DAY – 5

Exercise: Level 1

1. Declare an *empty* array;

```
let array = [];
```

2. Declare an array with more than 5 number of elements

```
let array = ["Dog","Cat","Monkey","Camel","Elephant","Zebra"];
```

3. Find the length of your array

```
array.length;
```

4. Get the first item, the middle item and the last item of the array

```
var firstEle =  array[0];
var lastEle = array[array.length-1];
var middleEle =  array[array.length/2 -1];
```

5. Declare an array called *mixedDataTypes*, put different data types in the array and find the length of the array. The array size should be greater than 5

```
let mixedDataTypes=[1,"ant",true,undefined,{a:"A",b:"B"},'$'];
var size = mixedDataTypes.length;
```

6. Declare an array variable name itCompanies and assign initial values Facebook, Google, Microsoft, Apple, IBM, Oracle and Amazon

```
let itCompanies = [ "Facebook","Google","Microsoft","Apple"
,"IBM","Oracle","Amazon"];
```

7. Print the array using *console.log()*

```
console.log(itCompanies);
```

8. Print the number of companies in the array

```
console.log(itCompanies.length);
```

9. Print the first company, middle and last company

```
var first=  itCompanies[0];
var last = itCompanies[itCompanies.length-1];
var middle =  itCompanies[itCompanies.length/2 -1];
```

10. Print out each company

```
itCompanies.forEach((company) => console.log(company));
```

11. Change each company name to uppercase one by one and print them out

```
for(var i=0;  i < itCompanies.length; i++) {
   itCompanies[i] =  itCompanies[i].toUpperCase();
```

```
}
for(let company of itCompanies) {
    console.log(company);
}
```

12. Print the array like as a sentence: Facebook, Google, Microsoft, Apple, IBM,Oracle and Amazon are big IT companies.

```
let str = "";

for(var i =0; i<itCompanies.length; i++){
    if(i < itCompanies.length-2)
          str = str + itCompanies[i] + ", ";
    else if(i == itCompanies.length-2)
          str = str + itCompanies[i] + " and ";
    else
          str = str + itCompanies[i] + "are big IT companies.";
}
```

13. Check if a certain company exists in the itCompanies array. If it exist return the company else return a company is *not found*

```
function isInclude(name){
    var result = itCompanies.includes(name);
    if(result == true) return name;
    else return "company is not found";
}
```

14. Filter out companies which have more than one 'o' without the filter method

```
itCompanies.forEach((element) => {
     var count = 0 ;
     for(var i =0; i<element.length; i++) {
        if(element.charAt(i)=='o' || element.charAt(i)='O')
count++;
        if(count>1){
            console.log(element);
            break;
        }
    }
});
```

15. Sort the array using *sort()* method

```
itCompanies.sort();
```

16. Reverse the array using *reverse()* method

```
itCompanies.reverse();
```

17. Slice out the first 3 companies from the array

```
itCompanies.slice(0,3);
```

18. Slice out the last 3 companies from the array

```
itCompanies.slice(itCompanies.length-3);
```

19. Slice out the middle IT company or companies from the array

```
let n = itCompanies.length;

function sliceMiddle(n) {
        if(n%2 == 0) itCompanies.slice(n/2 -1, n/2 +1);
        else itCompanies.slice(n/2, n/2 +1);
}
```

20. Remove the first IT company from the array

```
for(var i =0; i< itCompanies.length; i++){
    if(i<itCompanies.length -1)
        itCompanies[i] = itCompanies[i+1];
    else
        itCompanies.pop();
}
```

21. Remove the middle IT company or companies from the array

```
n = itCompanies.length;

function removeMiddle(n) {
       if(n%2 == 0){
            itCompanies[n/2-1] = itCompanies[n/2+1];
            itCompanies[n/2] = itCompanies[n/2+2];
            var i = n/2+3;
            while(i<n-2){
                itCompanies[i] = itCompanies[i+2];
                i++;
            }
            itCompanies.pop();
             itCompanies.pop();
       }
       else {
            itCompanies[parseInt(n/2)] =
itCompanies[parseInt(n/2+1)];
            var i = parseInt(n/2+1);
            while(i<n-1){
                itCompanies[i] = itCompanies[i+1];
                i++;
             }
            itCompanies.pop();
        }

}
removeMiddle(5)
itCompanies
```

22. Remove the last IT company from the array

```
itCompanies.pop();
```

23. Remove all IT companies

```
var n = itCompanies.length;
var i = 0;

while(i<n){
    itCompanies.pop();
    i++;
}
```

