







User

Salary

MAC\*

Alice

0xabcd...

Eve

0x9876...

...

...

...

**2,718€**

3,141€

3,141€

GOODCRYPTOGRAPHY



**DATA INTEGRITY & ASSOCIATION**







THE CHECKS DON'T MATCH, PROMOTION IS DECLINED

**0X123456...**



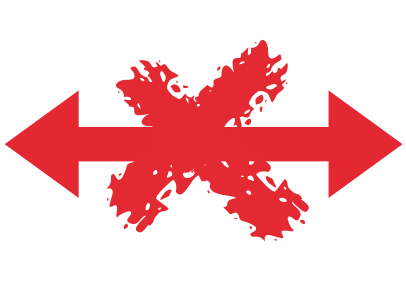
**Problem:** Protected data can be “replayed”.

**Solution:** Cryptographically bind data to context.

\*including the user name in the hash/hmac

0xabcd...







## DATA INTEGRITY & ASSOCIATION

0X123456...



**Problem:** Protected data can be “replayed”.

**Solution:** Cryptographically bind data to context.

User		Salary	MAC*
	Alice	3,141€	0xabcd...
	Eve	3,141€	0xabcd...



THE CHECKSUMS DON'T MATCH, PROMOTION IS DECLINED



\* including the username in the hash/hmac

DATA INTEGRITY & ASSOCIATION

0X123456... ✓

**Problem:** Protected data can be “replayed”.

**Solution:** Cryptographically bind data to context.

User	Password Hash *	...
 Alice	0X123456...	...
 Eve	0XABCDEF...	...
...	...	...

\* including the username in the hash/hmac