**Lab  Week 10: Web Programming - CSci130**

**Department of Computer Science, College of Science and Mathematics, Fresno State**

**Goals:** The goal is to get familiar with the syntax of PHP by implementing some classic functions. Because you should not reinvent the wheel, you must be able to investigate into the PHP manual to find out how to use existing functions (e.g., parse JSON objects), and elements that to parse a string.

**Learning outcomes**: PHP syntax, JSON, POST and GET with Single-Page Application and Traditional Page.

**Part 1. JS + AJAX + PHP**

- Create an HTML page that allows a user to enter a list of *n* numbers into an array in JavaScript (by default, these numbers will have the value 1 to n, the item at position j will have the value j).
  - You can have a button to create an array with random numbers (integers) and populate the form to not waste time for debugging purposes. These numbers can be then displayed in your page, so you know what they contain, you can verify that the server side receives the proper numbers.
- The following functions are going to be executed on the **server side (code in PHP)**:
  - Function that returns the *average* of the values given in an array.
  - Function that returns the *median* of the values given in an array.
  - Function that returns the *standard deviation* of the values given in an array.
  - Function that returns the *maximum* and *minimum* of the values given in an array
- **Part 1**: Single Page Application (SPA) with JS + AJAX + PHP + GET
  - Transform the array into a JSON object and send it to the server using AJAX.
  - Example: localhost/mysite/lab9.html?v1=1&v2=2&v3=3&v4=4
  - Estimate the average, median, standard deviation, min, and max contained in the array sent by the client.
  - Send back to the client these results within a JSON object.
  - Present the results on the client side.
- **Part 2**: Single page application (SPA) with JS + AJAX + PHP + POST
  - Transform the array into a JSON object and send it to the server using AJAX.
  - Estimate the average, median, standard deviation, min, and max contained in the array sent by the client.
  - Send back to the client these results within a JSON object.
  - Present the results on the client side.
- **Part 3**: Traditional page with PHP – GET
  - Use a GET to send the information to a PHP page (it can be the same page) that will display the average, median, standard deviation, min, and max contained in the array.
- **Part 4**: Traditional page with PHP – POST
  - Use a POST to send the information to a PHP page (it can be the same page) that will display the average, median, standard deviation, min, and max contained in the array.