

A person in a blue suit and tie is pointing their right index finger at a digital interface. The interface features a grid of hexagonal icons containing symbols such as a magnifying glass, a cloud, a globe, a checkmark, a play button, a question mark, a dollar sign, a refresh symbol, a group of people, and an at-sign. The background is a blurred cityscape with a blue tint.

CYBER SECURITY

MESSAGE ENCRYPTOR AND DECRYPTOR

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Section – C2 (3rd Sem)

AGENDA

- Introduction to encryption and decryption
- Overview of encryption methods
- Understanding decryption techniques
- Types of Encryption Algorithms
- Overview of Tkinter
- Real World Applications
- Conclusion



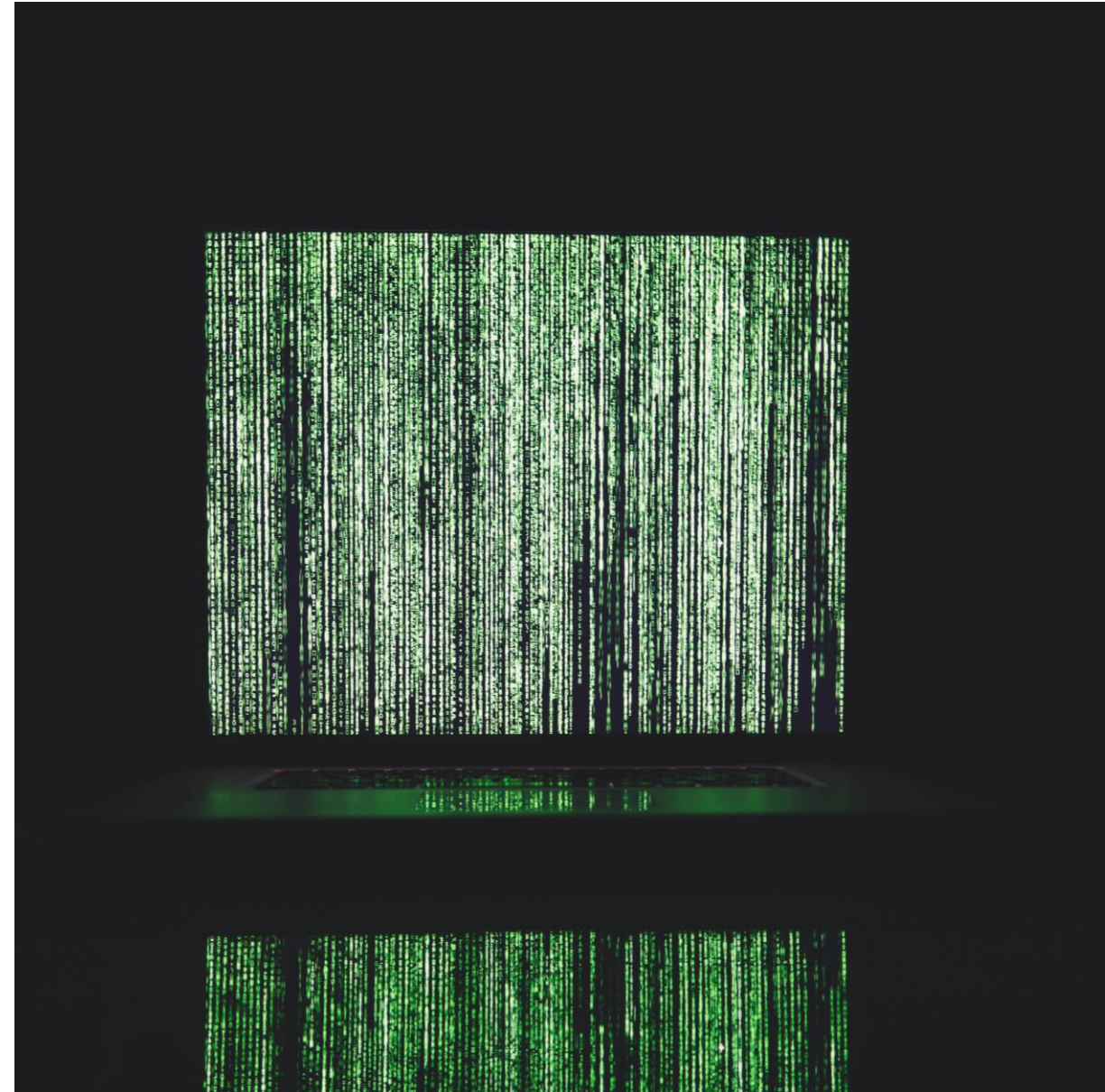


INTRODUCTION

In this presentation , we will explore the world of data encryption and decryption . We will uncover the methods and algorithms used to secure and protect sensitive information. We will explore the evolving landscape of security measures in the digital realm.

UNDERSTANDING ENCRYPTION

Encryption is a process of converting information, often referred to as plaintext, into a secret code or cipher, using an algorithm and a key. The primary purpose of encryption is to secure the data so that unauthorized parties cannot access or understand it. In other words, it involves encoding information in such a way that only authorized parties who possess the appropriate key can decode and understand the original data.



DECRYPTION

Decryption is the process of converting encrypted or encoded data (ciphertext) back into its original, readable form (plaintext). In other words, decryption is the reverse of encryption.



