WEBD 236

Web Information Systems Programming

Week 5

Agenda

- This week's expected outcomes
- This week's topics
- This week's homework
- Upcoming deadlines
- Solutions to Homework 3, Lab 1
- Questions and answers

Week 5 Outcomes

- Employ string functions to manipulate character-based data
- Employ date and time functions to manipulate date-based data

Strings

- Strings
  - Single quoted strings: `'Hello $i\n'` – no interpolation, no escape sequences
  - Double quoted strings: `"Hello $i\n"` – interpolation, escape sequences

Strings - Heredocs

- Heredocs and nowdocs

```
<?php
$arr = array('heredoc', 'double-quoted');
$message = <<< END
This is a ${arr[0]} that acts like
a ${arr[1]} string, and so
interpolation and escape sequences
are significant as are line breaks.
END;
print(nl2br($message));
?>
```

Strings - Heredocs

- Heredocs and nowdocs

Notice that Aptana doesn't syntax-highlight the heredoc properly.

```
<?php
$arr = array('heredoc', 'double-quoted')
$message = <<< END
This is a ${arr[0]} that acts like
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END;
print(nl2br($message));
?>
```
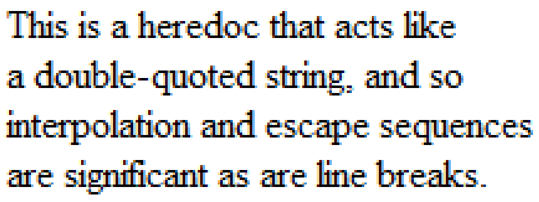



```
This is a heredoc that acts like
a double-quoted string, and so
interpolation and escape sequences
are significant as are line breaks.
```

Strings - Nowdocs

- Heredocs and nowdocs

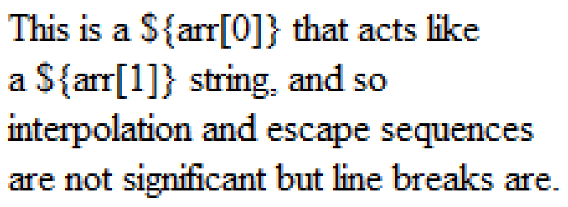
```php
<?php
$arr = array('nowdoc', 'single-quoted');
$message = <<< 'END'
This is a ${arr[0]} that acts like
a ${arr[1]} string, and so
interpolation and escape sequences
are not significant but line breaks are.
END;
print(nl2br($message));
?>
```

Strings - Nowdocs

- Heredocs and nowdocs

```php
<?php
$arr = array('nowdoc', 'single-quoted');
$message = <<< 'END'
This is a ${arr[0]} that acts like
a ${arr[1]} string, and so
interpolation and escape sequences
are not significant but line breaks
END;
print(nl2br($message));
?>
```

Notice that Aptana doesn't syntax-highlight the nowdoc properly either.



```
This is a ${arr[0]} that acts like
a ${arr[1]} string, and so
interpolation and escape sequences
are not significant but line breaks are.
```

String Escape codes

Code	Purpose
`\\`	Backslash
`\'`	Single quote
`\"`	Double quote
`\$`	Dollar sign
`\n`	Newline
`\t`	Tab
`\r`	Carriage return
`\xhh`	Hexadecimal char

HTML ignores whitespace, so you'd only see \t, \n, \r in "view source"

Strings and Characters

- ASCII values
  - Each character maps to an integer value
    - Ex: 'A' is 65, 'Z' is 90, etc. (see www.asciitable.com)
  - Use `ord()` with a character parameter to get the ASCII value back.
  - Use `chr()` with an integer parameter to get the character value back.

Looping and Strings

- Looping through strings
  - Use `str_split()` to convert a string to an array of 1-character strings.

```
function asciiEncode($str) {
    $result = '';
    $chars = str_split($str, 1);
    foreach ($chars as $char) {
        $result .= '&#' . ord($char) . ';';
    }
    return $result;
}
$encoded = asciiEncode("todd.whittaker@franklin.edu");
```

Looping and Strings

- Looping through strings
  - Use `str_split()` to convert a string to an array of 1-character strin

```
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    $result = '';
    $chars = str_split($str
    foreach ($chars as $cha
        $result .= '&#' . o
    }
    return $result;
}
$encoded = asciiEncode("todd.whittaker@franklin.edu");
```

Produces:

```
&#116;&#111;&#100;&#100;&#46;&#1
19;&#104;&#105;&#116;&#116;&#97;
&#107;&#101;&#114;&#64;&#102;&#1
14;&#97;&#110;&#107;&#108;&#105;
&#110;&#46;&#101;&#100;&#117;
```

Learning a Language

- Two basic parts to learning any new programming language
  - Syntactical constructs
    - Control structures, key words, punctuation, data types, etc. I.e. rules of the language
  - Libraries
    - Pre-written routines (functions, objects) that you can use without writing them yourself.

