

WEB222 - Assignment 2: JavaScript Objects

Due date

All Sections: Saturday, Oct 7, 2017 - 23:59

Grade value: 4% of your final course grade

Objective

Practise JavaScript String, Array and customized objects.

Specifications

Complete the two parts of the assignment as specified below.

Part A

Write a JavaScript program to perform the following tasks. No validation is required for user input – assume that the user will enter valid information.

Open a Firefox Scratchpad. Create comment line(s) for each of the Steps in assignment2a.js using block comments, indicating the start point of each Steps. e.g.

```
/* *****  
 * Step 1  
***** */
```

To run all JavaScript code in Scratchpad, click on the **Run** button. To run a part of the code, highlight the part of code and click on the **Run** button. You're requested to keep a **Web Console** open to monitor console logs and run-time errors when running JavaScript code. Variable values will be kept in memory after a piece of code is run. So, usually, you need to initialize variables to ensure the part of code can repeatedly give the same result.

Step 1:

- Declare the following global variables without any value assigned:
e1, e2, e3, e4, e5, e6, e7, str
- Run the code the in Firefox Scratchpad to test if you code has error or appropriate output. Fix the errors before going to the next step.

Step 2:

- a. Create a function named **capFirstLetter** using the function declaration syntax. The function receives a single parameter of String type. Update / change the first letter of the string to upper case and other letters to lower case. The function returns the updated String.
- b. Write code to prompt the user to enter first name, and use your first name as default value. Accept/store the entered name in **e1**.
- c. Update / change the first letter in **e1** to upper case and other letters to lower case by invoking the function.
- d. Repeat step 1.b (run the code and check for errors and/or outputs).
- e. Hint: use the property and methods of String object – length, substr(from, length), substring(from, to) , toUpperCase() and/or toLowerCase().

Step 3:

- a. Create a function named **getAge** using the function expression syntax. This function receives one parameter of integer (number type), which is the year of a person's birth day. The function returns the age which is calculated based on the year entered.
- b. Prompt the user to enter the year of the user's birth day – accept the number in **e2**. For the default value, use the year when you were born.
- c. Calculate the age by calling the getAge() function and assign the number of age back to **e2**.
- d. Repeat step 1.b (run the code and check for errors and/or outputs).
- e. Hint: for getting the number of the current year, you must use the code:
(new Date()).getFullYear()

Step 4:

- a. Prompt the user to enter the college name the user is attending and assign the input to **e3**. For its default value, use **seneca college**.
- b. Change the first letter of each word of the string in variable e3 to upper case and other letters to lower case.
- c. Repeat step 1.b (run the code and check for errors and/or outputs).
- d. Hint: use the split() method of String and the capFirstLetter() function you created.

Step 5:

- a. Prompt the user to enter 5 favorite sports (in lower case separated by comma) - accept the string in **e4**. Use **hockey,football,basketball,tennis,golf** as default value for the prompt.
- b. If the string in **e4** contains "**football**", replace it with the string "**soccer**".
- c. Split the sports in **e4** into an array and store the array back in **e4**.
- d. Prompt the user to enter an extra favorite sport with the default value "**formula 1**" – accept it in **e5**. Then add the sport (**e5**) at the end of the course array (**e4**).
- e. Repeat step 1.b (run the code and check for errors and/or outputs).
- f. Hint: use the split() and replace() method of String; use the push() method of Array.

Step 6:

- a. For the courses stored in **e4**, do the following operations.

- Update / change each sport string in the array to upper case.
 - Sort the courses in the array in alphabetical order.
- b. Repeat step 1.b (run the code and check for errors and/or outputs).
- c. Hint: use `sort()` method of Array object.

Step 7:

- a. Create a function named **getDateString()**. This function receives one parameter of Date type and returns date string with the format of **yyyy-mm-dd**. e.g. 2017-09-20.
Note: if the number of the month (mm) or date (dd) is less than 10, a '0' is needed before the number.
- b. Create a date object with current date and time, and store it to **e6**.
- c. Get current date string with the format of yyyy-mm-dd by calling the **getDateString()** function and passing **e6** as parameter. Store the date string in **e7**.

