

DAY-6

Exercises: Level 1

1. Iterate 0 to 10 using for loop, do the same using while and do while loop

```
console.log("Using for Loop");
for(let i = 0; i <= 10; i++){
    console.log(i);
}

console.log("Using While Loop");
let i = 0;
while(i <= 10) {
    console.log(i);
    i++;
}

console.log("Using do while Loop");
let j = 0;
do {
    console.log(j)
    j++;
} while(j <= 10);
```

2. Iterate 10 to 0 using for loop, do the same using while and do while loop

```
console.log("Using for Loop");
for(let i = 10; i >= 0; i--){
    console.log(i);
}

console.log("Using While Loop");
let i = 10;
while(i >= 0) {
    console.log(i);
    i--;
}

console.log("Using do while Loop");
let j = 10;
do {
    console.log(j)
    j--;
} while(j >= 10);
```

3. Iterate 0 to n using for loop

```
let n = 10;
if(n >= 0)
  for(let i = 0; i <= n; i++) console.log(i);
else
  for(let i = 0; i >= n; i--) console.log(i);
```

4. Write a loop that makes the following pattern using console.log():

```
#
##
###
####
#####
#####
#####
```

```
let n = 7;
for(let i = 0; i < n; i++) {
  let string = "";
  for(let j = 0; j <= i; j++) {
    string += '#';
  }
  console.log(string);
}
```

5. Use loop to print the following pattern:

```
0 x 0 = 0
1 x 1 = 1
2 x 2 = 4
3 x 3 = 9
4 x 4 = 16
5 x 5 = 25
6 x 6 = 36
7 x 7 = 49
8 x 8 = 64
9 x 9 = 81
10 x 10 = 100
```

```
let n = 10;
for(let i = 0; i <= n; i++) {
  console.log(`${i} x ${i} = ${i*i}`);
}
```

6. Using loop print the following pattern

i	i ²	i ³
0	0	0
1	1	1
2	4	8
3	9	27
4	16	64
5	25	125
6	36	216

7	49	343
8	64	512
9	81	729
10	100	1000

```
let n = 10;
console.log("i\ti^2\ti^3");
for(let i = 0; i <= n; i++) {
  console.log(`${i}\t${i*i}\t${i*i*i}`);
}
```

7. Use for loop to iterate from 0 to 100 and print only even numbers

```
for(let i = 0; i <= 100; i++) {
  if(i%2 == 0)
    console.log(i);
}
```

8. Use for loop to iterate from 0 to 100 and print only odd numbers

```
for(let i = 0; i <= 100; i++) {
  if(i%2 != 0)
    console.log(i);
}
```

9. Use for loop to iterate from 0 to 100 and print only prime numbers

```
for(let i = 0; i <= 100; i++) {
  var isPrime = true;
  for(let j = 2; j < i; j++) {
    if(i%j == 0) isPrime = false;
  }
  if(isPrime == true && i >= 2) {
    console.log(i);
  }
}
```

10. Use for loop to iterate from 0 to 100 and print the sum of all numbers.

The sum of all numbers from 0 to 100 is 5050.

```
var sum = 0;
for(let i = 0; i <= 100; i++) {
  sum += i;
}
console.log(`The sum of all numbers from 0 to 100 is ${sum}`);
```

11. Use for loop to iterate from 0 to 100 and print the sum of all evens and the sum of all odds.

The sum of all evens from 0 to 100 is 2550. And the sum of all odds from 0 to 100 is 2500.

```
var eSum = 0;
```

```

var oSum = 0;

for(let i = 0; i <= 100; i++) {
  if(i%2 == 0)
    eSum += i;
  else
    oSum+=i;
}
console.log(`The sum of all evens from 0 to 100 is ${eSum}. And
the sum of all odds from 0 to 100 is ${oSum}.`);

```

12. Use for loop to iterate from 0 to 100 and print the sum of all evens and the sum of all odds. Print sum of evens and sum of odds as array.

[2550, 2500]

```

var eSum = 0;
var oSum = 0;

for(let i = 0; i <= 100; i++) {
  if(i%2 == 0)
    eSum += i;
  else
    oSum+=i;
}
let array = new Array();
array.push(eSum);
array.push(oSum);
console.log(array);

```

13. Develop a small script which generate array of 5 random numbers

```

let array = new Array();
for(var i = 0; i < 5; i++) {
  let num = Math.floor(Math.random () * 11);
  array.push(num);
}
console.log(array);

```

14. Develop a small script which generate array of 5 random numbers and the numbers must be unique

```

let array = new Array();
for(var i = 0; array.length < 5; i++) {
  let num = Math.floor(Math.random () * 11);
  if(!array.includes(num))
    array.push(num);
}
console.log(array);

