

9/5/2021

CS305 Object Oriented and Functional Programming in JavaScript

### **Assignment for W2D1\_2 Object Properties and References:**

Part I. Complete the following tasks from The JavaScript Language book. Write your own code for each of the coding tasks in VSCode before looking at the answers. It is very helpful to have the ESLint checks running when you write your code. You can turn it off in a file if it is trivial code that you do not need to debug with the following line at the top of that trivial file: `/* eslint-disable */`

However, when writing any nontrivial code it finds a lot of bugs and although it takes a little extra time for the initial coding, it will save you a lot of time in the end. Equally important, it will develop good coding practices and make your code look much more professional and make you a better faster professional, faster!

Chapter Objects: the basics.

Section Objects:

- Hello, object
- Check for emptiness (include the tests in VSCode)
- Sum object properties
- Multiply numeric properties by 2

Part II. Write a JavaScript program that will accept title, author, and libraryID values from an HTML page and create new book objects for each entry.

### **Before creating the webpage first write and test the following JavaScript functions:**

- addBook, which will take title, author, and libraryID as inputs. It will create a new book object and add it to the library, which will be represented as a global array named libraryBooks. addBook should return the newly created book.
- findTitles, which will find all the book titles in libraryBooks and return them in an alphabetically ordered array.
- findAuthors, which will find all the authors in libraryBooks and return them in an alphabetically ordered array.
- findIDs, which will find all the libraryIDs in libraryBooks and return them in an alphabetically ordered array.
- **Test these four functions using the Mocha test file: [libraryBooksTest.js](#)**
- Include buttons with the following values and “titles” ( the part after the colon, which should appear on mouseover)
  - Titles: list all titles, sorted alphabetically

- Authors: list all authors, sorted
- libraryID: sorted
- There should be a separate textarea where the titles, authors, or libraryIDs will be displayed depending on which button is selected. Use the eslint conventions including JS Doc for any functions.
- Hint: you might find the `myArray.join("\n")` method useful.
- Be sure to include the link to your `<username>.github.io` home page and that the Mocha tests for this assignment show up for the Objects link.

```
let library = [
  {
    title: 'The Road Ahead',
    author: 'Bill Gates',
    libraryID: 1254
  },
  {
    title: 'Walter Isaacson',
    author: 'Steve Jobs',
    libraryID: 4264
  },
  {
    title: 'Mockingjay: The Final Book of The Hunger Games',
    author: 'Suzanne Collins',
    libraryID: 3245
  }
];
```

Below is a simple example of what your HTML page might look like. The HTML code for this basic example is included in the skeleton code for the lesson.

Book List

127.0.0.1:5501/books.html

Book Title

Author

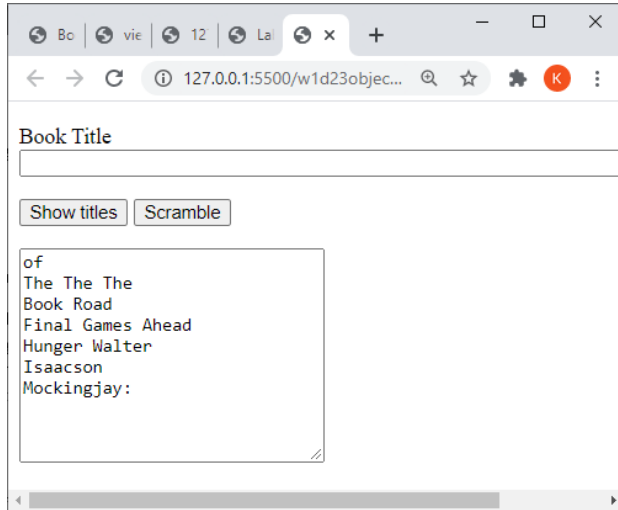
Library ID

Add book to library Show titles Show authors Show IDs

Mockingjay: The Final Book of The Hunger Games  
The Road Ahead  
Walter Isaacson

EC: There is a “Scramble” button in the skeleton `books.html` file. Scramble should

- find all the titles,
- sort the words in them by length,
- display them in the text area with the 1 letter words on the first line, 2 letter words on the second line, 3 letter words on the third line, etc.



### Assignment for W2D2 Object Methods and Constructor Functions:

1. Complete the following tasks from The JavaScript Language book. Try to answer them before looking at the solutions. For the ones asking you to write code do that in VSCode and use the esLint coding conventions we gave you. These are all from the chapter Objects: the basics.

#### Section Object methods, "this"

- Using "this" in object literal
- Create a calculator: use the Mocha test in [the calculatorTests.js file](#)
- Chaining

#### Section Constructor, operator "new"

- Two functions – one object
- Create new Calculator (**solve with the accumulatorTests.js** Mocha test file in VSCode)

Write a constructor function Accumulator(initialValue, increment). The object it creates should:

- Store the current accumulated value in a property currentValue. The constructor should set this to be initialValue.
- The accumulate method should increase the currentValue by the increment.
- The report method should return the currentValue.
- **Run this with the accumulatorTests.js Mocha test file.**

2. Complete the implementation of the [bank code in bank.js and test with bankTests.js.](#)

Be sure to include the link to your <username>.github.io home page in your status report and that the Mocha tests for this assignment show up for the Methods and Constructor Functions link.