Lab 4
More on JavaScript

CSCI2720 Building Web Applications

Agenda

- Using the console
  - Arrays
  - Arrow functions
- Events with DOM Tree

Using the console

- For consistency, we will use Google Chrome for our development use
- Start the console in Developer Tools
  - Windows: *Ctrl+Shift+J*
  - Mac: *Command+Option+J*
  - *Check this out: https://developers.google.com/web/tools/chrome-devtools/shortcuts*
- To test JS code, you can run directly in this console, or output debug messages with **console.log(…)**

Task 1.

Remove Duplicated values in an Array

- Suppose an unsorted array with duplicated values, e.g. :

  `[1, 2, 3, -21, 2, 1, 4]`

- We want to remove the duplicated values. Now the new array becomes:

  `[1, 2, 3, -21, 4]`

- Note that in the new array, the elements order is not important.

  `[-21, 1, 2, 3, 4]`

- is also a valid output.

Task 1.

Remove Duplicated values in an Array

Try to fill in the TODO part!

```
function uniq(arr) {
var ans;
//TODO
 return ans;
}
```

There are many ways! Can you try to fill in "TODO" with:

- .sort();

- .includes();

- (challenging!) .filter() and .indexOf().

References:
https://www.w3schools.com/jsref/jsref_filter.asp

■Recall: arrow functions

■`let func = function(arg1, arg2, ..., argN) { return expression; };`

■An arrow function is a syntactic sugar:

   `let func = (arg1, arg2, ..., argN) => expression;`

■E.g. `let sum = (a, b) => a + b;` takes the sum of two numbers

Task 2.

Counting String Length in an array

- Now, given an array of strings, can we count the length of each string? (use arrow function and .map() and .length)

- E.g., `const materials = [ 'Hydrogen', 'Helium', 'Lithium', 'Beryllium'];`

- The expected output: `[8, 6, 7, 9]`

- console.log(materials.map(… => …));

- Try to fill in "…"!

Task 2.

Counting String Length in an array

Task 3.

Build A Magic Image

In <u>lab4.html</u>, there is an image of magic book. Please add the following functionalities according to events:

- On mouse over: showing a paragraph "The mouse is not the secret!";

- On mouse out: the paragraph disappears.

- On key down: if you are pressing "s", show a paragraph "s is the secret!"; otherwise, show "This key is not the secret";

- On key up: the paragraph disappears;

Task 3.

Build A Magic Image

- Try to implement with your knowledge of DOM and events.

- You can assume that the mouse event and key event will not happen at the same time.

- References:

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

Submission

- No submission is needed for labs

- What you have done for this lab may be useful for your assignment(s)

- **Please keep your own file safely**