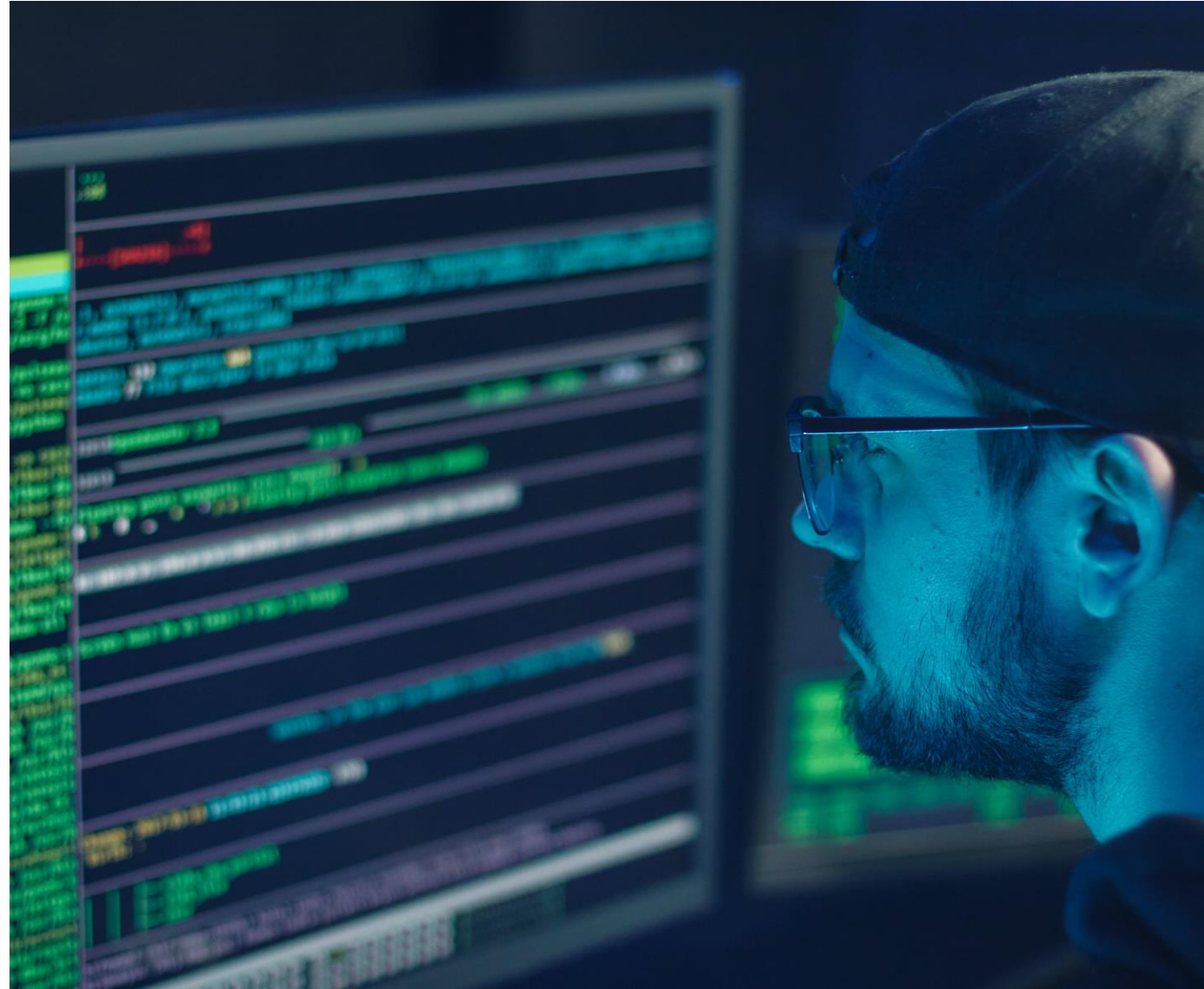


TYPES OF ENCRYPTION ALGORITHMS

There are different types of encryption algorithms ,including symmetric and asymmetric encryption. Each