

Exo

Exercises: Level 1

1. Declare a function *fullName* and it print out your full name.
2. Declare a function *fullName* and now it takes *firstName*, *lastName* as a parameter and it returns your full - name.
3. Declare a function *addNumbers* and it takes two parameters and it returns sum.
4. An area of a rectangle is calculated as follows: $area = length \times width$. Write a function which calculates *areaOfRectangle*.
5. A perimeter of a rectangle is calculated as follows: $perimeter = 2 \times (length + width)$. Write a function which calculates *perimeterOfRectangle*.
6. A volume of a rectangular prism is calculated as follows: $volume = length \times width \times height$. Write a function which calculates *volumeOfRectPrism*.
7. Area of a circle is calculated as follows: $area = \pi \times r \times r$. Write a function which calculates *areaOfCircle*
8. Circumference of a circle is calculated as follows: $circumference = 2\pi r$. Write a function which calculates *circumOfCircle*
9. Density of a substance is calculated as follows: $density = mass / volume$. Write a function which calculates *density*.
10. Speed is calculated by dividing the total distance covered by a moving object divided by the total amount of time taken. Write a function which calculates a speed of a moving object, *speed*.
11. Weight of a substance is calculated as follows: $weight = mass \times gravity$. Write a function which calculates *weight*.
12. Temperature in oC can be converted to oF using this formula: $oF = (oC \times 9/5) + 32$. Write a function which convert oC to oF *convertCelciusToFahrenheit*.
13. Body mass index(BMI) is calculated as follows: $bmi = weight \text{ in Kg} / (height \times height) \text{ in } m^2$. Write a function which calculates *bmi*. BMI is used to broadly define different weight groups in adults 20 years old or older. Check if a person is *underweight*, *normal*, *overweight* or *obese* based the information given below.

- The same groups apply to both men and women.
 - *Underweight*: BMI is less than 18.5
 - *Normal weight*: BMI is 18.5 to 24.9
 - *Overweight*: BMI is 25 to 29.9
 - *Obese*: BMI is 30 or more
14. Write a function called *checkSeason*, it takes a month parameter and returns the season: Autumn, Winter, Spring or Summer.
 15. Math.max returns its largest argument. Write a function findMax that takes three arguments and returns their maximum without using Math.max method.

```
console.log(findMax(0, 10, 5))
10
console.log(findMax(0, -10, -2))
0
```

Exercises: Level 2

1. Linear equation is calculated as follows: $ax + by + c = 0$. Write a function which calculates value of a linear equation, *solveLinEquation*.
2. Quadratic equation is calculated as follows: $ax^2 + bx + c = 0$. Write a function which calculates value or values of a quadratic equation, *solveQuadEquation*.

```
console.log(solveQuadratic()) // {}
console.log(solveQuadratic(1, 4, 4)) // {-2}
console.log(solveQuadratic(1, -1, -2)) // {2, -1}
console.log(solveQuadratic(1, 7, 12)) // {-3, -4}
console.log(solveQuadratic(1, 0, -4)) // {2, -2}
console.log(solveQuadratic(1, -1, 0)) // {1, 0}
```

3. Declare a function name *printArray*. It takes array as a parameter and it prints out each value of the array.
4. Write a function name *showDateTime* which shows time in this format: 08/01/2020 04:08 using the Date object.

```
showDateTime()
08/01/2020 04:08
```

5. Declare a function name *swapValues*. This function swaps value of x to y.

```
swapValues(3, 4) // x => 4, y=>3
swapValues(4, 5) // x = 5, y = 4
```

6. Declare a function name *reverseArray*. It takes array as a parameter and it returns the reverse of the array (don't use method).

```
console.log(reverseArray([1, 2, 3, 4, 5]))
//[5, 4, 3, 2, 1]
console.log(reverseArray(['A', 'B', 'C']))
//['C', 'B', 'A']
```

7. Declare a function name *capitalizeArray*. It takes array as a parameter and it returns the - capitalizedarray.
8. Declare a function name *addItem*. It takes an item parameter and it returns an array after adding the item
9. Declare a function name *removeItem*. It takes an index parameter and it returns an array after removing an item
10. Declare a function name *sumOfNumbers*. It takes a number parameter and it adds all the numbers in that range.
11. Declare a function name *sumOfOdds*. It takes a number parameter and it adds all the odd numbers in that - range.
12. Declare a function name *sumOfEven*. It takes a number parameter and it adds all the even numbers in that - range.
13. Declare a function name *evensAndOdds* . It takes a positive integer as parameter and it counts number of evens and odds in the number.

```
evensAndOdds(100);
The number of odds are 50.
The number of evens are 51.
```

