

Lab 3_1 [points] JavaScript Basics and Functions

Objectives

- Learn to take users' input and generate random number
- Use the browser development tool
- Make a small JavaScript Program
- Create simple functions

What to do

Part 1 JavaScript Basics

Please follow the steps and answer questions 4-5 in a text file, and question 6, 7 and 8 in the JavaScript file.

1. Download and extract the lab3_1.html and lab3_1_functions.js file
2. Open the lab3_1.html file in Chrome, right click on the page and select **Inspect**.
3. Select the **Console** tab. It is OK to see file not found error message for now.
4. Type the following JavaScript code line into the console. Click enter after the line the code.

```
let userInput = prompt('What number is your lucky number?');
```

You should see a new a dialog box that asks your input. You can give a number and click "OK" button. The type in the following line of code and click enter.

```
userInput;  
typeof(userInput);  
let luckyNumber = document.getElementById('luckyNumber');  
luckyNumber.innerHTML = 'Your lucky number is ' + userInput + '.';  
alert('Your lucky number is ' + userInput + '.');
```

Click "OK" button after the last line of code is executed.

Based on your observations of the output and research, answer the following questions

- a. [1 point] Explain what the prompt() does in the first line of code.
 - b. [1 point] What was returned to the console when you enter userInput?
 - c. [1 point] What is the type of the userInput?
 - d. [1 point] What does alert() do in the last line of code
5. You can now refresh the webpage, observe the changes, and continue to type the following code line by line into the console. Click enter after each line the code.

```
let randomNumber = document.getElementById('randomNumber');  
let rawRandom = Math.random();
```

```
let randomBinary = Math.round(rawRandom);
randomNumber.innerHTML = 'Your random binary is ' + randomBinary + '!';
```

Based on your observations of the output and research, answer the following questions

- a. [1 point] Try `Math.round(0.3)`, `Math.round(0.6)`, `Math.round(1.1)`, and explain what the `Math.round()` does in the third line of code.
 - b. [1 point] Why can the combination of the second and third line of code generate random binary numbers?
 - c. [1 point] Is it possible to generate other types of random numbers with some modification from the second line of code?
6. Now, we will create a simple JavaScript game of flipping the coin by the following steps.
- a. [1 point] Find the `startGame()` function. Write a line of code using `prompt()` method that displays message "Please enter number 0 or 1 to predict the result, 0 for heads and 1 for tails.", asks your user to input their guess of the result with text message, and assign the value to a variable.
 - b. [1 point] Write a line of code to generate a random number using `Math.random()`
 - c. [1 point] Convert the random number to random binary number
 - d. [1 point] Add the follow code:

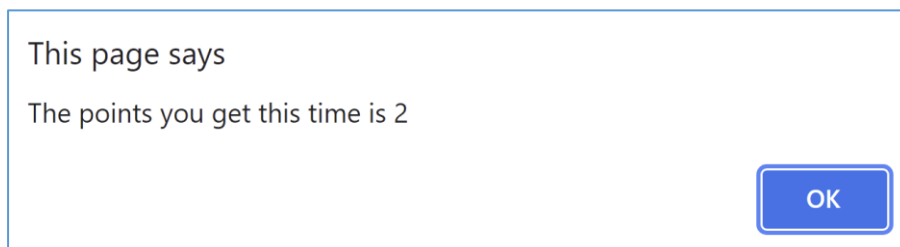
```
let firstGame = document.getElementById('firstGame');
```

and change the `innerHTML` of `firstGame` into the message that displays the result similar to "Your guess is 0 and the result of the coin flip is 0."
 - e. [1 point] Use `alert()` method to display a message that tells the result of the flipping the coin in a format similar to "Your guess is 0 and the result of the coin flip is 0."

Test whether the JavaScript code can be correctly executed.

Part 2 Functions

7. [3 points] Complete the function of `rollDice()` to simulate rolling a die. Follow the steps given as comments in the JavaScript file. The correct outcome should look like the following image.



8. [5 points] Write a function `getSeconds()` that converts time (e.g., 13:05:36 (13 hour, 05 minute 36 second)) into a different format (e.g, 47136s). Please follow the detailed steps in the comments of the JavaScript file. To be simple, assume the user will enter the number correctly, validation of the data is not required here.

The sample users' input and the result should look like the following screenshots.

This page says

Enter a number(0-23) for the hour of the current time

OK Cancel

This page says

The current time 15:26:47 is 55607 seconds after 12:00AM.

OK

Submission:

Zip the files and submit to Brightspace.