Common String Functions

- Full list http://php.net/manual/en/ref.strings.php

Function	Purpose
`strlen($str)`	Returns the length of the string
`empty($str)`	Returns TRUE if the string is empty, `null`, or `'0'`.
`substr($str, $i [, $len])`	Returns a substring of `$str` starting at position `$i` (0-based indexing) and containing `$len` characters (at most).
`strpos($str1, $str2)`	Searches `$str1` for `$str2` and returns the integer value of where it is found or FALSE if it is not found. See also `stripos`, `strrpos`, `strripos`.

Common String Functions

- Full list http://php.net/manual/en/ref.strings.php

Function	Purpose
`str_replace($old, $new, $orig)`	Replace all occurrences of `$old` with `$new` in the string `$orig`. See also `str_ireplace`.
`ltrim($str), rtrim($str), trim($str)`	Trims whitespace from the string on the left, right, and both sides.
`str_pad($str, $len[, $pad[, $type]])`	Pads a string up to be up to `$len` in length using `$pad`.
`strtolower($str), strtoupper($str)`	Converts a string to lower or upper case respectively.

Common String Functions

- Full list http://php.net/manual/en/ref.strings.php

Function	Purpose
`explode($sep, $str)`	Splits a string into an array based on the `$sep` delimiter.
`implode($sep, $arr)`	Produces a single string from the array with `$sep` between elements.
`strcmp($str1, $str2), strcasecmp($str1, $str2), strnatcmp($str1, $str2),`	Compares two strings, returning `-1` if `$str1 < $str2`, `0` if `$str1 == $str2`, and 1 if `$str1 > $str2`.

Common Math Functions

- Full list http://php.net/manual/en/ref.math.php

Function	Purpose
`abs($num)`	Returns the absolute value of `$num`.
`ceil($num)`	Returns the next integer greater than or equal to `$num`.
`floor($num)`	Returns the next integer less than or equal to `$num`.
`round($num[, $prec])`	Rounds `$num` to `$prec` decimal places.

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Common Math Functions

- Full list http://php.net/manual/en/ref.math.php

Function	Purpose
`max($n1, $n2[, $n3...])`	Returns the maximum of all parameters. See also `min()`.
`pow($base, $exp)`	Raises `$base` to the power `$exp`.
`sqrt($num)`	Computes the square root of `$num`.
`mt_rand($low, $high)`	Returns a random integer between `[$low, $high]`

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Formatting Output

- `sprintf($format, $val1[, $val2 ...])`
  - Returns a string with values inserted at given

```
$result = sprintf("Hello, %s, you have %10.2f dollars",
    'Fred', 13.245);
```

Hello, Fred, you have 13.24 dollars

Dates and Times

- Timestamp: an integer number of seconds since 12:00 AM, January 1, 1970 GMT.
- Can use functions to generate timestamps, format output, compute differences, etc.

```
$seconds = time();
$str = date("n/j/Y", $seconds);
```

$seconds is 1328123445, $str is 2/1/2012

Dates and Times

- Use `strtotime` to parse date strings into timestamps

```
$seconds = strtotime("2012-02-01 4:35:21pm");
$str = date("g:i:s A, n/j/Y", $seconds);
```

$seconds is 1328110521 ,
$str is 4:35:21 PM, 2/1/2012

Dates and Times

- Use `strtotime` to parse date strings into timestamps

```
$seconds = strtotime("2012-02-01 4:35:21pm");
$str = date("g:i:s A, n/j/Y", $seconds);
```

```
$seconds = strtotime("+2 weeks 8am", time());
$str = date("g:i:s A, n/j/Y", $seconds);
```

$seconds is 1329289200 ,
$str is 8:00:00 AM, 2/15/2012

Dates and Times

- Can also use a `DateTime` object to manipulate dates.

```
$dueDate = new DateTime();
$dueDate -> modify("next Sunday 11:59:59pm");
$str = $dueDate -> format("g:i:s A, n/j/Y");
```

`$str` is 11:59:59 PM, 2/5/2012 based on today being Wednesday, 2/1/2012

Dates and Times

- A `DateInterval` object holds a difference between dates.

```
$date911 = new DateTime("2001-09-11 9:59:00am");
$today = new DateTime();
$delta = $date911 -> diff($today);
$str = $delta -> format("%R%yy %mm %dd %H:%I:%S");
```

`$str` has +10y 4m 21d 10:43:10 based on today being 2/1/2012

Given a `DateInterval` object, you can add or subtract that from a `DateTime` object as well.

Dates and Times

- A full listing on dates and times in PHP: http://www.php.net/manual/en/ref.datetime.php

Upcoming Deadlines

- Readings for next week
  - Chapters 11 and 12 in *PHP and MySQL*
- Assignments
  - Homework 4 due February 5
  - Lab 2 due February 12
- Next week:
  - Arrays, cookies, sessions

Solution to HW 3

Solution to Lab 1

General Q & A

- Questions?
- Comments?
- Concerns?