For this discussion, I selected the A03 injection from OWASP10 2021 Framework, firstly, lets

Discuss what are injections and how do they work?

Injection tactics include a wide range of attack methods. they happen when an attacker exploits flaws in input validation methods, which are subsequently processed by the web application, causing the backend processing to be completed differently than designed. (Muscet, I.,2019)

Due to the fact that injections are a common threat that can affect many applications developed, they are factorized as a unique vector of attack and referenced under A03. (OWASP10, 2022) lists some of the common injections such as "SQL, NoSQL, OS command, Object Relational Mapping (ORM), LDAP, and Expression Language (EL) or Object Graph Navigation Library (OGNL) injection" for the purpose of this discussion I will focus only on SQL injections."
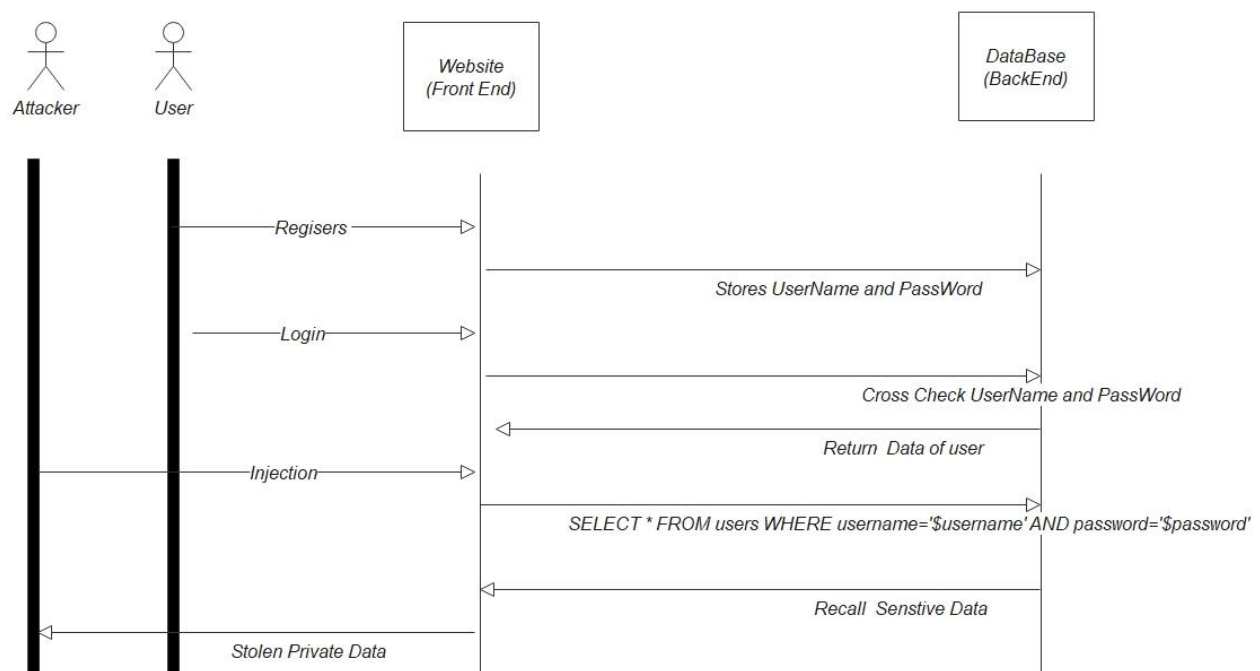
OWASP 10 - 2021 -A03 Injection

Figure 1: UML Sequence diagram illustrating an SQL injection process

In the above Figure 1, the simplified UML diagram explains the process of how an SQL injection is usually conducted by an attacker.

As to (Berkeley ,2022) Using parameterized database queries with constrained, typed parameters and careful usage of the database may help developers avoid SQL Injection vulnerabilities in web applications. There are several recommendations such as the use of web

application firewalls and secure software development life cycle, along with embedding security control to the application that can also mitigate SQL injections.

References:

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