

Web Authenticator

Winter Term 2012/13

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Vulnerabilities of Modern Web Apps

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- ❑ Developers are usually no security experts
- ❑ Users tend to use the same passwords over and over again
- ❑ Users use simple passwords (dictionary words, birthdays, etc.)
- ❑ Even fair passwords (up to 8 letters) can be cracked in reasonable time

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Impact:

- ❑ More than 8.6 million passwords have leaked due to hacks
(LinkedIn, YouPorn, Yahoo, IEEE, MySpace, etc.)
- ❑ Identity theft happens to about 5% of users
(55 billion USD costs in 2006)

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Countermeasures:

- Education of users in choosing good passwords (or rather passphrases) and developers to implement systems that keep them safe
- Public key cryptography to replace passwords
- Two-factor authentication

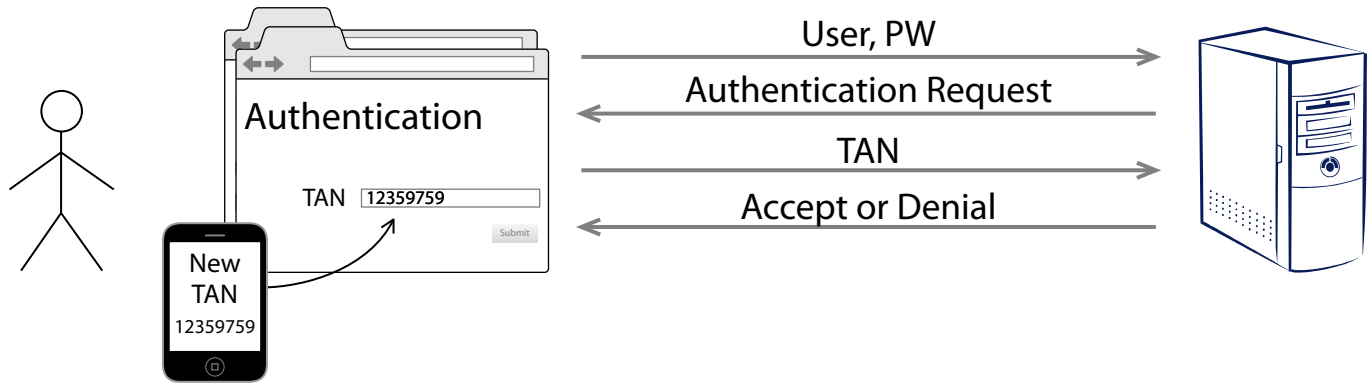
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Two-factor Authentication



