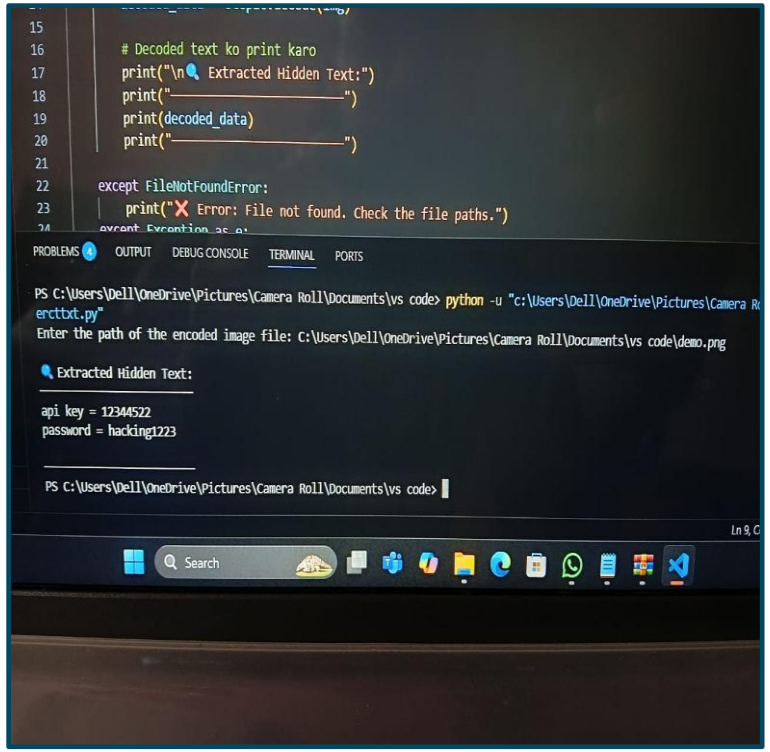
1. Hidden in Plain Sight:
    1. Unlike encryption, where the data is transformed into an unreadable format, steganography hides the data within another medium, such as an image, audio, or video file. This makes it less noticeable because the existence of hidden data is concealed.
2. Dual Purpose:
    1. The medium used for steganography (e.g., an image) serves a dual purpose. It can be viewed or listened to as a regular file without arousing suspicion, while also containing hidden information.
3. Covertness:
    1. The primary goal of steganography is to avoid detection. If an observer doesn't know to look for hidden data, they may not realize it exists. This is different from encryption, where the presence of encrypted data is evident, but the content is protected.
4. Applications:
    1. Steganography is often used for covert communication and digital watermarking. It can be employed to embed hidden information, such as copyright marks, into digital media without altering its appearance.

END USERS

- Cybersecurity Expert
- Security professionals
- Journalism and researcher
- Student of this field

RESULTS





- Used to Hide text in image means Encrypt.

Used to see text file or something password means Decryption

CONCLUSION

- Steganography is a technique for concealing information by embedding it in other data.
- Its purpose is to keep the existence of the hidden message a secret rather than making it unreadable.
- Steganography has been used throughout history and has become popular in the digital age for protecting sensitive information.
- It can be used as an alternative or complement to cryptography

GITHUB LINK

satyamsingh-hacker/Steganography-AICTE-Project-Satyam_Vinay_Singh: I Make Steganography tool that hide the text in secrete form

FUTURE SCOPE(OPTIONAL)

- Steganography (a rough Greek translation of the term Steganography is secret writing) has been used in various forms for 2500 years. It has found use in variously in military, diplomatic, personal and intellectual property applications. Briefly stated, steganography is the term applied to any…

THANK YOU

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