IT350: Web & Internet Programming

Set 9: Regular Expressions and More About Files
Regular Expression and Matching

- CGI receives lots of user input
- You need to match strings for proper input

Is this a proper email address?
“instructor@usna.edu”

Regular Expressions are powerful
if( preg_match("/\w+@\w+\.\w\w\w/", $email ) ) {
    echo “Valid email!”; 
}
Regular Expressions in PHP

• **Matching**: `preg_match($pattern, $subject, [$matches])`

• Matching Example
  ```php
  if( preg_match('/.*it350.*\/', $str) ) {
    echo "Contains it350!";
  }
  if( preg_match('/.*ic210.*\/',$str) != 1 ) {
    echo "Doesn’t contain ic210!";
  }
  ```
Regular Expressions in PHP

• **Substitution:**
  
  `preg_replace($pattern, $replacement, $subject[,,$limit])`

• Substitution Example
  
  ```php
  $str = "The cat is being catty."
  $str2 = preg_replace('/cat/', 'dog',$str);
  echo "$str2";
  ```

  OUTPUT: *The dog is being dogty.*
## Some Regular Expression Quantifiers and Metacharacters

<table>
<thead>
<tr>
<th>Quantifier/Symbol</th>
<th>Matches</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
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<td>*</td>
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Regular Expressions and Matching

```php
<?php
$search = "Now is is the time";
$content = "<p>Test string is '$search'</p>";

if (preg_match('/Now/',$search))
    $content .= "<p>Search 1 success</p>";

if (preg_match('/^Now/',$search))
    $content .= "<p>Search 2 success</p>";

if (preg_match('/Now$/',$search))
    $content .= "<p>Search 3 success</p>";

if (preg_match('/\b ( \w+ ow ) \b/x',$search,$matches))

echo $content; ?>
```
Exercise #1

• Write a regex to match a valid phone number $\text{phone}$ in an if statement.

• Write a regex to replace one or more newline characters in a string variable $\text{str}$ with "&&"
  - Make it work for both Unix (\n) and Windows (\r\n)
PHP Files

- Files
  - $handle = fopen($fileName, $mode)
  - fwrite($handle, $someText)
  - fclose($handle)
  - fgets($handle)
  -feof($handle)
Files - fopen() modes

<table>
<thead>
<tr>
<th>Mode</th>
<th>Description</th>
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<tbody>
<tr>
<td><code>r</code></td>
<td>Read only. Starts at beginning of file</td>
</tr>
<tr>
<td><code>r+</code></td>
<td>Read/Write. Starts at beginning of file</td>
</tr>
<tr>
<td><code>w</code></td>
<td>Write only. Opens and clears contents of file; or creates new file if it doesn't exist</td>
</tr>
<tr>
<td><code>w+</code></td>
<td>Read/Write. Opens and clears contents of file; or creates new file if it doesn't exist</td>
</tr>
<tr>
<td><code>a</code></td>
<td>Write only. Opens and writes to end of file or creates new file if it doesn't exist</td>
</tr>
<tr>
<td><code>a+</code></td>
<td>Read/Write. Preserves file content by writing to end of file</td>
</tr>
<tr>
<td><code>x</code></td>
<td>Write only. Creates new file. Returns FALSE and error if file already exists</td>
</tr>
<tr>
<td><code>x+</code></td>
<td>Read/Write. Creates new file. Returns FALSE and error if file already exists</td>
</tr>
</tbody>
</table>
How everything works:
Step 2: processPersonInfo.php - with storage

<?php
//retrieve name and age
$name = $_POST['name']; $age = $_POST['age'];

if (empty($name) || empty($age)){
    echo '<p> Name or age not entered!! Try again</p>';
} else{
    echo '<h1> Welcome $name! You are $age years old</h1>";
    $fp = @fopen("persons.txt", 'a');
    if (!$fp){
        echo "<p><b>Error</b> opening file. Contact admin</p>";
    } else{
        $text = "$name	$age
";
        fwrite($fp, $text);
        fclose($fp);
        echo "<p>Your information was saved.</p>";
    }
} ?>
</body> </html>
<?php
    $fp = @fopen("persons.txt", 'r');
    if (!$fp){
        $content = "<p>ERROR! Could not open file for reading.</p>";
    } else{
        $content= '<p>Here is the list: <br>

        $line = fgets($fp);
        while( !feof($fp) ){
            $content .= $line . '<br>';
            $line = fgets($fp);
        }

        $content .='</p>';
    }
    fclose($fp);

    echo $content; ?>
</body> </html>
Files - Read Line from File

- `string fgets(filePointer, [maxLength])`
- `string fgetss(filePointer, [maxLength] [, allowableTags])`
- `array fgetscsv(filePointer, [maxLength] [, string delimiter])`
Files - Read Whole File

- `int readfile(fileName)`
- `int fpassthru(filePointer)`
- `array file(fileName)`
- `string file_get_contents(fileName)`
Other Reads

• `char fgetc(filePointer)`

• `string fread(filePointer, nbBytes)`
Useful File Functions

- \texttt{bool file\_exists(fileName)}
- \texttt{int filesize(fileName)}
- \texttt{bool unlink(fileName)}
function save_to_file($text, $fileName = "myFile.txt"){

    $fp = @fopen($fileName, 'a');

    if (!$fp){
        echo "<p>ERROR: Could not open file $fileName. </p>";
        return FALSE;
    } else{

        flock($fp, LOCK_EX);

        fwrite($fp, $text);

        flock($fp, LOCK_UN);

        fclose($fp);
        return TRUE;
    }
}

Exercise #1

• Create PHP script to:
  - Open/create a file, without overwriting it
  - Write the numbers 1 to 20 to file, separated by space
  - Close the file
Suppose you have a text file of data. You want to remove a line from the middle of the file. **Discussion:** How do you remove it?
<?php
// read entire file into array
$fileLines = file($filename);

// open file for writing
$file = fopen($filename, 'w');

// loop through each line in file
foreach ($fileLines as $aLine){
    if( preg_match('/something/', $aLine)){
        # either modify the line and write it to file
        # or just skip the line (to delete it from file)
    } else{
        fwrite($file, $aLine);
    }
}

fclose ($file);
?>
Exercise #3

• Modify the previous slide’s code to update the file enrollment.txt so student x moves from IT350 to SI340

Original enrollment.txt

student x in IC312
student z in IC312
student y in IC312
student x in IT350
student y in IT350

Updated enrollment.txt

student x in IC312
student z in IC312
student y in IC312
student x in SI340
student y in IT350