14. Write a function which takes any number of arguments and return the sum of the arguments

```
sum(1, 2, 3) // -> 6
sum(1, 2, 3, 4) // -> 10
```

15. Write a function which generates a *randomUserIp*.
16. Write a function which generates a *randomMacAddress*
17. Declare a function name *randomHexaNumberGenerator*. When this function is called it generates a random hexadecimal number. The function return the hexadecimal number.

```
console.log(randomHexaNumberGenerator());
'#ee33df'
```

18. Declare a function name *userIdGenerator*. When this function is called it generates seven character id. The function return the id.

```
console.log(userIdGenerator());  
41XTDbE
```

Exercises: Level 3

1. Modify question number n . Declare a function name *userIdGeneratedByUser*. It doesn't take any parameter but it takes two inputs using `prompt()`. One of the input is the number of characters and the second input is the number of ids which are supposed to be generated.

```
userIdGeneratedByUser()  
'kcsy2  
SMFYb  
bWmeq  
ZX0Yh  
2Rgxf  
'userIdGeneratedByUser()  
'1GCSgPLMaBAVQZ26  
YD7eFwNQKNs7qXaT  
ycArC5yrRupyG00S  
UbGxOFI7UXSWAyKN  
dIV0SSUTgAdKwStr  
'
```

2. Write a function name *rgbColorGenerator* and it generates rgb colors.

```
rgbColorGenerator()  
rgb(125, 244, 255)
```

3. Write a function ***arrayOfHexaColors*** which return any number of hexadecimal colors in an array.
4. Write a function ***arrayOfRgbColors*** which return any number of RGB colors in an array.
5. Write a function ***convertHexaToRgb*** which converts hexa color to rgb and it returns an rgb color.
6. Write a function ***convertRgbToHexa*** which converts rgb to hexa color and it returns an hexa color.
7. Write a function ***generateColors*** which can generate any number of hexa or rgb colors.

```
console.log(generateColors('hexa', 3)) // ['#a3e12f', '#03ed55', '#eb3d2b']  
console.log(generateColors('hexa', 1)) // '#b334ef'  
console.log(generateColors('rgb', 3)) // ['rgb(5, 55, 175)', 'rgb(50, 105, 100)',  
'rgb(15, 26, 80)']  
console.log(generateColors('rgb', 1)) // 'rgb(33,79, 176)'
```

8. Call your function *shuffleArray*, it takes an array as a parameter and it returns a shuffled array

9. Call your function *factorial*, it takes a whole number as a parameter and it return a factorial of the number
10. Call your function *isEmpty*, it takes a parameter and it checks if it is empty or not
11. Call your function *sum*, it takes any number of arguments and it returns the sum.
12. Write a function called *sumOfArrayItems*, it takes an array parameter and return the sum of all the items. Check if all the array items are number types. If not give return reasonable feedback.
13. Write a function called *average*, it takes an array parameter and returns the average of the items. Check if all the array items are number types. If not give return reasonable feedback.
14. Write a function called *modifyArray* takes array as parameter and modifies the fifth item of the array and return the array. If the array length is less than five it return 'item not found'.

```
console.log(modifyArray(['Avocado', 'Tomato', 'Potato', 'Mango', 'Lemon', 'Carrot']));
['Avocado', 'Tomato', 'Potato', 'Mango', 'LEMON', 'Carrot']
console.log(modifyArray(['Google', 'Facebook', 'Apple', 'Amazon', 'Microsoft', 'IBM']));
['Google', 'Facebook', 'Apple', 'Amazon', 'MICROSOFT', 'IBM']
console.log(modifyArray(['Google', 'Facebook', 'Apple', 'Amazon']));
'Not Found'
```

15. Write a function called *isPrime*, which checks if a number is prime number.
16. Write a functions which checks if all items are unique in the array.
17. Write a function which checks if all the items of the array are the same data type.
18. JavaScript variable name does not support special characters or symbols except \$ or _. Write a function **isValidVariable** which check if a variable is valid or invalid variable.
19. Write a function which returns array of seven random numbers in a range of 0-9. All the numbers must be unique.

```
sevenRandomNumbers()
[(1, 4, 5, 7, 9, 8, 0)]
```

20. Write a function called `reverseCountries`, it takes `countries` array and first it copy the array and returns the reverse of the original array