SY306 Web and Databases for Cyber Operations
Slide Set # 8: Cookies and Web tracking


HTTP client-server interaction review
Cookies

• Cookie
  – Data stored on _____________ to maintain information about client during and between browser sessions

WHY??

Cookies

• Cookies were invented to solve the problem "how to remember information about the user…”
  – identifier=value pairs in a small text file
  – Stored on the client’s hard-drive

  – When the client browser makes an HTTP request to the webserver, the info is sent as ‘cookies’ as part of the request.
    • Webserver will respond to client-browser with the requested files
    • The files will rendered under the context of having identifier=value info available
    • This provides for a personalized browsing experience for each client browser

• Cookies can be set client-side (Javascript) or server-side (Python)
Web Tracking

• Who performs web tracking?

• Why?

• How?

Behavioral targeting

• Type of online advertising where ads are displayed based on the users web-browsing behavior.

• User will leave a trail of digital foot prints as they move from one website to the other.

• When a user surfs internet, their browsing activities are used by tracking sites to collect data.

• A user profile is created from the data and datamined for an online behavioral pattern of the user.

• As a result when users return to a specific site or a network of sites, the created user profiles helps advertisers reach a target audience.
Third party cookies

- Third party cookies are _______

- Example:
  - User visits website nordstrom.com, and the web page displays some content (image, advertisement, link, etc) ran by clothingads.com.
  - The user is interested in the content so they click on it.
  - Since clothingads.com owns the content, the user’s content request can set a cookie on domain clothingads.com.
  - The cookie set on clothingads.com domain is known as a third-party cookie.
  - The fact that the user requested a specific image from clothingads.com allows advertisers to build a profile of the user.
  - Advertisers use third-party cookies to track your visits and behavior to the various websites on which they advertise.
  - Profiles get more refined as users browse on more site the advertisers advertise on.

Countermeasures

- Disable third-party cookies from your browser

- Opt out of targeted advertising via browser extensions such as RequestPolicy, NoScript, Ghostery

- Set a ‘Do Not Track’ option on your browser settings.
  - Note: Advertisers may or may not adhere to this

- Set browser cookie policy to delete cookies after browsing session terminates.