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the center for education and research in information assurance and security

Defeating Cross-Site Request Forgery Attacks with Browser-Enforced Authenticity Protection

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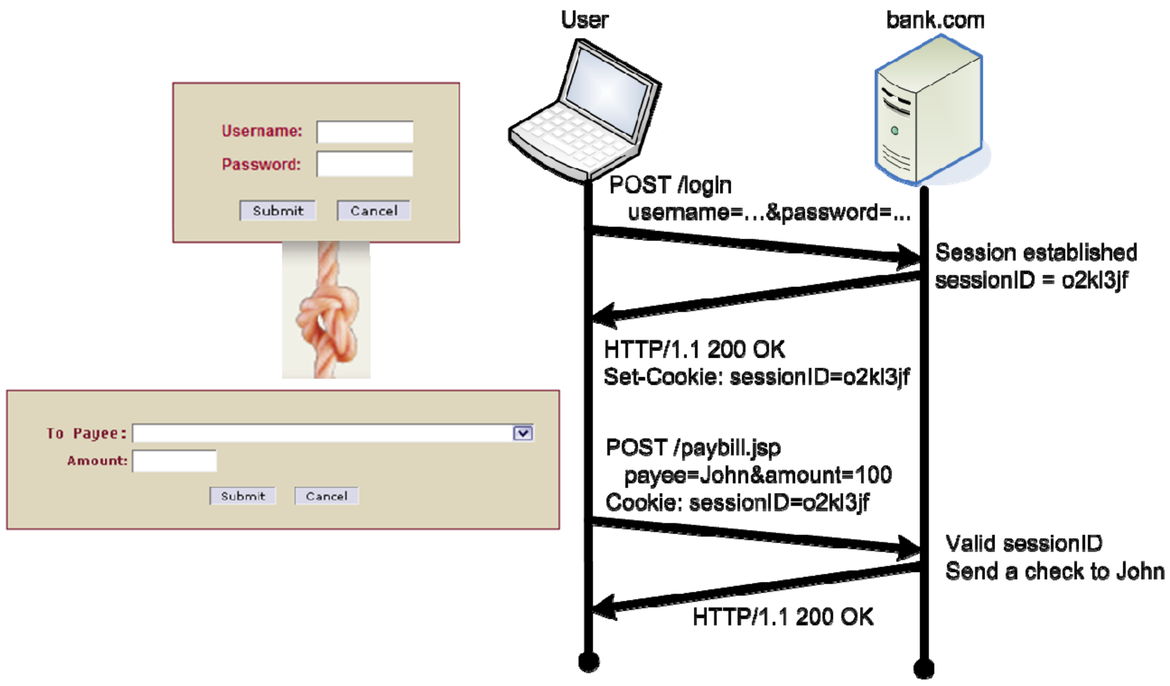
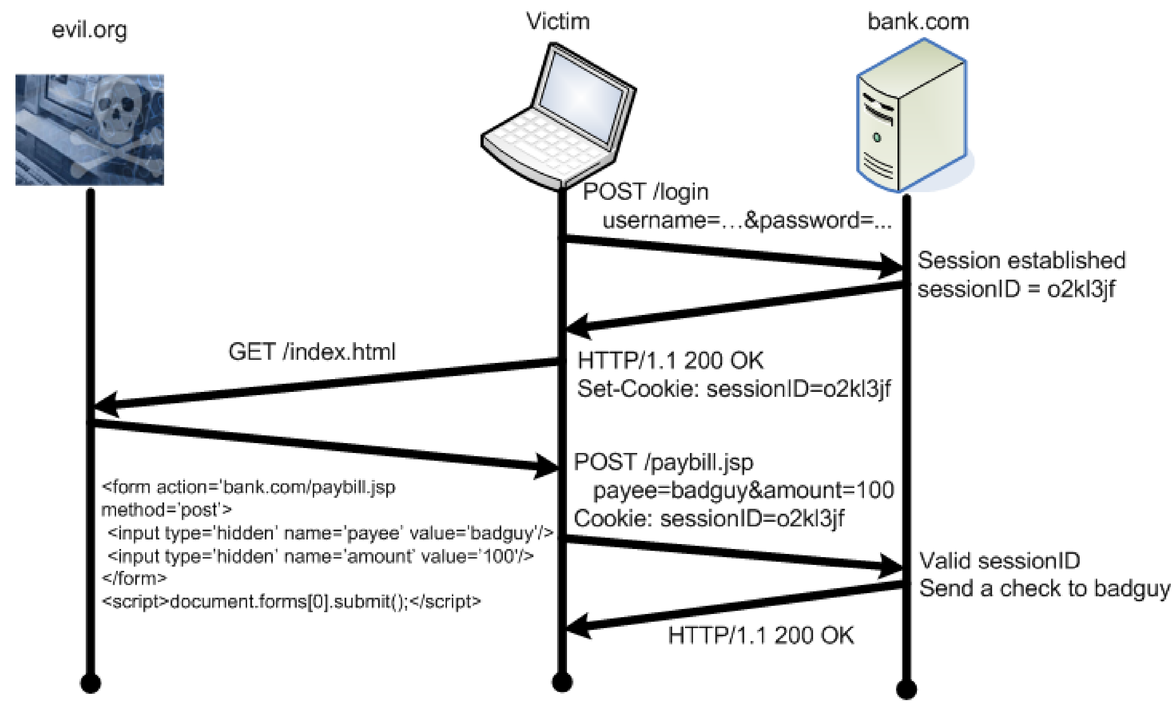
Session maintenance on web



The CSRF attack



The weakness


Sends cookies if present


Authorizes the request if the cookie is valid


Direct the browser to send a request

A real threat

Gmail by Google BETA — Add a filter to forward emails

PURDUE UNIVERSITY — Delete web email; edit biography

PEFCU Purdue Employees Federal Credit Union — Transfer money; add accounts

- **Diagnosis**
  - No every request reflects the user's intention
  - Browser should NOT *always* attach auth tokens
- **Proposal**
  - *only intended requests carry auth tokens*
- **A Browser-Based Solution**
  - infer whether a request reflect the user's intention
  - infer whether an auth token is sensitive
  - strip sensitive tokens from unintended requests
- **Implementation**
  - A Firefox Extension available at mozilla.org

- **Design Details**
  - Infer the user's intention
    - User-interface actions
    - Ancestor web-pages
  - Infer the auth token's sensitivity

	GET		POST
	HTTP	***HTTPS***	Sensitive
Session	Not Sensitive	Sensitive	
Persistent	Not Sensitive		
HTTP Auth Header	Sensitive		

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