

General Conclusion:

A SQL injection is one of the most important web security threats that needs attention so as to improve security for the users and their data. In this dissertation, we showed the security techniques used to secure web applications against a SQL injection, hence protect sensitive data from hackers. These security techniques have problems and do not ensure the necessary security rules. There are some techniques which offer less security compared to others.

The cryptographic techniques are the most interesting tools to prevent SQL injections. We presented in our work the basic rules of public-key cryptosystems like encryption, decryption, digital signature, and we showed how we can use public-key cryptography to ensure security of web application through use digital signature .

We also presented an authentication scheme for preventing SQL Injection attacks using ECC and RSA. Signing username and password are used to improve the authentication process, and avoid to deal with natural input. Our strategy relies on random, algorithm based on randomization and used to convert the input into a cipher text. For any input in the registration phase, we apply the random (ECC, RSA).

Future perspectives

In this work, I have concentrated on the particular kind of a SQL injection. I think that this kind needs more research, mainly because of various reasons: SQL injection attacks are most probable to change and new vulnerabilities will be found, collectively with new countermeasures to deal with them. As many hacking sites exist on the web, and since attack methods are well described and circulated between hackers, we believe that information about new attack methods must be constantly surveyed and new counter measures should be developed. As future recommendations, we had better adjust some points that are explained below:

- ✓ Use another cryptography algorithm that maybe better in the future compared to algorithms that were used in our application.
- ✓ Find another way to reduce time consumed during the login process
- ✓ In the future, I will try to develop a technique that enables total prevention against other kinds of SQL Injection Attacks.
- ✓ Also, we can added other cryptography algorithm to our strategy, that mean became use 3 or 4 algorithm in **Random** function.