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Lab 8: Web Programming - CSci130

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

Goals: The goal of this lab is to use AJAX (the XMLHttpRequest object in JS) to load data from the server and present it on the client side.

Remark: Do not forget to run XAMPP and to access pages through the localhost ! Not the absolute path to your HTML files.

Learning outcomes: HTML5 form, JavaScript programming, JSON, AJAX, HTML5 Geolocation

Exercise 1. Data Browser (project to be continued in the next weeks)

We all have items that we wish to organize and display. In a collection of items, we typically want to be able to add, remove, search an item, and browse among these different items. In this exercise, you have to propose a collection of objects, which can be defined by different characteristics. These characteristics should include: 2 properties of type string, a property of type number, a property that can be represented as a Boolean (a category with only two options), and a property representing a category, and an image representing the object.

Try to be original and consider a collection of items that is meaningful to you and that you may reuse in your future. Think of any business you would like to create that requires to manage a collection of "things". You may wish to consider a collection of objects corresponding to books, video games, DVDs,… or a collection of animals, or people such as a list of football players, basketball players, …

In the next labs, you will add new functionalities to this collection of objects.

Step 1: Create a class defining the type of object that you wish to represent in a website.

Example related to a car:

- Brand (string), Model (string), Year (number), Color (string),
- Body style (sedan, coupe, sport car, hatchback, convertible, SUV, minivan, truck)
- Transmission (manual/automatic) (Boolean)
- Type (AWD/FWD/RWD)
- Image (link to the image of the car) We will assume that the image is already present on the server side.

Step 2: Create 5 instances of the class that you created, then create an array containing these 5 objects, and transform this array into its JSON representation.

Step 3: Save the content into a file (manually): "mycollection.json".

Step 4: Create an HTML page to present the cars (no need to edit)

Discuss and select with the students around the table what would be the best HTML5 form options to consider for presenting the different properties (i.e., radio button, check boxes, text boxes, combo box,…)

Using **AJAX**, get the file from the server, and display the cars in the webpage.

Display only the first object and provide 2 buttons (next and previous) to browse among the 5 objects that are loaded.

Step 5: Using the port forwarding, give the address of your page to some other students so they can go through the different cars that you have on your page.

Discuss with the students around the table how the page can be improved and what are the functions that are common and can be reused for various collections.

After sharing the pages with other groups/other students, we will see who has the most functional pages.

Exercise 2. (Bonus)

The goal is to create an HTML page that displays a map of the area and displays a point at your current location by using the **HTML5 Geolocation API**. You can download a map on the Internet (screenshot of google map). You can use Google Earth to verify the coordinates of the different locations.

If you take a screenshot of a map, get the coordinates of each corner of the map, so you can represent the coordinate in GPS into coordinates on the screen.

https://developer.mozilla.org/en-US/docs/Web/API/Geolocation_API

The page should display your **current location**. Under the map that gives your location, you should display the coordinate of your location (latitude, longitude) and your position on the map.

Discuss the code with the students around the table.