type has its own strengths and weaknesses, and is used in different scenarios.

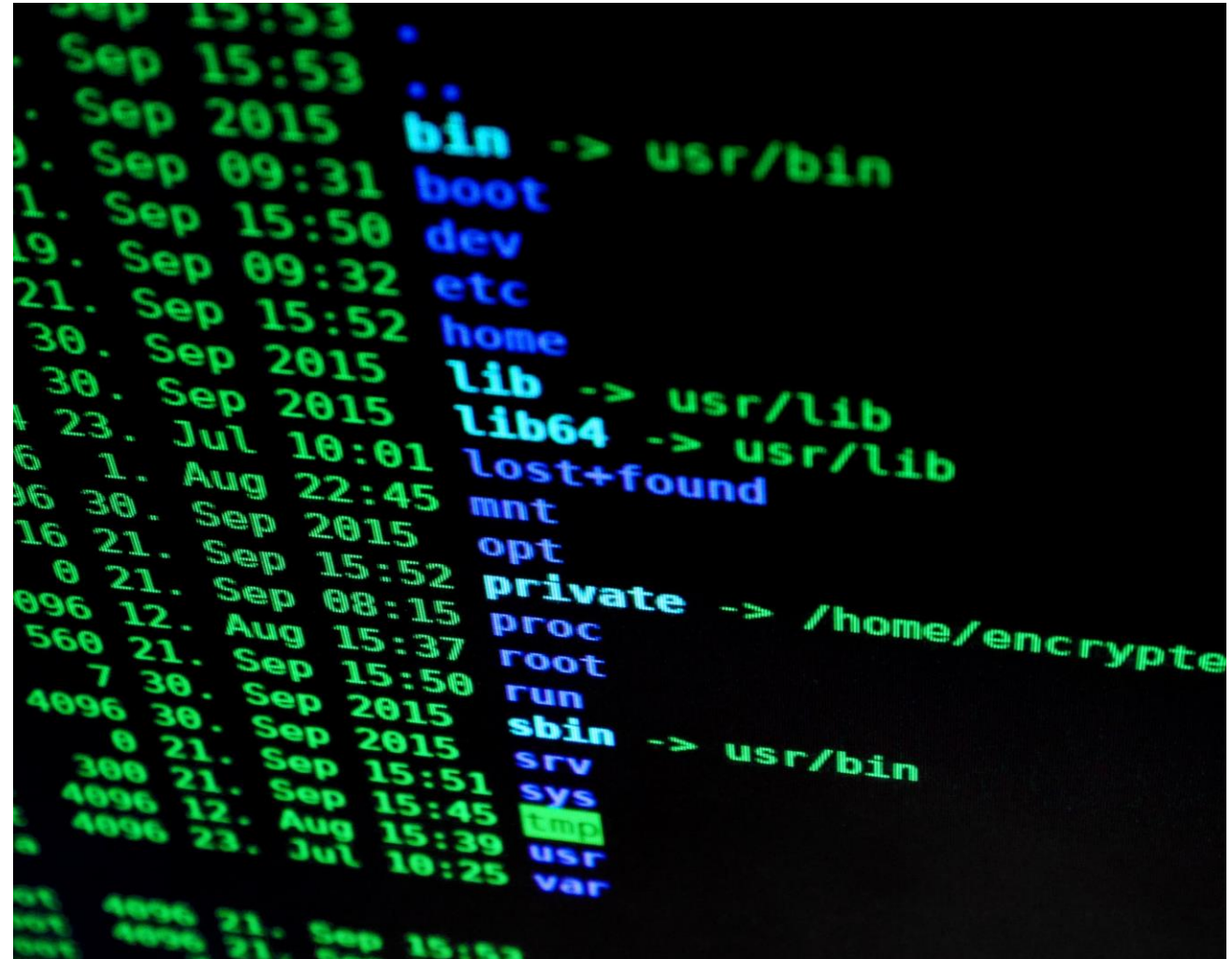
ALGORITHM : SUBSTITUTION- PERMUTATION NETWORK