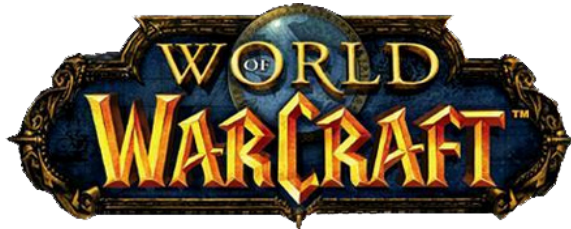
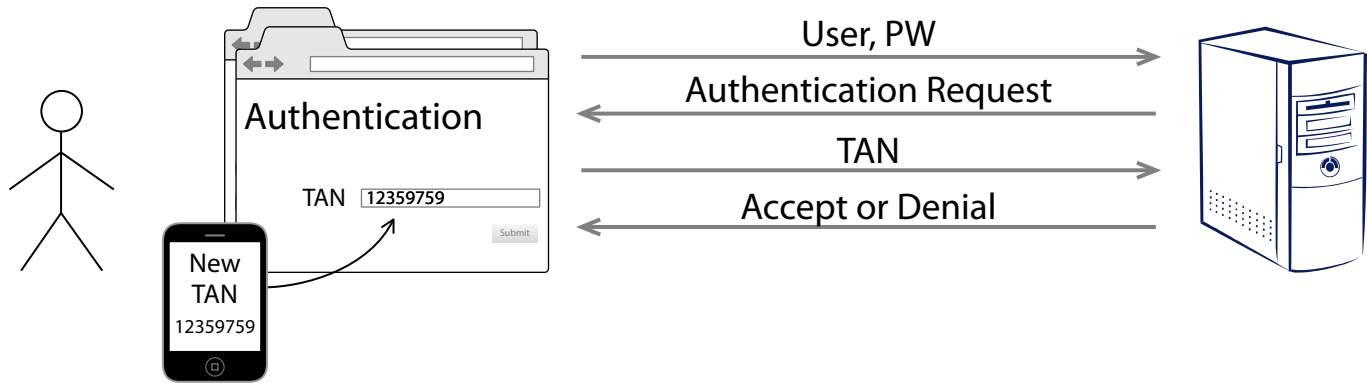
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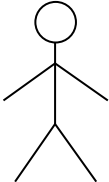
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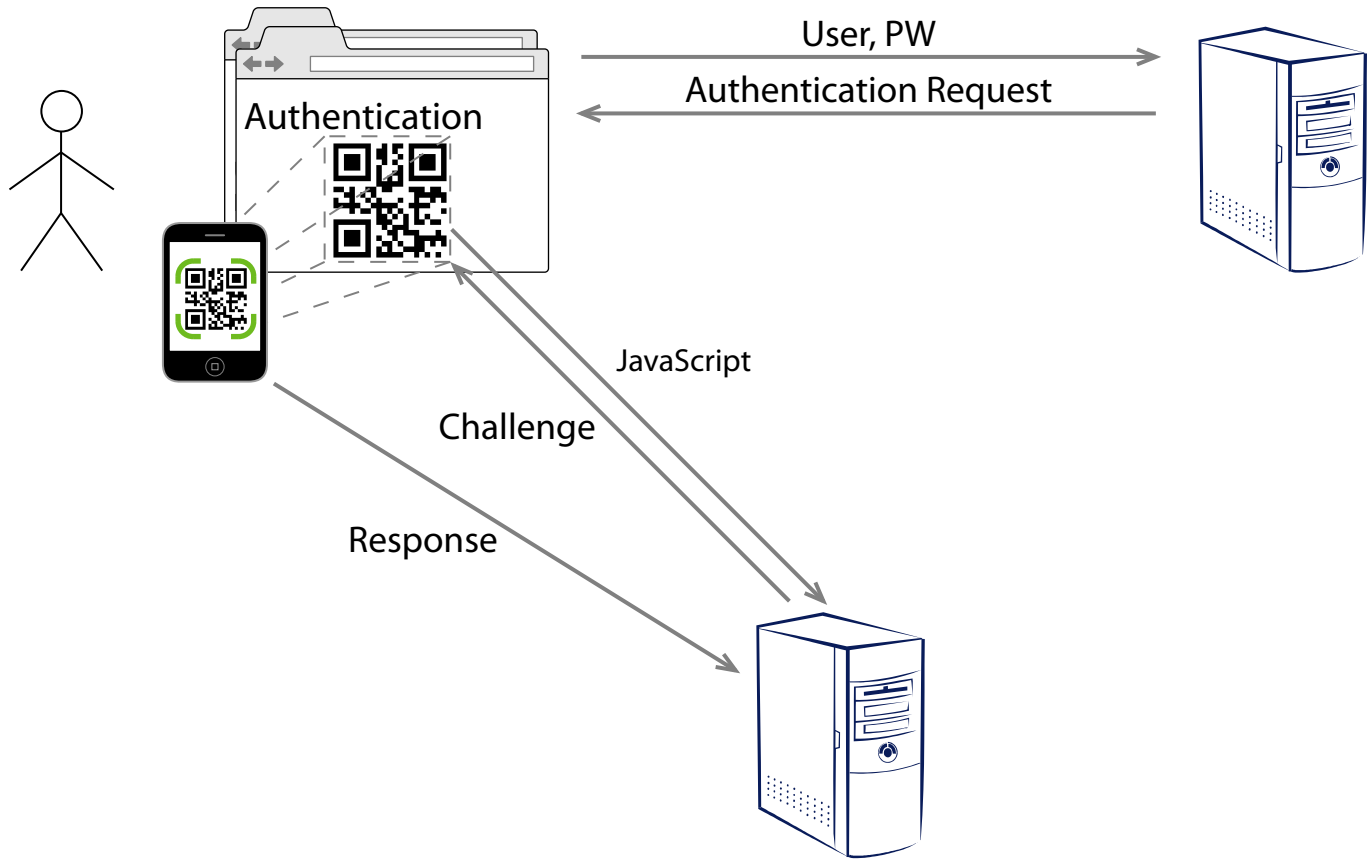
A diagram of a web browser window. The title bar is grey with a tab icon. The address bar is empty. The main content area has the word "Login" in bold. Below it are two input fields: "Username" with the text "root" and "Password" with three black dots. A "Login" button is in the bottom right corner.

