COM1008: Web and Internet Technology

Exercise sheet 5: Functions, Built-in objects, Arrays

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Aim: The aim of this exercise sheet is to practise JavaScript programming using more features of the language. Make sure you have finished the previous JavaScript exercise sheet and have downloaded and studied the solutions for this, which are available on the module Web site. You can use document.write() in your answers to the following exercises. However, I encourage you to also experiment with using getElementById(), textContent, and innerHTML, as shown in lectures.

1. The tasks

Exercise 1: Rewrite your answer to Exercise 3 from the previous exercise sheet so that a function is used to display the string 'Hello' multiple times, depending on a number input by the user.

Exercise 2: Write a program that uses functions to calculate the area and circumference of a circle, given a particular radius.

Exercise 3: Rewrite your answer to Exercise 5 from the previous exercise sheet so that a function is used to (i) get a sum of money (with the message supplied as a parameter) – this can be used to read the initial sum of money and then used again to read the desired sum of money, and (ii) calculate a new amount of money when interest is applied – this second function will be called for each iteration of the while loop.

Exercise 4: Write a JavaScript program that displays the current date, but without any time data, e.g. Thursday, 29 October 2015 (*Hint*: You will need to use the Date object. Create a new Date using the *new* keyword and then use some of the Date methods to retrieve the required information – see the following site: https://developer.mozilla.org/en/docs/Web/JavaScript/Reference/Global_Objects/Date. Note that the *date*.getDay() method returns a number, so you will have to write some code to convert the number into the particular day that you wish to display, possibly even writing a function to do this.)

Exercise 5: Write a program that creates an array containing 10 random numbers in the range 0 to 20. The array should then be displayed. Then, the index position of each number greater than 10 should be displayed.

Exercise 6: Write a program that stores 10 random floating point numbers in the range 0.0 to 10.0 in an array. Then, for each number in the array, display the results of using Math.floor(), Math.round() and Math.ceil(). As an example, if the number stored in the array a at index 3 was 4.2, then Math.floor(a[3]) would display 4, Math.round(a[3]) would display 4, and Math.ceil(a[3]) would display 5.

Exercise 7: Write a program that stores 10 random floating point numbers in the range 0.0 to 10.0 in an array (see Figure 1, displayed to 1 decimal place) and then produces a display such as that shown in Figure 2, where the number of stars displayed matches the integer part of the number.

```
4.6
7.7
5.6
1.5
2.2
2.4
3.1
5.1
0.2
9.8
```

Figure 1. 10 random numbers

```
4: ****
7: *******
5: *****
1: *
2: **
2: **
3: ***
5: *****
0:
9: *********
```

Figure 2. A 'graphical' representation of the data