

Javascript review exercises

Curs	23/24	Grup	S2P	Data lliurament	20/10 - 23:55
Mòdul	Interfaces Development				
Títol	Javascript review exercises				

Type	individual
Instructions	
<p>Solve these Javascript exercises. It is important to keep the names of the functions, classes, and properties exactly as they appear in the statements. Try to use a single file to save all your code and test it from a console.</p> <p>Classes</p> <ol style="list-style-type: none"> 1. Define a class <i>Rectangle</i> with properties <i>width</i> and <i>height</i>. Add methods to calculate its <i>area</i> and <i>perimeter</i>. 2. Define a class <i>Circle</i> with a property <i>radius</i> and methods to calculate its <i>circumference</i> and <i>area</i>. 3. Define a class <i>BankAccount</i> with properties <i>accountNumber</i>, <i>accountHolder</i>, and <i>balance</i>. Add two methods, <i>deposit</i> and <i>withdraw</i>, that are able to modify the <i>balance</i>. 4. Create a class <i>Student</i> with properties <i>name</i>, <i>age</i>, and <i>grades</i>. Add a method to calculate the <i>averageGrade</i>. 5. Define a class <i>Person</i> with properties <i>name</i>, <i>age</i>, and <i>gender</i>. Create an instance of the <i>Person</i> class and then add the method <i>details</i> to display the person's details. <p>Functions, Arrays, Strings and Sets</p> <ol style="list-style-type: none"> 6. Create an object <i>book</i> with properties <i>title</i>, <i>author</i> and <i>yearPublished</i>. Add a method <i>getAge</i> that calculates and returns the age of the book in years. 7. Create a function called <i>calculateAverage</i> that takes an array of numbers as an argument and returns the average value of those numbers. 8. Define a function <i>findPrimeNumbers</i> that takes an integer <i>n</i> as input and returns an array of prime numbers less than <i>n</i>. 	

9. Write a JavaScript function *mergeArrays* that takes two sorted arrays as input and merges them into a single sorted array.
10. Implement a function *findCommonElements* that takes two arrays as input and returns an array containing the common elements between them.
11. Create a function *countVowels* that takes a string as input and returns the *countOfVowels* (a, e, i, o, u) in the string.
12. Write a JavaScript function called *reverseString* that takes a string as an argument and returns the reverse of that string.
13. Write a JavaScript function called *findLongestWord* that takes a sentence (string) as input and returns the longest word in the sentence.
14. Write a JavaScript function called *capitalizeWords* that takes a sentence (string) as input and capitalizes the first letter of each word.
15. Implement a function *filterUnique* that takes an array of integers and returns a new array containing only the unique values in the original array.
16. Write a JavaScript function *removeDuplicates* that takes an array as input and removes all duplicate elements, returning a new array with unique elements.
17. Implement a function ``shuffleArray`` that shuffles the elements of an array randomly.
18. Create a recursive function called *fibonacci* that calculates the nth Fibonacci number.

Qualification criteria

This activity corresponds to 5% of the practical part.