Lecture 11

PHP Arrays
i.e. Property Lists

Course logo spider web photograph from Morguefile openstock photograph by Gabor Karpati, Hungary.
Vis-à-vis Last Lecture

- Recall digression in the last lecture
- Use of Little Snitch
- Relevance to Mac Malware

From Apple Insider on February 9, 2017

The Word file, titled "U.S. Allies and Rivals Digest Trump's Victory - Carnegie Endowment for International Peace" is noted in research compiled by Objective-See to show a usual Word macro warning when it is attempted to be opened by potential victims. The notice warns that macros could contain viruses, and gives the option to continue opening the file with and without macros enabled, as well as to back out from opening it at all.

If run with macros enabled, the automatic macro starts to run python script, which first checks if network monitoring tool Little Snitch is running, before attempting to download a second-stage payload from a URL, decrypting the payload, and then executing its contents. The python code itself is sourced from the open-source EmPyre project, an existing post-exploitation framework, with the code used "almost verbatim."
About Authentication
Assignment 4

- Recitation introduced the md5 hash.
- First cardinal rule of security:

  NEVER STORE UNENCRYPTED PASSWORDS ON A SITE!!

- Caution:
  - This first of two passes at authentication
  - Good news, simple and informative
  - Bad news, DEPRICATED as insecure!
For Example

- Here is the hashed password provided in Assignment 3:
  48f2f942692b08ec9de1ef9ada5230a3

- See how long the password remains a `secret`.

- We will come back again to passwords and introduce more in the way of key ideas, for example “salt”.
Example 01

- Arrays as sets of key-value pairs.
- Example, match states to capitals.
- Illustrate `print_r` and `foreach`.

```php
<?php
$ar1 = array(
    'Colorado' => 'Denver',
    'California' => 'Sacramento',
    'Wyoming' => 'Cheyenne'
);
print_r($ar1);
foreach ($ar1 as $key => $val) {
    echo "<p>The capital of $key is $val</p>";
}
?>
```
Arrays may be indexed by names

Ways to accomplish iteration. Foreach ...

The capital of Colorado is Denver
The capital of California is Sacramento
The capital of Wyoming is Cheyenne
Why “Property List”

➢ Think about keyword value pairs ...
C Style Loops

For loop
"for i = 0 to N"

- Array sequentially indexed
- Indices explicit
- Indices are integers
- Access is explicit: a[i]
- Elements semantically equivalent

For each with keys
foreach ($ar1 as $key => $val)

- An ordered set of keyword value pairs
- Placement, i.e. integer index, hidden.
- Key and are available upon each iteration.
PHP print_r command will echo the contents of an array. Note syntax used to highlight keyword to value pairing.
Review: Display vs. Source

- Look carefully at the previous slide
- Highlights the distinction between how a browser formats output and how the HTML source is formatted.
- Students asked:
  - Why in source print_r is ‘pretty’ with indentation and newlines.

Meta Message in Example 01

- The current set of PHP examples use a complete subset of the CS Roo Template. So, for example, pay attention to:

Site includes assets, tools, style, and groups using subfolders.

Relative Addressing!