

Topics this week: loops, functions, include files.

### Warning

Do not copy code from any MS Word file, PowerPoint file, or PDF file (such as this one) into your Brackets file. Always type the code in yourself.

A big part of learning PHP is that you must train your fingers to type code. You miss out on this if you just copy and paste code from here, there, and everywhere.

Another problem is that these programs may insert smart quotes, also known as curly quotes or typographer quotes. These special quotation marks will not work in your PHP code. You'll have to manually find and replace all of them one at a time.

Note: You can copy and paste some of this code, such as sections of header.php, from the templates on the blog. Any code you find on the blog, you should be able to copy and paste into your projects. That is the purpose of the blog.

### Exercise 1: Include files and templates

1. Create a folder in your web server directory. Name the folder `chapter04`.
2. Copy the `iconz.zip` (`iconz`) directory from the materials site into your folder and unzip it.
3. Create a partial HTML file with DOCTYPE, html, head, body, meta charset, and title tags. Save the file as `header.php`. Your code might look like this. (Use your own name.)

```
<!DOCTYPE html>
<html>
<head>
  <!--
  Sue S. Student
  CIS 086 PHP at Mission College
  2017 Sept 23
  -->
  <meta charset='utf-8' />
  <title>Chapters 4-5</title>
  <style type='text/css'>
    @import "styles.css";
  </style>
</head>
<body>
```

4. Create a second file with the ending tags and a footer. Save the file as `footer.php`. Your code might look like this. (Use your own name.)

```
  <div id='footer'>Copyright &copy; Sue S. Student 2017</div>
</body>
</html>
```

Continue on the next page →

5. Create a third file that has styles for your web pages. Save the file as `styles.css`. You can use styles like this:

```
body { margin: 0; padding: 0; font-family: sans-serif; }
h1 { background-color: blue; color: white; text-align: center;
padding: 0.5em;
}
#footer { background-color: blue; color: white; font-size: 0.9em;
text-align: center; padding: 0.25em; margin: 0 2em;
}
#content { margin: 1em; padding: 1em; }
#icons { text-align: center; }
figure { display: inline-block; margin: 1em; }
figcaption { text-align: center; }
```

6. Create a fourth file with the following contents. Save the file as `icons.php`.

```
<?php include "header.php"; ?>
<div id='content'>
  <h1>Icons</h1>
  <div id='icons'>
    <?php
      $icons = array ( "android", "apple", "bulb",
        "chrome", "dribbble", "evernote", "forrst",
        "home", "html5", "locaton", "music", "twitter" );
      for ($i=0; $i<count($icons); $i++) {
        echo "<figure>\n";
        echo "  <img src=\"iconz/{\$icons[\$i]}.png\" />\n";
        echo "  <figcaption>\" . ucfirst(\$icons[\$i]) . \"</figcaption>\n";
        echo "</figure>\n";
        if ($i % 4 == 3 && $i != count($icons)-1) {
          echo "<br />\n";
        }
      }
    ?>
  </div> <!-- icons -->
</div> <!-- content -->
<?php include "footer.php"; ?>
```

7. View the `icons.php` file in your browser. You should see the icons, the H1 header, the footer, and all the styles.

## Exercise 2: Functions

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1. Create a PHP file that has the following contents. Call the file `functions.php`. Do *not* include any DOCTYPE, html, head, body, or other tags.

```
<?php include "header.php"; ?>
<div id='content'>
  <h1>Functions</h1>
<?php

?>
</div> <!-- content -->
<?php include "footer.php"; ?>
```

2. In the empty PHP code block, write this function that counts the number of vowels in a string:

```
function numberOfVowels ($s) {
    $count = 0;
    for ($i=0; $i<strlen($s); $i++) {
        if (isVowel($s[$i])) {
            $count++;
        }
    }
    return $count;
}
```

3. The above function will not work unless you have a function `isVowel()` that indicates whether or not a character is a vowel. Write this function. The function should take a character as input and return a boolean, true or false. Vowels are a, e, i, o, and u. You should also handle capital letters A, E, I, O, and U. You can assume that any other letter or character is not a vowel.
4. Write a function that counts the number of consonants in a string. You may assume that inputs are single words, so any character that is not a vowel must be a consonant. There are two possible ways to write this function. Call the function `numberOfConsonants()`. You'll also need to write the helper function `isConsonant()`.
5. Write a function that given any word, uses the above functions to print out the length of the word, the number of vowels, and the number of consonants. Call the function `describe()`.
6. Call the `describe()` function (step 5) with the following words:
  - a. strength
  - b. antidisestablishmentarianism
  - c. supercalifragilisticexpialidocious
  - d. pneumonoultramicroscopicsilicovolcanoconiosis
  - e. aeiou
  - f. bcd fghklmn

### Exercise 3: Loops

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1. Create a PHP file that has the following contents. Call the file `loops.php`. Do *not* include any DOCTYPE, html, head, body, or other tags.

```
<?php include "header.php"; ?>
<div id='content'>
  <h1>Loops</h1>
<?php

?>
</div> <!-- content -->
<?php include "footer.php"; ?>
```

2. In the empty PHP code block, write a `for` loop that displays the numbers from 101 to 150.
3. In the PHP code block, write a `while` loop that displays the numbers from 201 to 250.
4. Using the conditional or ternary operator, write a `do...while` loop that displays only the odd numbers from 301 to 350. Here is an example of the conditional (or ternary) operator:  

```
echo "$number is " . (($number % 2 == 0) ? "even" : "odd");
```
5. Note that the above line is an example of the conditional operator, but it doesn't do what is required here. I suggest you have your code print the number if it is odd, and just print an empty string if the number is even.
6. In all the above loops, make sure to print spaces, line breaks, or paragraph tags to separate the numbers. (A space between each number in one loop is the easiest, but put line breaks between the different loops.)

### Exercise 4: Turn it in.

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1. Create a folder called `chapter04`.
2. Put all the above files in the `chapter04` folder.
3. Link all the projects in the `chapter04` folder to your home page. Note that you'll have to use relative links that specify the folder name:  

```
<a href='chapter04/functions.php'>Functions</a>
```
4. Upload your files to the `php.missioncollege.edu` server so I can run them there.
5. Make sure to put the `chapter04` folder inside the `public_html` folder.