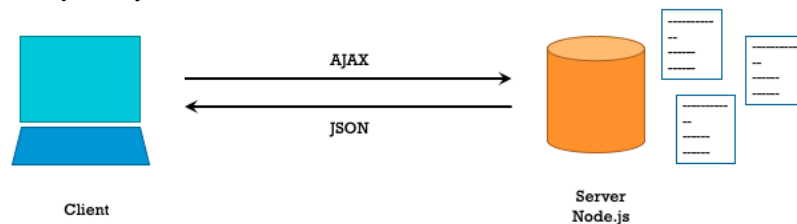# Compulsory Laboratory Sheet 3 – AJAX and JSON

- This lab will be evaluated and averaged for calculating your final score for the lab part.
- This lab corresponds to 25% of the final score of the labs.
- This lab has to be submitted before Wednesday 9 March at 23:30.
- Submissions after that will be penalized with 10% discount for each late day, and no assignments will be accepted after Monday 14 March at 23:30.

Without hesitation, three of the main characteristics of JavaScript are: i) the use of AJAX for accessing/reading objects through the internet, ii) the representation of objects using JSON, and iii) the well-known library called jQuery.

In this assignment, we are going to use AJAX to read JSON objects from a server that has to be implemented using Node.js. And then, access to a file from that server using a browser such as chrome or Firefox that is going to represent the client side. We will also use some of the functionalities of jQuery.
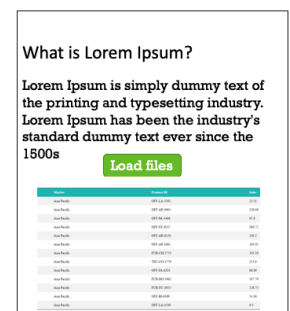

You need to follow the next steps to develop the assignment:

1.- (1 pts) Create a README file with the instructions to execute your code and listing the parts that are completed and the ones that are missing.

2.- (2.5 pts) Create a server using Node.js in which a website called index.html is stored and also store the following files in a folder called country-objects. Please, use the name for the folder "/country-objects" so it can be reviewed more easily. The client (your browser) will load the page "index.html" and the page will run the JavaScript/AJAX code to access the different files. Node.js will be listening for the client's queries and responding to each of them through the file system reading operations.

The files we need to access are:
- Country/Capital
  https://github.com/samayo/country-json/blob/master/src/country-by-capital-city.json
- Country/Continent
  https://github.com/samayo/country-json/blob/master/src/country-by-continent.json
- Country/Coast Line
  https://github.com/samayo/country-json/blob/master/src/country-by-costline.json
- Country/Currency name
  https://github.com/samayo/country-json/blob/master/src/country-by-currency-name.json
- Country/ Internet domain
  https://github.com/samayo/country-json/blob/master/src/country-by-domain-tld.json
- Country/Flag
  https://github.com/samayo/country-json/blob/master/src/country-by-flag.json

3- (2.5 pts) Create a website called "Index.html" where we have a structure that includes a button that will display a table once it is clicked. The code for accessing the files with the objects in JSON has to be written using AJAX. You also need to create some "headers" and "paragraphs" explaining what is the program doing and which technologies you are implementing. For example, you could say: "This website implements AJAX to access JSON Objects", "AJAX is a technology based on...", "JSON is a format for...".

Once, the button is clicked, the page will read the previous files and will create a unique Table in which there will be the following fields for all the countries in the world.

Country -- Continent -- Currency name -- Internet domain -- Flag

Ireland,   Europe,   EUR,   .ie,

Table 1: We will merge all the files to create a single table with all the fields for each country.

Once the button for loading al the files is clicked, the program waits 5 seconds (you can use a function to wait 5k milliseconds), and then modifies a paragraph to say: "The folder (name of the folder)" has been read. Finally, when all the files have been read, it creates a unique table as shown in Table 1 with all the countries and publish the message "The table has been created".

The table can be stored in a two-dimensional array and combined to form the previous table. You can use the name of the country as a "Key" to merge all the tables into a single one. Include a button to show all the countries or only the first 20. By default, show only the first 20 countries. If you want to use jQuery rather than AJAX, that is absolutely fine.

4.- (3 pts) Include some buttons to use jQuery to change some of the properties of the website. You can include functionalities such as fading, hiding objects and so on. To get a grasp of how it works. You can include 5 different functionalities to hide/show/fade paragraphs, headers, or the table. Or other effects that you consider. You can have a total of three buttons where each button will apply a different functionality. And if the button is clicked again, the text of the button changes and goes back to the original view.

5.- (1 pts) Use JQUERY to enable the user to select a specific cell of the table and change its colour once it is selected like in here: https://jsfiddle.net/bsacheri/gsh7nw5f/7/

*Note: Remember to include comments in your code explaining what function or complex line of code does.

References:
- AJAX: https://www.w3schools.com/xml/ajax_intro.asp
- JSON: https://www.w3schools.com/js/js_json_intro.asp
- jQuery: https://www.w3schools.com/jquery/default.asp