

Intro to encryption

Outline

1. What is encryption?

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1. What is encryption?
2. **Types of encryption**

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2. Types of encryption
3. **Encryption keys**

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1. What is encryption?
2. Types of encryption
3. Encryption keys
4. **Practical examples**

What is encryption?

Plain text

What is encryption?

Types of encryption

Encryption keys

Practical examples

Plain text → Cipher text

What is encryption?

Types of encryption

Encryption keys

Practical examples

Encryption



Plain text



Cipher text

What is encryption?

Types of encryption

Encryption keys

Practical examples

Plain text

‘Hello BeCode! This
text has not been
encrypted yet.’

What is encryption?

Types of encryption

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Plain text

‘Hello BeCode! This
text has not been
encrypted yet.’



Cipher text

wvzrf bqowqk! bzag
vsle wrg tft nqma
kvujmrhso nvh.

What is encryption?

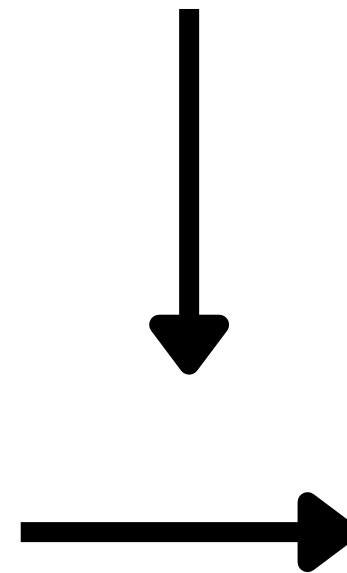
Types of encryption

Encryption keys

Practical examples

Encryption

Plain text
'Hello BeCode! This
text has not been
encrypted yet.'



Cipher text
wvzrf bqowqk! bzag
vsle wrg tft nqma
kvujmrhso nvh.

What is encryption?

Types of encryption

Encryption keys

Practical examples

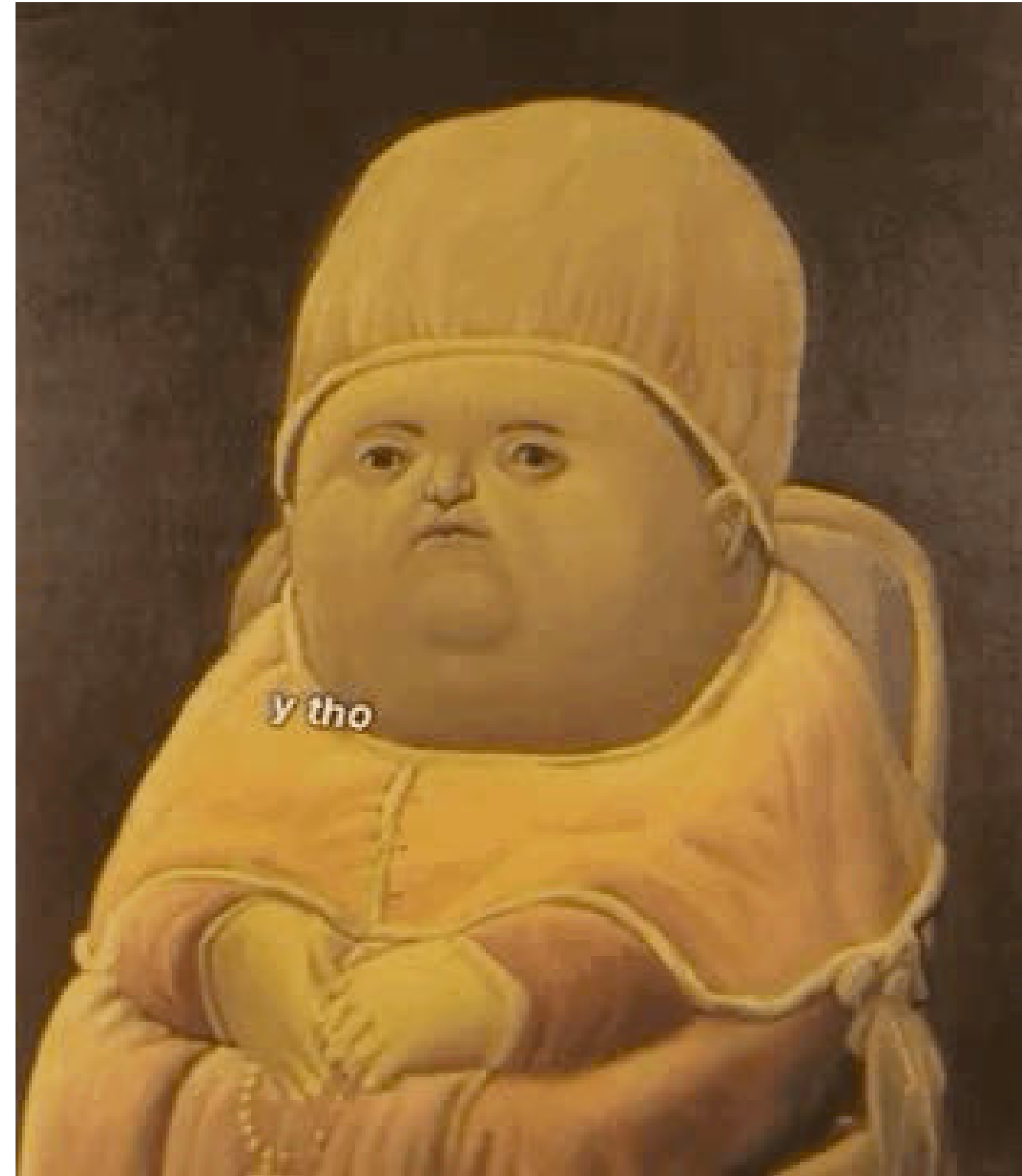
A reversible way of modifying data to make it unusable to an unauthorized entity