```

15. Develop a small script which generate a six characters random id:

5j2khz

```
let string =
"abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890
";

let randomString = "";

for(let i = 0; i < 6; i++){
    let randomIndex = Math.floor(Math.random()*string.length);
    randomString += string.charAt(randomIndex);
}
console.log(randomString);
```

Exercises: Level 2

1. Develop a small script which generate any number of characters random id:

fe3jo1gl124g

xkqci4utda1lmbelpkm03rba

```
let string =
"abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890
";
const randomSize = Math.floor(Math.random() * string.length);
let randomString = "";

for(let i = 0; i < randomSize; i++) {
    let randomIndex = Math.floor(Math.random()*string.length);
    randomString += string.charAt(randomIndex);
}
console.log(randomString);
```

2. Write a script which generates a random hexadecimal number.

'#ee33df'

```
let string = "abcdef1234567890";
let randomHexCode = "";

for(let i = 0; i < 6; i++){
    let randomIndex = Math.floor(Math.random()*string.length+1);
    randomHexCode += string.charAt(randomIndex);
}

console.log(`#${randomHexCode}`);
```

3. Write a script which generates a random rgb color number.

rgb(240,180,80)

```
let randomRGB = "";
```

```
for(let i = 0; i < 3; i++) {
    let randomNumber = Math.floor(Math.random() * 256);
    if(i == 2)    randomRGB += randomNumber;
    else    randomRGB += randomNumber + ',';
}
console.log(`rgb(${randomRGB})`);
```

4. Using the above countries array, create the following new array.

```
["ALBANIA", "BOLIVIA", "CANADA", "DENMARK", "ETHIOPIA", "FINLAND", "GERMANY",
"HUNGARY", "IRELAND", "JAPAN", "KENYA"]
```

```
const countries = ['Albania','Bolivia','Canada','Denmark',
                  'Ethiopia','Finland','Germany','Hungary',
                  'Ireland','Japan','Kenya'];

const newCountires = new Array();

for(let i = 0; i < countries.length; i++) {
    newCountires.push(countries[i].toUpperCase());
}
console.log(newCountires);
```

5. Using the above countries array, create an array for countries length'.

```
[7, 7, 6, 7, 8, 7, 7, 7, 7, 5, 5]
```

```
const newCountires = new Array();

for(let i = 0; i < countries.length; i++) {
    newCountires.push(countries[i].length);
}
console.log(newCountires);
```

6. Use the countries array to create the following array of arrays:

```
[
  ['Albania', 'ALB', 7],
  ['Bolivia', 'BOL', 7],
  ['Canada', 'CAN', 6],
  ['Denmark', 'DEN', 7],
  ['Ethiopia', 'ETH', 8],
  ['Finland', 'FIN', 7],
  ['Germany', 'GER', 7],
  ['Hungary', 'HUN', 7],
  ['Ireland', 'IRE', 7],
  ['Iceland', 'ICE', 7],
  ['Japan', 'JAP', 5],
  ['Kenya', 'KEN', 5]
]
```

```
const newCountires = new Array();
```

```

for(let i = 0; i < countries.length; i++) {
    let tempArray = new Array();
    let length = countries[i].length;
    let name = countries[i];
    let shortName = name.substring(0,3).toUpperCase();

    tempArray.push(name, shortName, length);
    newCountires.push(tempArray);
}
console.log(newCountires);

```

7. In above countries array, check if there is a country or countries containing the word 'land'. If there are countries containing 'land', print it as array. If there is no country containing the word 'land', print 'All these countries are without land'.

['Finland', 'Ireland', 'Iceland']

```

const land = new Array();

for(let i = 0; i < countries.length; i++) {
    if(countries[i].includes("land"))
        land.push(countries[i]);
}
if(land.length > 0) console.log(land);
else console.log("All these countries are without land");

```

8. In above countries array, check if there is a country or countries end with a substring 'ia'. If there are countries end with, print it as array. If there is no country containing the word 'ai', print 'These are countries ends without ia'.

['Albania', 'Bolivia', 'Ethiopia']

```

const containsIa = new Array();

for(let i = 0; i < countries.length; i++) {
    let elementLength = countries[i].length;
    if(countries[i].substring(elementLength-2) == "ia")
        containsIa.push(countries[i]);
}

if(containsIa.length > 0) console.log(containsIa);
else console.log("All these countries are without ia");

```

9. Using the above countries array, find the country containing the biggest number of characters.

Ethiopia

```

const max = countries[0].length;

```

```

let countryName = countries[0];

for(let i = 1; i < countries.length; i++) {
    if(countries[i].length > max)
        countryName = countries[i];
}
console.log(countryName);

