CIS 1152 - Lab #3 PHP Arrays
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Modified with permission by Peter Chapin

Objective

This lab will focus on Lecture 4, PHP Arrays. These tasks will require you to create arrays, and then loop over those arrays to produce desired HTML output.

Task 1: tic-tac-toe game board

Student skill: create a simple HTML table (rows & cols) from a PHP array

Draw a standard tic-tac-toe game, as a 3x3 HTML table above, but the game state / contents come from a PHP array. *[Note from pchapin: You might do this with a 4x4 board instead. It makes for a more interesting game (future lab?)]*

Requirements:
- Create a game board by putting the X & O plays from a 2-D array into the proper places in the game board. Below is an example.
- Create nested loops to read the 2-D array $board and print out a 3x3 HTML table with the X & O inside the board. Note that the point of this exercise is to print the given board. There is no attempt here to allow for any game play (yet).
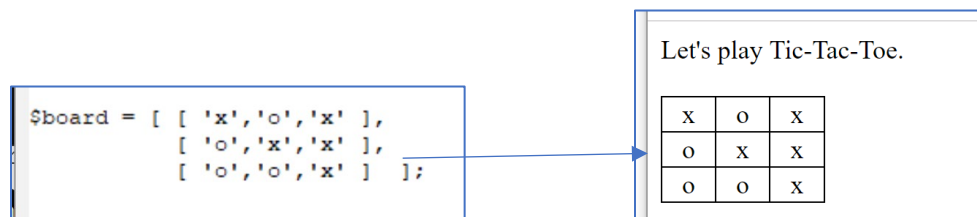
Task 2: Student Addresses

Student Skill: From a PHP 2-D array (a list of lists), print nested HTML <ol> and <ul> lists using a PHP loop over the array.

Last time we defined *many* PHP variables for each piece of address simulation. This time, we are going to use a PHP array. The data structure will be a list of lists -- that's simply a type of 2-D array.

Note that this simulates the Database retrieval of student addresses. We'll do this later in the course.

Put three names and addresses into a 2-D array. You can use the example below or make up your own. There should be six variables per observation: first name, last name, street address,

city, state, and zip code. (Each row is often called an *observation* and each column is often called an *attribute of that observation*.)

```php
<?php

    $names = [ ["steve", "smith", "123 main street", "smallville", "OH", "45444"] ,
               ["betty", "jones", "456 elm street",  "bigville",   "VT", "05445"] ,
               ["bob",   "rapp",  "789 maple street", "circleville", "ME", "02827"] ];
```

Write a loop to iterate over each *row* of the 2-D array. For each row (a.k.a. observation), print the student's name as an ordered list (*i.e.,* numbered, ordinal, <ol>) with last, first format (bold might be nice too).

Then, within each *row*, under the <li> from the <ol>, next the student's address using HTML Unnumbered list, <ul>. Print the address in the typical 3-line letter-address format:

first name, last name
street address
city, state, zip code

The address I have are:

1. **smith, steve**
   - steve smith
   - 123 main street
   - smallville, OH 45444
2. **jones, betty**
   - betty jones
   - 456 elm street
   - bigville, VT 05445
3. **rapp, bob**
   - bob rapp
   - 789 maple street
   - circleville, ME 02827

Task 3: Restaurant Bill

Student skill: manage **a set** of arrays where the column index of the arrays <u>match</u>.

A restaurant wants the ability to present the bill to a party *by customer*. That way, each customer can see their own subtotal (including their tax).

We are going to put the dinner costs for a table into arrays. We don't know how many are seated at the table, **so each person will be represented by a new array element in multiple arrays**. We do know what they can order – plates or drinks. So those will be our 2 arrays.

Customer #1 has their order in $plate[0] and $drink[0] (the first element).
Customer #2 has their order in $plate[1] and $drink[1] (the second element).

We will loop over the 2 arrays ($plate and $drink) to get *individual* subtotals and then apply the tax.

<u>Requirements</u>:
- Create an array called $plates. Put the 3 customers' plate prices into an array.
- Add another array called $drinks. The $drinks array <u>must be</u> of the *same size* as $plates so that the customer elements **are aligned**. If no drink, then that customer gets $0.00.
- Make a HTML table where each row is a customer. Loop over each customer to print out their plate price, drink price, subtotal food bill and then customer total with tax.
- Sum up the individual subtotals into one Table Total – this is what's due to the restaurant. Add the Tip to that Table Total.

Your server, steve, was happy to serve you.

Cust	Plate	Drink	bill	subtotal
1	$ 10.23	$ 2.5	$ 12.73	$ 13.49
2	$ 9.99	$ 0	$ 9.99	$ 10.59
3	$ 12.32	$ 1.5	$ 13.82	$ 14.65

A tax rate of 6% has been applied per customer

The total expense from the table is: $ 38.73
The party tip was: $ 5
The total income from the party was: $ 43.73

Thank you and come again.

```php
<?php
$server="steve";
$plates = [ 10.23, 9.99, 12.32 ];
$drinks = [  2.50, 0.0,  1.50 ];
$taxrate = 0.06; # 6% tax on the food
$tip = 5.00;     # tip from table
?>
```