What is encryption?

Types of encryption

Encryption keys

Practical examples



What is encryption?

Types of encryption

Encryption keys

Practical examples

y tho

- **Confidentiality**

What is encryption?

Types of encryption

Encryption keys

Practical examples

y tho

- Confidentiality
- **Authentication**

What is encryption?

Types of encryption

Encryption keys

Practical examples

y tho

- Confidentiality
- Authentication
- **Integrity**

What is encryption?

Types of encryption

Encryption keys

Practical examples

Types of encryption

Types of encryption

What is encryption?

Types of encryption

Encryption keys

Practical examples

Types of encryption

Symmetrical & Asymmetrical

What is encryption?

Types of encryption

Encryption keys

Practical examples

Symmetrical encryption

- **2 ways**

What is encryption?

Types of encryption

Encryption keys

Practical examples

Symmetrical encryption

- 2 ways
- **1 key**

What is encryption?

Types of encryption

Encryption keys

Practical examples

Symmetrical encryption

- 2 ways
- 1 key

- **Faster but less secure**



What is encryption?

Types of encryption

Encryption keys

Practical examples

Asymmetrical encryption

- **1 way**

What is encryption?

Types of encryption

Encryption keys

Practical examples

Asymmetrical encryption

- 1 way
- **2 keys**

What is encryption?

Types of encryption

Encryption keys

Practical examples

Asymmetrical encryption

- 1 way
- 2 keys
- **Slower**



What is encryption?

Types of encryption

Encryption keys

Practical examples

Asymmetrical encryption

- 1 way
- 2 keys
- **Slower but more secure**



What is encryption?

Types of encryption

Encryption keys

Practical examples

- **Best of both worlds**

Hybrid encryption

- Best of both worlds
- **Asymmetric on symmetric key**

What is encryption?

Types of encryption

Encryption keys

Practical examples

Hybrid encryption

- Best of both worlds
- Asymmetric on symmetric key
- **Symmetric for big data**

What is encryption?

Types of encryption

Encryption keys

Practical examples

Encryption keys

Encryption key

A string of **characters** used
to **encrypt/decrypt** data

What is encryption?

Types of encryption

Encryption keys

Practical examples

Wake up!



Wrong answers only

Event code: **FPIUYC**

wooclap.com/events/FPIUYC

What is encryption?

Types of encryption

Encryption keys

Practical examples

On a **seperate** location
from the encrypted data

What is encryption?