A Substitution-Permutation Network (often referred to as the SPN) is a network that takes in blocks of plaintext and keys , applies alternating rounds of substitution layers (S-boxes) and permutation layers (p- boxes) to produce the final ciphertext.



OVERVIEW OF TKINTER

Tkinter is a Python library that can be used to construct basic graphical user interface (GUI) Applications. In Python , it is the most widely used module for GUI applications.



Encryption And Decryption

Message: ABHISHEK

Key: 10

Output ↓

Encrypted
Message

Encrypt

Decrypt

DEMONSTRATION OF THE MESSAGE ENCRYPTOR AND DECRYPTOR

Step 1: Run the Program

Run the provided Python program in a suitable environment. This could be in a Python IDE or by executing the script in the terminal .

Step 2: GUI Interface

Upon running the program, a graphical user interface (GUI) window will appear. It's a simple window created using the tkinter library.

Step 3: Input Message and Key

In the GUI, you will see input fields for “Message” and “Key” . Enter the message you want to encrypt or decrypt in the "Message" field. Provide a key in the "Key" field. The key is used in the encryption and decryption process.

Encryption And Decryption

Message: ABHISHEK

Key: 10

Output ↓

Encrypted Message: ęăĝÊÖĝěÞ

Encrypt Decrypt

Encryption And Decryption

Message: ęăĝÊÖĝěÞ

Key: 10

Output ↓

Decrypted Message: ABHISHEK

Encrypt Decrypt

Step 4: Encryption

Click the "Encrypt" button . The program will process the input message and key through a series of encryption steps, including substitution, permutation, and XOR operations.. The encrypted message will be displayed in the "Encrypted Message" section.

Step 5: Decryption

To decrypt the message, keep the encrypted message as it is in the "Message" field.

Enter the same key used for encryption in the "Key" field.

Click the "Decrypt" button.

Step 6: Close the Program

Close the GUI window to exit the program.



REAL WORLD APPLICATIONS

Data encryption and decryption have widespread real-world applications, from securing financial transactions to protecting sensitive communications .

We'll explore examples of encryption in action.

CONCLUSION

In conclusion, data encryption and decryption play a pivotal role in safeguarding sensitive information. By understanding the principles and best practices, we can ensure the integrity and confidentiality of data in an increasingly digital world.

THANKS!