→ User, PW



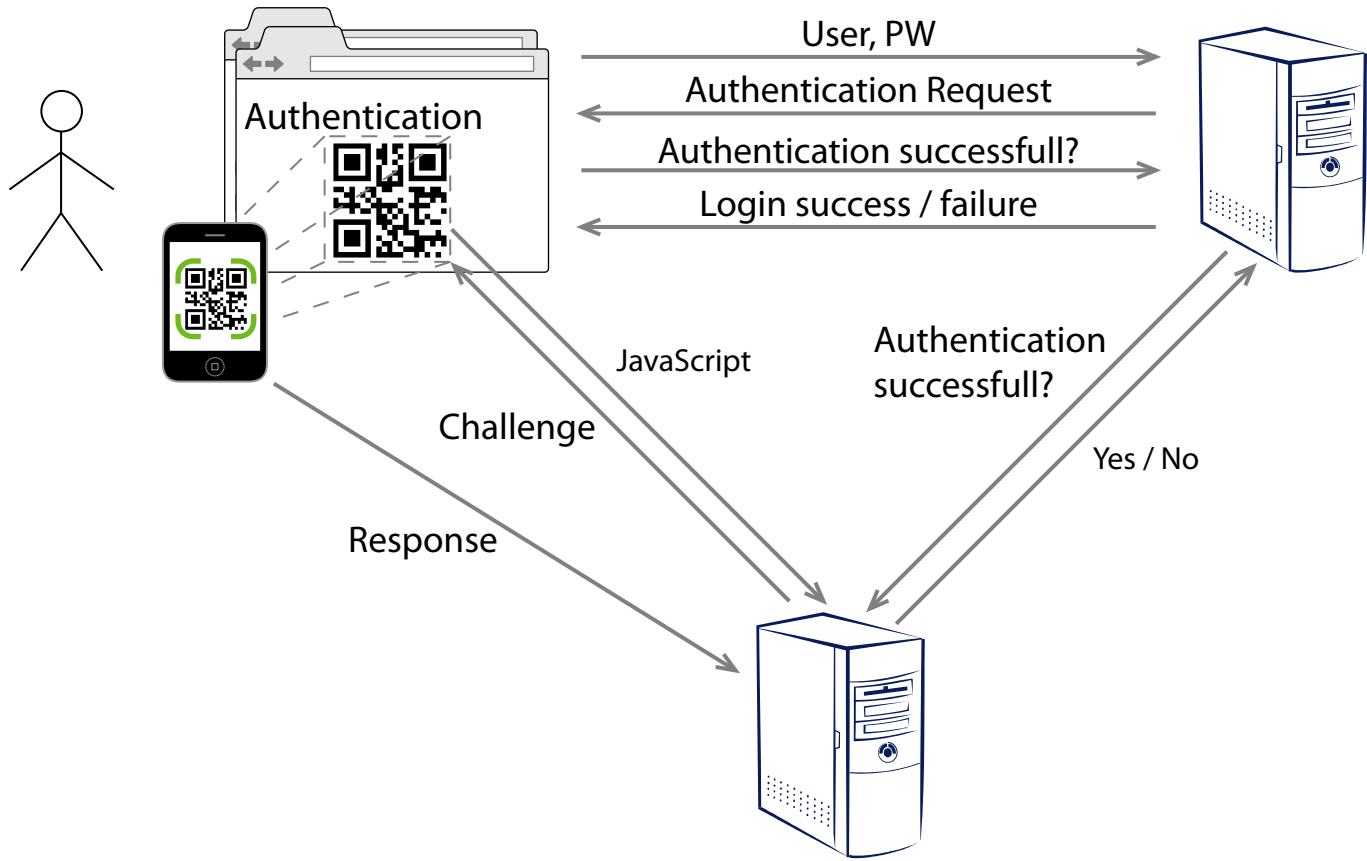
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Project Goals and Focus Areas

Project goal is the design and implementation of a generic two-factor authentication service.

Cryptography

- ❑ Protocol design
- ❑ Web security (TLS)
- ❑ Public key cryptography

Web Technology

- ❑ iPhone / Android App development
- ❑ HTTP Protocol
- ❑ JavaScript based web services
- ❑ QR code encoding