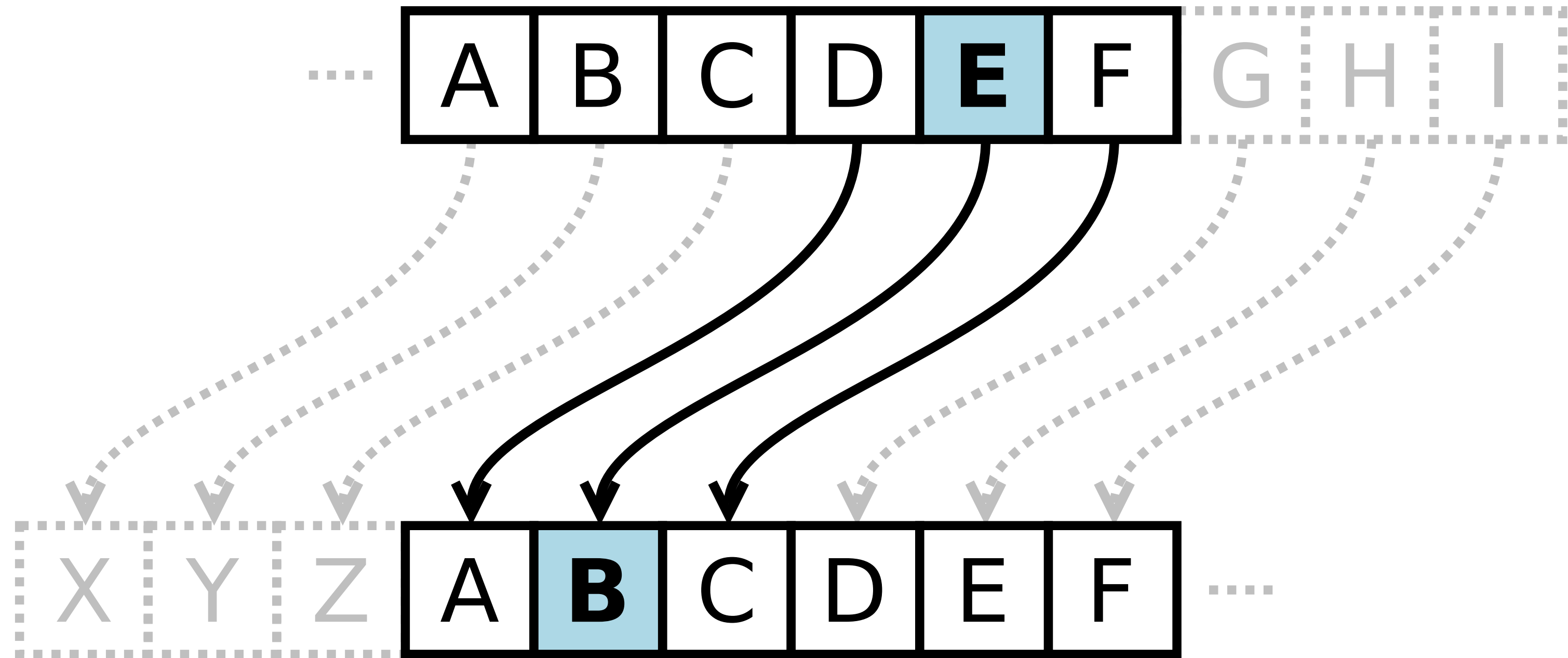
Types of encryption

Encryption keys

Practical examples

Practical examples

Caesar cipher



What is encryption?

Types of encryption

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Practical examples

Vigenère cipher

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A
C	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B
D	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C
E	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D
F	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E
G	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F
H	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G
I	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H
J	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I
K	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J
L	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K
M	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L
N	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M
O	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N
P	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Q	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
R	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
S	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
T	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
U	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
V	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
W	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
X	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Y	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
Z	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y

cipher	VVVRBACP
key	COVERCOVER...
plaintext	THANKYOU

In encrypting plaintext, the cipher letter is found at the intersection of the column headed by the plaintext letter and the row indexed by the key letter. To decrypt ciphertext, the plaintext letter is found at the head of the column determined by the intersection of the diagonal containing the cipher letter and the row containing the key letter.


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What is encryption?

Types of encryption

Encryption keys

Practical examples

A man in a dark suit, white shirt, and patterned tie stands in an office. Behind him is a glass door with a sign that reads "MEETING IN PROGRESS". To the left, there is a window with horizontal blinds and a black chair. The scene is lit with indoor office lighting.

Thank you for your attention!

Ressources

Cryptographic Storage Cheat Sheet:

[https://cheatsheetseries.owasp.org/cheatsheets/Cryptographic Storage Cheat Sheet.html](https://cheatsheetseries.owasp.org/cheatsheets/Cryptographic_Storage_Cheat_Sheet.html)

Encryption - Symmetric Encryption vs Asymmetric Encryption - Cryptography - Practical TLS:

https://youtu.be/o_g-M7UBqI8

Public and Private Keys - Signatures & Key Exchanges - Cryptography - Practical TLS:

https://youtu.be/_zyKvPvh808

Encryption key generator:

<https://generate-random.org/encryption-key-generator>

Questions?