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Lab Week 10: Web Programming - CSci130

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Keep the different documents that you are creating during the lab sessions as they can be asked later as a part of the "attendance and participation" mark.

Goals: The goal of this lab is to get familiar with the syntax of PHP by implementing some classic functions. In addition, because you should not reinvent the wheel, you have to be able to investigate into the PHP manual to find out how to use existing functions (e.g. parse JSON objects).

Learning outcomes: PHP syntax, classes and objects with PHP, JSON with PHP.

Part 1. JS + AJAX + PHP

You can work as a group (**3** students) but you must be all aware and able to do the different parts. It is a key learning outcome from this course. You MUST be comfortable with AJAX, GET, POST by the end of CSci130.

- Create an HTML page that allows a user to enter a list of 10 numbers into an array in Javascript.
  - You can have a button to create an array with random numbers to not waste time. These numbers can be then displayed in your page, so you know what they contain.
- The following functions are going to be executed on the server side:
  - Create a function in PHP that returns the *average* of the values given in an array.
  - Create a function in PHP that returns the *median* of the values given in an array.
  - Create a function in PHP that returns the *standard deviation* of the values given in an array.
  - Create a function in PHP that returns the *maximum* and *minimum* of the values given in an array
- **Version 1**: AJAX (student 1)
  - 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.
- **Version 2**: PHP – GET (student 2)
- Use a GET to send the information to a PHP page (it can be the same) that will display the average, median, standard deviation, min, and max contained in the array.
- **Version 3**: PHP – POST (student 3)
  - Use a POST to send the information to a PHP page (it can be the same) that will display the average, median, standard deviation, min, and max contained in the array.

Part 2. PHP Classes

You have to create 3 classes:

- **Person** with the properties first name, last name, date of birth, address.
  - Create the associated methods to access and modify the properties
  - Create a method to return the age
    - Search for information related to the date object
  - Create a virtual method to display all the information about a person
  - Create a virtual method to obtain a JSON object from all the information about a person
- **Student** with the properties ID, current GPA, current units
  - Create a constructor to create a default student
  - Create the associated methods to access and modify the properties
  - Create a method to display all the information about a student
  - Create a method to transform all the information about a student into a string
  - Create a method to obtain a JSON object from all the information about a person
- **Faculty** with list of courses to teach, rank, department, college
  - Create the associated methods to access and modify the properties
  - Create a method to transform all the information about a student into a string
  - Create a method to display all the information about a faculty
  - Create a method to obtain a JSON object from all the information about a person

We will **reuse** these classes when we will add a form where we will connect the input from the forms and the objects of these classes.

Feel free to reuse and adapt the code for the project as you will need to manage different entities (User, Game, Level,…).

These classes will be used in the next labs for the databases and with the files saved in the server side.