Exercise: Level 2

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

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

1. Create a separate countries.js file and store the countries array in to this file, create a separate file web_techs.js and store the webTechs array in to this file. Access both file in main.js file

```
Attached file with this - Q1 L2
```

2. First remove all the punctuations and change the string to array and count the number of words in the array

```
let text ='I love teaching and empowering people. I teach HTML
,CSS, JS, React, Python.'


console.log(words)
console.log(words.length)
```

```
["I", "love", "teaching", "and", "empowering", "people", "I",
"teach", "HTML", "CSS", "JS", "React", "Python"]


13
```

```
text = text.replace(/\,/gi,"");
text = text.replace(/\./gi,"");
text = text.split(" ");
text.length;
```

3. In the following shopping cart add, remove, edit items

```
const shoppingCart = ['Milk', 'Coffee', 'Tea', 'Honey']
```

- add 'Meat' in the beginning of your shopping cart if it has not been already added

```
shoppingCart.unshift("Meat");
```

- add Sugar at the end of you shopping cart if it has not been already added

```
if(shoppingCart.includes("sugar") == false)
    shoppingCart[shoppingCart.length] = "sugar";
```

- remove 'Honey' if you are allergic to honey

```
let response = prompt("Enter you are allergic to honey
or not?? (Y/N)");
if(response == 'Y') {
    var x = shoppingCart.indexOf("Honey");

    while(x < shoppingCart.length){
    if(x == shoppingCart.length-1) shoppingCart.pop();
    else shoppingCart[x] = shoppingCart[x+1];
    x++;
    }
}
```

- modify Tea to 'Green Tea'

```
var x = shopping.indexOf("Tea");
if(x != -1) shopping.splice(x,1,"Green Tea");
```

4. In countries array check if 'Ethiopia' exists in the array if it exists print 'ETHIOPIA'. If it does not exist add to the countries list.

```
var x = countries.indexOf("Ethiopia");
if(x != -1) console.log(countries[x].toUpperCase());
else countries.push("Ethiopia");
```

5. In the webTechs array check if Sass exists in the array and if it exists print 'Sass is a CSS preprocess'. If it does not exist add Sass to the array and print the array.

```
if(webTechs.includes('Sass'))
   console.log('Sass is a CSS preprocess');
else {
   webTechs.push("Sass");
   webTechs;
}
```

6. Concatenate the following two variables and store it in a fullStack variable.

```
const frontEnd = ['HTML', 'CSS', 'JS', 'React', 'Redux']
const backEnd = ['Node','Express', 'MongoDB']
```

```
console.log(fullStack)
```

```
["HTML", "CSS", "JS", "React", "Redux", "Node", "Express",
"MongoDB"]
```

```
let fullstack = frontEnd.concat(backEnd);
```

Exercise: Level 3

1. The following is an array of 10 students ages:

```
const ages = [19, 22, 19, 24, 20, 25, 26, 24, 25, 24]
```

- Sort the array and find the min and max age

```
ages.sort();
const min = ages[0];
const max = ages[ages.length-1];
```

- Find the median age(one middle item or two middle items divided by two)

```
var mid = parseInt(x/2);
let median;
if(x%2==0) median = (ages[mid] + ages[mid+1])/2;
else median = ages[mid];
console.log(median);
```

- Find the average age(all items divided by number of items)

```
let sum = 0

ages.forEach(item => {
    sum = sum + item;
});
const avg = sum / ages.length;
console.log(avg);
```

- Find the range of the ages(max minus min)

```
ages.sort();
const min = ages[0];
const max = ages[ages.length-1];
const range = max - min;
console.log(range);
```

- Compare the value of (min - average) and (max - average), use *abs()* method

```
if(Math.abs(min-avg) > Math.abs(max-avg))
console.log("This statement is true.");
else
        console.log("This statement is false;");
```

2. Slice the first ten countries from the countries array

```
countries.slice(0,10);
```

3. Find the middle country(ies) in the countries array

```
let n = countries.length;
let x = parseInt(n/2);

if(n%2 == 0) console.log(countries[x-1],countries[x]);
else console.log(countries[x]);
```

4. Divide the countries array into two equal arrays if it is even. If countries array is not even , one more country for the first half.

```
let n = countries.length;
let x = parseInt(n/2);
let firstarr = countries.slice(0,x);
let secarr = countries.slice(x);

if(n%2 != 0)
     firstarr.push('India');
```