```

10. Using the above countries array, find the country containing only 5 characters.

['Japan', 'Kenya']

```

let countryName = new Array();

for(let i = 0; i < countries.length; i++) {
    if(countries[i].length == 5)
        countryName.push(countries[i]);
}
console.log(countryName);

```

11. Find the longest word in the webTechs array

```

const webTechs = ['HTML', 'CSS', 'JavaScript', 'React', 'Redux',
                  'Node', 'MongoDB'];

let max = webTechs[0].length;
let longestName = "";

for(let i = 1; i < webTechs.length; i++) {
    if(webTechs[i].length > max) {
        longestName = webTechs[i];
        max = webTechs[i].length;
    }
}
console.log(longestName);

```

12. Use the webTechs array to create the following array of arrays:

[["HTML", 4], ["CSS", 3], ["JavaScript", 10], ["React", 5], ["Redux", 5],
["Node", 4], ["MongoDB", 7]]

```

let newWebTechs = new Array();

for(let i = 0; i < webTechs.length; i++) {
    const tempArray = new Array();
    const name = webTechs[i];
    const length = webTechs[i].length;

    tempArray.push(name, length);
    newWebTechs.push(tempArray);
}

```



```
console.log(newWebTechs) ;
```

13. An application created using MongoDB, Express, React and Node is called a MERN stack app. Create the acronym MERN by using the array mernStack

```
let mernStack = [ 'MongoDB' , 'Express' , 'React' , 'Node' ] ;
```

14. Iterate through the array, ["HTML", "CSS", "JS", "React", "Redux", "Node", "Express", "MongoDB"] using a for loop or for of loop and print out the items.

```
const array = ["HTML", "CSS", "JS", "React", "Redux", "Node",  
"Express", "MongoDB"] ;
```

```
for(element of array) console.log(element) ;
```

15. This is a fruit array , ['banana', 'orange', 'mango', 'lemon'] reverse the order using loop without using a reverse method.

```
let fruits = ['banana', 'orange', 'mango', 'lemon'] ;  
let reverse = new Array() ;  
  
for(let i = fruits.length-1; i >= 0; i--){  
    reverse.push(fruits[i]) ;  
}  
console.log(reverse) ;
```

16. Print all the elements of array as shown below.

```
const fullStack = [  
    ['HTML', 'CSS', 'JS', 'React'], ['Node', 'Express', 'MongoDB']  
]  
  
HTML  
CSS  
JS  
REACT  
NODE  
EXPRESS  
MONGODB
```

```
const fullStack = [  
    ['HTML', 'CSS', 'JS', 'React'],  
    ['Node', 'Express', 'MongoDB']  
]  
for(array of fullStack) {  
    for(element of array) {  
        console.log(element) ;  
    }  
}
```

Exercises: Level 3

1. Copy countries array(Avoid mutation)

```
const copyCountries = countries.slice();  
console.log(copyCountries);
```

2. Arrays are mutable. Create a copy of array which does not modify the original. Sort the copied array and store in a variable sortedCountries

```
const sortedCountries = countries.slice().sort();  
console.log(sortedCountries);
```

3. Sort the webTechs array and mernStack array

```
console.log(webTechs.sort());  
console.log(mernStack.sort());
```

4. Extract all the countries contain the word 'land' from the [countries array](#) and print it as array

```
const land = new Array();  
  
for(let i = 0; i < countries.length; i++) {  
    if(countries[i].includes("land"))  
        land.push(countries[i]);  
}  
console.log(land);
```

5. Find the country containing the highest number of characters in the [countries array](#)

```
const max = countries[0].length;  
let countryName = countries[0]  
  
for(let i = 1; i < countries.length; i++) {  
    if(countries[i].length > max)  
        countryName = countries[i];  
}  
console.log(countryName);
```

6. Extract all the countries contain the word 'land' from the [countries array](#) and print it as array

```
const land = new Array();  
  
for(let i = 0; i < countries.length; i++) {  
    if(countries[i].includes("land"))  
        land.push(countries[i]);  
}  
console.log(land);
```

7. Extract all the countries containing only four characters from the [countries array](#) and print it as array.

```
const array = new Array();  
  
for(let i = 0; i < countries.length; i++) {  
    if(countries[i].length == 4)
```

```
        array.push(countries[i]);
    }
    console.log(array);
```

8. Extract all the countries containing two or more words from the [countries array](#) and print it as array

```
const array = new Array();

for(let i = 0; i < countries.length; i++) {
    if(countries[i].includes(' '))
        array.push(countries[i]);
}
console.log(array);
```

9. Reverse the [countries array](#) and capitalize each country and stored it as an array

```
let reverse = new Array();

for(let i = countries.length-1; i >= 0; i--) {
    reverse.push(countries[i].toUpperCase());
}
console.log(reverse);
```