```
1
2
3   //================= Array ==============
4
5   let grades = [12, 34, 555];
6   console.log(grades);
7
8   console.log(grades[0]); // using index
9
10  // function contains anythings
11
12  let any = [12, "SM", {mehedi: 10,}, function () { console.log("Hi Mehedi")}, "LoveS"];
13  console.log(any); // print all
14  console.log(any[0]); // 12
15  console.log(any[1]); // SM
16  console.log(any[2].mehedi); // print object 10
17  console.log(any[3]()) // print function inside array call this way
18
19
20  // create an empty array
21  let age = [];
22  age[0] = 1;
23  age[1] = 2;
24  age[2] = 3;
25  age[40] = 3300; // this create large array...or empty box
26  // now array => (41) [1, 2, 3, empty × 37, 3300]
27  console.log(age);
28
29  for(let i = 0; i < age.length; i++){
30      console.log(age[i]);
31      /*
32          1
33          2
34          3
35          37 undefined
36          3300
37      */
38  }
39
40  // we can increase array length with length property
41  age.length = 3000;
42  console.log(age); //(3000) [1, 2, 3, empty × 37, 3300, empty × 2959]
43
44  // we can also short length of existing  size of array
45
46  let sizeA = [1, 2, 3, 4, 5, 6, 6, 5];
47
48  sizeA.length = 3;
49  console.log(sizeA); // (3) [1, 2, 3] now
50
51  // ================ Array and functionlity =========
52
53  let num = [12, 3, 4, 55, 5, 66, 77, 93];
```

```
54  for (let i = 0; i < num.length; i++){
55
56      if(num[i] !== undefined){
57          console.log(num[i]);
58      }
59
60  }
61
62  /* ********** Search in Array ************* */
63  let found = false;
64  let search = 55;
65
66  for(let i = 0; i < num.length; i++){
67
68      if(num[i] !== search) {
69          // found make true
70          found = true;
71          console.log(num[i] + " at index " + i);
72          break;
73      }
74  }
75  if(found === 1)
76  {
77      console.log(found);
78  }
79
80  // gatting average from array with contain undefine
81
82  num.length = 30;
83  // it will create some undefined space or empty space in num array and
84  // that time how we can generate the average of num array
85  let cnt = 0;
86  let total = 0;
87  for(i = 0; i < num.length; i++){
88
89      if(num[i] !== undefined)
90      {
91          cnt++;
92          total += num[i];
93      }
94  }
95
96  let avg = total / cnt; // 39.375
97
98  console.log(avg);
99
100 /* ********* take input from user append the array ************ */
101 /*
102 let inputA = [];
103
104 while(true){
105     let input = prompt("Add value: q for quit");
106
107     if(input === "q" || input === null){
```

```
        break;
    }

    inputA.push(Number(input));
    console.log(inputA);
}
*/


//========= Array Method part 1 ============

let num1 = [];

num1.push(10);
num1.push(20);

let popValue = num1.pop(); // last value pop 20

console.log(num1); //  total [10] in array

// insert element beginning
num1.unshift(100);
console.log(num1); // [100, 10] new array

num1.shift(); // [10] new array first element gone..

// manny element can be push by (,)
num1.push(200, 400, 500);
console.log(num1); // (4) [10, 200, 400, 500]

//  (4) [10, 200, 400, 500] now array is

// *************** splice method *********
num1.splice(2, 3); // splice(startIndex, endIndex);
console.log(num1); // (2) [10, 200] now removing array...

// add data from stating index...
num1.splice(1, 0, 40, 20, 30); // splice(startIndex, deleteing, {adding_element});
console.log(num1); // (5) [10, 40, 20, 30, 200]

// ******** Replace some range of element

num1.splice(1, 2, 0, 0, 0, 0); // first delet 2 element then replace that...
console.log(num1); // (7) [10, 0, 0, 0, 0, 30, 200]


//================ Array Method part 2 ============

let num3 = [1, 2 ,3, 0, 0, 10, 14, 22, 4];

num3.sort();
console.log(num3); // (9) [0, 0, 1, 10, 14, 2, 22, 3, 4]
// it likes sorted but it is not sorted....
//********* By get actual sort then we have to use call back fucntionn */
```

```
num3.sort(function(a, b) {
    return a - b;
});
// or this way use call back function ...
num3.sort( (a, b)=>{
    return a - b;
});
console.log(num3); // (9) [0, 0, 1, 2, 3, 4, 10, 14, 22]

//********** Reverse Array */
num3.reverse();
console.log(num3); // (9) [22, 14, 10, 4, 3, 2, 1, 0, 0]

// ********* fill all the value of that array...
num3.fill(-1, 0, num3.length); // fill(value , stat , endBefore -1);
console.log(num3); // (9) [-1, -1, -1, -1, -1, -1, -1, -1, -1]


//============ Array Part 3 ===============

let num4 = [1, 2, 3];
let num5 = [4, 5, 6];

let a = num4.concat(num5);
console.log(a); // (6) [1, 2, 3, 4, 5, 6]

// ********** Find
let num7 = [1, 23, 44, 55];

console.log(num7.includes(44)); // true
console.log(num7.indexOf(44)); // 2

// ********* array make as tring ...

console.log(num7.join()); // 1,23,44,55
console.log(num7.join("")) // 1234455
console.log(num7.join(",")); // 1,23,44,55

// ********** cut section of array return of array

let num8 = [10, 20, 30 , 40, 50];
 a = num8.slice(1, 4); //slice(start, end - 1);
console.log(a); // (3) [20, 30, 40]

// if we do no set end inside slice then
a = num8.slice(1);
console.log(a); // (4) [20, 30, 40, 50]

//================= For Each loop and uses ==========

let num9 = [10, 20 , 30, 40, 50, 60];

for(let i = 0; i < num9.length; i++){
    console.log(num9[i]);
```

```
}

// ************ for each loop use call back function to

    num9.forEach(function(){

        console.log("Hi Mehedi"); // length time => (6) Hi Mehedi

    });
//******** use element as pramater */
   num9.forEach(function(item) {
       console.log(item);
       //10
       //20
       //21 30
       //40
       // 50
       //60
   });

//********** use element and index parameter */
    num9.forEach(function(item, index) {
        console.log(item + " " + index);
        /*
        10 0
        20 1
        30 2
        40 3
        50 4
        60 5
        */

    });
// ********* use element, index, array as parameter
    num9.forEach(function(item, index, arr)
    {
        console.log(item + " " + index + " Arr " + arr);
        /*
        10 0 Arr 10,20,30,40,50,60
        20 1 Arr 10,20,30,40,50,60
        30 2 Arr 10,20,30,40,50,60
        40 3 Arr 10,20,30,40,50,60
        50 4 Arr 10,20,30,40,50,60
        60 5 Arr 10,20,30,40,50,60
        */
    });

// ================== Multi dimentional Array ==========
let num10 = [
        [1, 2, 3],
        [4, 5, 6, 7],
        [10, 20, 30],
];

```

```
for(let i = 0; i < num10.length; i++){
    for(let j = 0; k < num10[i].length; i++){
        console.log(num10[i][k]);
    }
    console.log("~~~~~~~~");
}

// ********** For loop use in multi *********

num10.forEach(function(row){
    row.forEach(function(col){
        console.log(col);
    });
    console.log("~~~~~~~");
});
```