CS2003 Tutorial Week 08

1. Functions

i. Write a JavaScript function that takes a list of numbers and returns a new list by multiplying each item by 2.
ii. What does your function do if it is given an array of other values?
iii. Write the same function using map (look it up) with an explicitly declared function (using function syntax) as the argument to map.
iv. Write another version of this by passing an anonymous function to map (a lambda function).
v. Write a version that checks if the elements of the array are numbers and only return the doubles of the numbers.

2. Objects

i. Write a JavaScript function constructor for an instance of Pokémon character containing a name plus the following statistics: HP, Attack, Defense, Special Attack, Special Defence, Speed (as described in: https://en.wikipedia.org/wiki/Gameplay_of_Pokémon#Base_stat_values)
ii. Show how you would use the constructor to create an instance of a character.
iii. Include in the character some methods that give the average attribute and the total attribute of the character.
iv. Write a function that takes two Pokémon and gives the one with the highest HP.
v. Where would be a good place to store such a function and why?
vi. How would you create an associative map from the name of a Pokémon character to the object that represents it?
vii. If you had an array of such Pokémon characters, how would you create an html table from it, like the one found here: https://bulbapedia.bulbagarden.net/wiki/List_of_Pokémon_by_base_stats_(Generation_VII-present) (don't worry about the images etc.)

3. JSON

i. Write a function that takes an array of the above Pokémon characters and save them into a file in JSON format.
ii. Write another that would take a filename and create an array of characters (reversing the above).

4. DOM

Write a function that shows the structure of the DOM tree of the web page in which the function is contained. It should show the attributes, content, children, parents and siblings in some sensible form.