

# Javascript

## Arrays

Arrays are non-primitive datatypes

Only in js arrays are objects & objects are collection of methods & properties

Arrays are used to store multiple values in a single variable

They are dynamic, can hold different data types, and come with many useful built-in methods.

How to create an Array?

### Syntax

```
// array are stored in squarebracket[]  
// data can be added by seperated(,)commas  
// can be used any keyword like var,const,let  
let name_of_array= []
```

1)example:To create array

```
var city=["mumbai","nyc","dubai"];  
console.log(city);  
console.log(typeof(city));
```

output:

```
(3) ['mumbai', 'nyc', 'dubai']  
0: "mumbai" 1: "nyc" 2: "dubai"  
length: 3[[Prototype]]: Array(0)  
object
```

-----

2)example to create array

```
var city = new Array();  
city[0]='mumbai';  
city[1]='nyc';  
city[2]='dubai';  
console.log(city);
```

output:

```
(3) ['mumbai', 'nyc', 'dubai']  
0: "mumbai" 1: "nyc" 2: "dubai"  
length: 3[[Prototype]]: Array(0)
```

There are 2types of Arrays

- Single Dimensional Array

- Multi Dimensional Array

## Single Dimensional Array

```
let fruits = ["apple", "banana", "cherry"]; // strings
let numbers = [1, 2, 3, 4]; // numbers
let mixed = [1, "hello", true, null]; // mixed data
//how to access data from array
//arrays takes index,index value start from 0,1,2...
// suppose from above fruits i want to get cherry
console.log(fruits[2])
```

output:

cherry

## Multi Dimensional Array

1)Example

```
const newArr =[
  10,20,30,"sam",
  [true,false],
  40,50,
  ["nyc","germany"]
];
```

```
// get nyc
console.log(newArr[7][1]);
```

output:

nyc

```
// lets change the data,nyc->dubai
console.log(newArr[7][1]="dubai");
console.log(newArr);
```

output:

```
[
  10, 20, 30, "sam",
  [ true, false ],
  40,
  50,
  [ "dubai", "germany" ]
]
```

-----

2)Example

```
let arr= [
  ["joe","sam",true,false,20000],
  [
    20,["william"],50,["john","hulk"]
  ]
];
```

```
]
]
```

```
console.log(arr[0][4]); // 2000
console.log(arr[1][1][0]); // william
console.log(arr[1][3][1]); // hulk
```

## Objects

Objects are non primitive data types

Objects are collections of methods and properties.

### What are methods and properties?

Properties can hold values, including functions

When a function is stored as a property of an object, it's called a method.

### Syntax

Objects are written in {} <--curley braces  
Objects contains key:value pair

Type 1: Object Literal

```
var emp = {
  id:101,
  name:"sam",
  city:"kuwait"
};
```

```
console.log(emp);
```

Output:

```
{id: 101, name: 'sam', city: 'kuwait'}
city: "kuwait" id: 101 name : "sam"
[[Prototype]]: Object
```

-----

Example 1: with property and method

In Object if you want to access data then use  
(.) operator like below the person.name

```
var person = {
  name: 'Ankit',
  age: 30,
  greet: function() {                // 'greet' is a method
```

```

        console.log('Hello, ' + person.name); // 'name' property
    }
};

// Calling methods
person.greet(); // Output: Hello, Ankit

console.log(person.age); // 30

```

---

Example 2:

```

var dog = {
  name: "Sherif",
  breed: "Labrador",
  owner: {
    name: "John",
    age: 40
  },
  bark: function() {
    console.log(dog.name + " says: Woof!"); // calling property in function
  }
};

```

```

// in above example if i want to access Sherif
console.log(dog.name)

```

```

// now lets call the method means function i.e bark
dog.bark();

```

Output:

```

Sherif
Sherif says: Woof!

```

---

Type 2: using instance of object (new keyword)

```

var emp = new Object();

```

```

emp.name ="sam";
emp.age=26;
emp.sal=30000;

```

```

// when u are trying document.write(emp)
// in browser u will see [object Object]
// it means browser in not converting object to string
// but in console u will see
{name: 'sam', age: 26, sal: 30000}
console.log(emp);
// so to convert object into string u will use JSON.stringify() method
document.write(JSON.stringify(emp));

```

```
// check your browser u will see  
{ "name": "sam", "age": 26, "sal": 30000 }
```

## Object with Array

Example:

```
var student = {  
  name: "Sam",  
  lastName: "Wilson",  
  age: 30,  
  hobby: {  
    singing: true,  
    reading: false,  
  },  
  music: ["Pop", "English", "Rock"]  
};
```

```
// take out hobby true  
// music Rock  
console.log(student.hobby.singing);  
console.log(student.music[2]);
```

Output:

```
true  
Rock
```