RESEARCH DOCUMENT

Sensitive Data Exposure(SDE)

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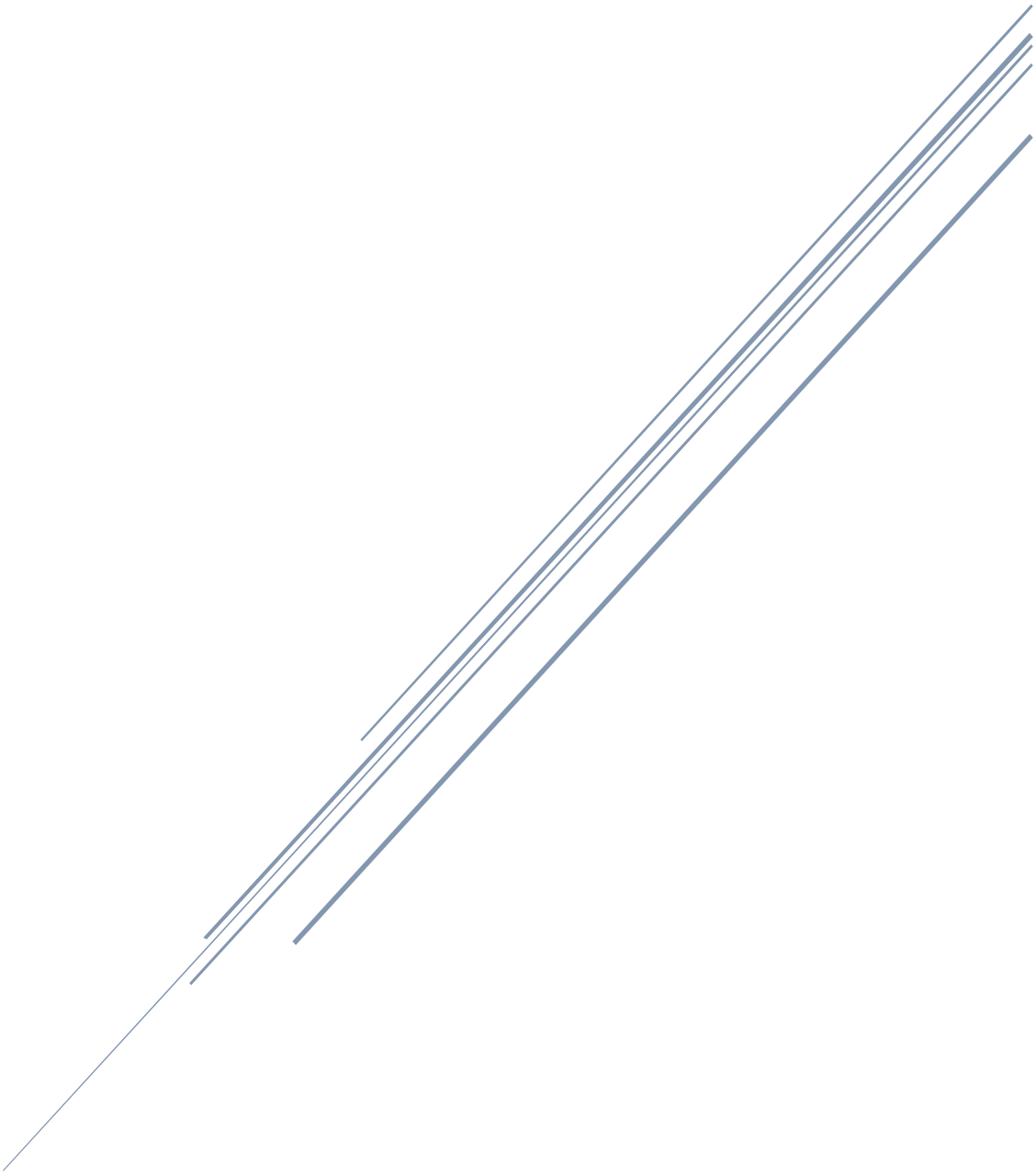

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Sensitive Data Exposure

What is SDE?

Instead of stealing crypto from sites, SDE attackers steal secret keys like passwords, execute man-in-the-middle attacks, or steal clear text at off the server. These attackers are required to do their attacks manually generally.

The cause of SDE

The main cause of sensitive data exposure is simply not encrypting sensitive data. I am talking about data like passwords or addresses or when crypto is employed, a weak key generation and management. Its not only a threat if the data is not encrypted, because SDE is also a threat when data is encrypted weakly like a weak password hash.

How can you prevent SDE?

You can do the following things to prevent SDE:

- Classify the data that is processed, stored or transmitted by the application and identify which data is sensitive according to privacy laws.
- Don't store sensitive data unnecessarily. Discard it or encrypt it.
- Ensure up-to-date and strong standard algorithms, protocols, and keys are in place.
- Disable caching for response that contain sensitive data.
- Store passwords using strong adaptive and salted hashing functions.
- Verify independently the effectiveness of configuration and settings.

Like you see there are some ways to prevent Sensitive Data Exposure. (OWASP , 2017)

How have I prevented SDE in my project?

First, I have used MD5 hashing for my password hashing. MD5 is a commonly used hash function that was used for cryptographic data. I started with just generating a random string but found out soon enough that this wasn't the solution. I asked my fellow students on what to use and they said to use MD5, because it was easy to implement.

I also am using JSON web tokens to get to use a user's data but not knowing what is inside of them. JWT's are used to create data with optional signature and/or optional encryption which holds several claims. Usually, JWT's are signed with a private key. I have used these to hold the user that is logged in and set the token in the session storage. With this token I can get the data from the user that is not encrypted, else I am getting the encrypted data.

Conclusion

My users don't have to enter a lot of sensitive data but the data that they've entered is fully secured to prevent SDE from happening. But during this research I've found out that SDE is still happening a lot on the internet without anyone knowing.

Bibliography

OWASP . (2017). *OWASP Top Ten 2017 | A3:2017-Sensitive Data Exposure | OWASP Foundation*. Opgehaald van https://owasp.org/: https://owasp.org/www-project-top-ten/2017/A3_2017-Sensitive_Data_Exposure.html