

Lab Task 5

JS

Topic 1: JS

JavaScript is a programming language that adds interactivity to your website (for example games, responses when buttons are pressed or data is entered in forms, dynamic styling, animation).

Running Javascript

- Git clone <https://github.com/karandeepSJ/ISS-lab4>
- In browser - Ctrl-Shift-K
- Node for terminal - installation script in repo
- Script tag - inline JS and external file

Basics

- Console.log
- Variables - declaration, initialization
- Datatypes - string, number, boolean, null, undefined
- Operators & arithmetic
- Comments
- Conditionals - if...else, switch
- Loops - for...in
- Strings and string functions - indexOf, replace, substring, toLowerCase/toUpperCase, trim, split, slice, concat, startsWith/endsWith, adding integer to string
- Array - creation ([], new Array()), assignment, non-integer indices, iterating using ForEach, push/pop, shift, concat, sort, slice, splice, join
- == vs ===
- Functions (basic)

DOM

- DOM tree
- Window and document objects
- getElementById, getElementsByClassName, getElementsByTagName, createElement, appendChild
- Manipulating HTML and CSS - element.innerHTML, .style, .setAttribute, .getAttribute
- element.innerText vs element.innerHTML
- Events - click, hover, change, element.<event> vs element.addEventListener

Exercises

1. Write a function “*fifthDay*” which does not take any arguments but returns the fifth day by considering today's date. Search for inbuilt functions for getting today's date and try using JSON object to store any kind of mapping.

For example: If today's date is 2019-02-13 Wednesday, then your function should return a string "Monday".

Make sure the return value of your function always belongs to

["Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday", "Sunday"]

(Case-Sensitive)

2. Write a function called “*altSpaceToUnderscore*” which takes a string and replaces every even space in the string with an underscore. The function should discard any leading or trailing spaces and not consider them for replacement. You can use in-built functions like trim, split, splice, substr, etc for operations on string.

For example:

Input: "Hello there, how are you !!"

Your function should return: "Hello there, _how are_you !!"

3. Create a file “testDetails.js” and import data from the file “data.js”. This included file contains a JSON object which contains marks (out of 100) for the students in the following format: <name>: [marks1, marks2, marks3, marks4, marks5]

Now write the following functions:

- “*getHighestMarks*”: This function should take the data (as mentioned above) and return name of the student with highest total.
 - “*getSubject2Toppers*”: This function should take the data and return a sorted array of students' name with highest marks2.
4. Create a new html file named “test_details.html”. Using the data from the previous section(“data.js”), perform the following tasks:
 - Create a heading (<h1>) named “Student Sheet” in the <body> of html page.
 - Create an HTML table(<table>) with the following header(<thead>).

Name	marks1	marks2	marks3	marks4	marks5
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- Populate the table with entries from the JSON object.
- Highlight the row with color green, on hover over any row of the table.

5. Create a new HTML file named “dynamic.html” and perform the following three tasks:
 - **Dropdown:** Create a dropdown(<select>) of names of the students.
 - **Displaying marks:** On selecting any student name, display the corresponding attributes of the selected student in the table mentioned above
6. Create a function **myArray** that takes as input an array and returns a safe object containing the following functions:
 - **Sum** : Returns the sum of the elements in the array
 - **Product:** Returns the product of elements in the array
 - **Sort:** Returns the array in sorted order.
 - **Modify:** Takes an integer i as an argument and modifies the element at index i in the array
 - **Display:** Displays the array

You are not allowed to use inbuilt functions for these. Ensure that the array is not directly accessible from outside the myArray function.

Resources

1. <https://www.w3schools.com/js/default.asp>
2. <https://developer.mozilla.org/en-US/docs/Web/JavaScript>