Step 8:

- a. Concatenate all the variables **e1, e2, e3, e4 and e7** with appropriate text in variable **str**.
- b. Use one statement **console.log(str)**; to get the following output:



```
User info:
name (e1): John
age (e2): 27
school (e3): Seneca College
favorite sports (e4):
    BASKETBALL
    FORMULA 1
    GOLF
    HOCKEY
    SOCCER
    TENNIS
current date (e7): 2017-09-10
```

- c. Save your file as **assignment2a.js**.
- d. Hint: use `'\n'` and `'\t'` to create multiple lines and indents in web console.

Part B

Download JavaScript file **assignment2b.js** from MySeneca/Blackboard under the **Assignments** section. The file contains some given code, including an array (named **courses**) of course objects and a prototype object (named **student**) for creating student objects. Do not change the given code. Write your code beneath the given code and complete the following tasks:

Task 1:

- a. Remove the last course object from the given array **courses** and store the removed object to a variable.
- b. Output a message to web console to show the course which was removed from the array. Please see the screenshot of outputs on the browser console below.
- c. Create 4 course objects which should have the same properties as what the objects (in the course array) have. Store the 4 course objects in the variables **ibc233**, **oop244**, **web222** and **dbi201**, and the object properties should have appropriate values.
- d. Add these course objects in the array **courses**.
- e. Use for loop to loop through the course array and output the information of the course objects in the array to web console. Please refer the screenshot below.

Task 2:

- a. Create 4 student objects based on the given prototype **student**. Give appropriate property values for all student objects.
- b. Create an array named **students** and add all the student objects into the array.
- c. Use the **forEach** method to iterate the array students and output the information of the student objects to the web console. Please refer the screenshot below.
- d. Save your JavaScript code to file **assignment2b.js**.

Click the image to open it full-size in a new tab/window.

```

*** Task 1 ***

Course EAC150 was deleted from the array (courses)
Adding new course objects into the array (courses)

Course objects in the array (courses):
"APC100, Applied Professional Communications, 3 hours/week, website: http://www.senecacollege.ca/"
"IPC144, Introduction to Programming Using C, 4 hours/week, website: https://scs.senecac.on.ca/~ipc144/"
"ULI101, Introduction to Unix/Linux and the Internet, 4 hours/week, website: https://cs.senecac.on.ca/~fac/uli101/live/"
"IOS110, Introduction to Operating Systems Using Windows, 4 hours/week, website: https://cs.senecac.on.ca/~fac/ios110/"
"IBC233, iSERIES Business Computing, 4 hours/week, website: https://scs.senecac.on.ca/~ibc233/"
"OOP244, Introduction to Object Oriented Programming, 4 hours/week, website: https://scs.senecac.on.ca/~oop244/"
"WEB222, Internet I - Internet Fundamentals, 4 hours/week, website: https://scs.senecac.on.ca/~web222/"
"DBS201, Introduction to Database Design and SQL, 4 hours/week, website: https://scs.senecac.on.ca/~dbs201/"

*** Task 2 ***

Student objects in the array (students):
0: Student info for John Smith: born on 9/10/1999, student id 010456101, program CPA, current GPA 4
1: Student info for Jim Carrey: born on 1/17/1992, student id 012345678, program CPD, current GPA 3.5
2: Student info for Justin Bieber: born on 3/1/1994, student id 0987654321, program CAN, current GPA 3
3: Student info for Justin Trudeau: born on 1/12/1992, student id 123456789, program CAN, current GPA 4
  
```

Assignment submission

- Add the following declaration at the top of your **assignment2a.js** and **assignment2b.js** files:

```

/*****
*
*           WEB222 - Assignment 2
*
* I declare that this assignment is my own work in accordance with Seneca
* Academic Policy. No part of this assignment has been copied manually or
* electronically from any other source (including web sites) or distributed to
* other students.
*
* Name: _____ Student ID: _____ Date: _____
*
*****/
  
```

- Compact your files **assignment2a.js**, **assignment2b.js** into a zip file named **assignment2-<your name>.zip**.
- Submit the zip file to the Blackboard (My.Seneca).

Important note

- **NO LATE SUBMISSIONS for assignments.** Late Assignment submissions will not be accepted and will receive a grade of zero (0).
- After the end (23:59) of the due date, the assignment submission link on the Blackboard will be no longer available.
- All WEB222 assignments are subject to change after released. It's your responsibility to keep your assignment assignments up to date before the assignment is submitted.