

Cheatsheet: Arrays and Objects in JavaScript

JavaScript Array and Objects	Description	
Array declaration	Arrays in JavaScript are ordered, meaning that the elements are stored in a specific sequence.	1. 1
		1. const fruits = ["apple", "banana", "cherry"];
Array Indexing	Arrays are zero-indexed, meaning the first element is at index 0, the second at index 1, and so on.	Copied! 1. 1 2. 2 3. 3
		1. const fruits = ["apple", "banana", "cherry"]; 2. const firstFruit = fruits[0]; // "apple" 3. const secondFruit = fruits[1]; // "banana"
Array Length	The length property is used to determine the number of items present in an array.	Copied! 1. 1 2. 2 3. 3
		1. const fruits = ["apple", "banana", "cherry"]; 2. const numFruits = fruits.length; // 3 3. console.log(numFruits);
Array Mutability	Arrays in JavaScript are mutable, meaning you can change, add, or remove elements after the array is created.	Copied! 1. 1 2. 2 3. 3
		1. const fruits = ["apple", "banana", "cherry"]; 2. fruits[2] = "strawberry"; // Modifying an element 3. fruits[3] = "Kiwi"; // Adding an element
push method	Adds one or more elements to the end of an array.	Copied! 1. 1 2. 2 3. 3
		1. const fruits = ["apple", "banana"]; 2. fruits.push("orange", "strawberry"); 3. console.log(fruits)
pop method	Removes the last element from an array and returns it.	Copied! 1. 1 2. 2 3. 3 4. 4
		1. const fruits = ["apple", "banana", "orange"]; 2. const removedFruit = fruits.pop(); 3. console.log('Fruits are',fruits) 4. console.log('Removed fruits are',removedFruit)
shift methods	Removes the first element from an array and returns it.	Copied! 1. 1
		1. Removes the first element from an array and returns it.
unshift method	Removes the first element from an array and returns it.	Copied! 1. 1 2. 2 3. 3
		1. const fruits = ["banana", "orange"]; 2. fruits.unshift("apple", "strawberry"); 3. console.log(fruits);
splice method	Changes the contents of an array by removing, replacing, or adding elements at a specified position.	Copied! 1. 1 2. 2 3. 3
		1. const fruits = ["apple", "banana", "cherry"]; 2. fruits.splice(1, 1, "grape"); // Replace the second element with "grape" 3. console.log(fruits)
concat method	The concat method in JavaScript arrays combines arrays in sequence, creating a new array containing the elements of the original arrays in the order they were concatenated.	Copied! 1. 1 2. 2 3. 3 4. 4
		1. onst fruits = ["apple", "banana"]; 2. const additionalFruits = ["orange", "strawberry"]; 3. const combinedFruits = fruits.concat(additionalFruits); 4. console.log('combinedFruits are', combinedFruits)
slice method	Returns a shallow copy of a portion of an array into a new array.	Copied! 1. 1 2. 2 3. 3
		1. const fruits = ["apple", "banana", "cherry", "orange"]; 2. const slicedFruits = fruits.slice(1, 3); // Creates a new array with elements from index 1 to 2 (not in

		<pre>3. console.log('slicedFruits are',slicedFruits)</pre>
		<div>Copied!</div>
indexOf method	<p>This method is used to find the index of a specified element within an array. It returns the index of the first occurrence of the element in the array, or -1 if the element is not found.</p>	<pre>1. 1 2. 2 3. 3 1. const fruits = ["apple", "banana", "cherry", "banana"]; 2. const index = fruits.indexOf("banana"); // Returns 1 (the first occurrence of "banana") 3. console.log('Index of banana is', index)</pre>
		<div>Copied!</div>
reverse method	<p>The reverse method reverses the order of elements in an array, effectively reversing the array in place.</p>	<pre>1. 1 2. 2 3. 3 1. const fruits = ["apple", "banana", "cherry"]; 2. fruits.reverse(); // Reverses the order of the array 3. console.log(fruits)</pre>
		<div>Copied!</div>
sort method	<p>The sort method is used to sort the elements of an array in place and returns the sorted array. By default, it sorts elements as strings and in lexicographic order.</p>	<pre>1. 1 2. 2 3. 3 4. 4 1. const numbers = [4, 2, 8, 6, 1,10]; 2. numbers.sort(); // Sorts as strings: [1,10, 2, 4, 6, 8] 3. numbers.sort((a, b) => a - b); // Sorts as numbers: [1, 2, 4, 6, 8] 4. console.log(numbers)</pre>
		<div>Copied!</div>
Array iteration	<p>A for loop can be used to iterate through the elements of an array to access and manipulate each item in the array.</p>	<pre>1. 1 2. 2 3. 3 4. 4 1. const fruits = ['apple', 'banana', 'cherry', 'date']; 2. for (let i = 0; i < fruits.length; i++) { 3. console.log(fruits[i]); 4. }</pre>
		<div>Copied!</div>
forEach	<p>The forEach method iterates through an array and applies a provided function to each element.</p>	<pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10 11. 11 12. 12 1. function sendWelcomeEmail(email) { 2. console.log(`Welcome email sent to \${email}`); 3. } 4. const users = [5. { name: 'Alice', email: 'alice@example.com' }, 6. { name: 'Bob', email: 'bob@example.com' }, 7. { name: 'Charlie', email: 'charlie@example.com' }, 8.]; 9. 10. users.forEach((user) => { 11. sendWelcomeEmail(user.email); 12. });</pre>
		<div>Copied!</div>
map method	<p>The map method creates a new array by applying a provided function to each element in the original array.</p>	<pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 1. const products = [2. { name: 'Laptop', price: 1000 }, 3. { name: 'Smartphone', price: 500 }, 4. { name: 'Tablet', price: 300 }, 5.]; 6. 7. products.map((product) => { 8. console.log(`The price of \${product.name} is \${product.price}`); 9. });</pre>
		<div>Copied!</div>
filter method	<p>The filter method creates a new array containing elements that pass a specified condition. It's useful for extracting</p>	<pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9</pre>

	specific data from an array.	<pre>10. 10 11. 11 12. 12 13. 13 14. 14 15. 15 16. 16 17. 17 18. 18 19. 19 20. 20 1. const products = [2. { name: 'Laptop', price: 1000 }, 3. { name: 'Smartphone', price: 500 }, 4. { name: 'Tablet', price: 300 }, 5. { name: 'Monitor', price: 250 }, 6. { name: 'Keyboard', price: 50 }, 7.]; 8. 9. function filterProductsByPriceRange(products, minPrice, maxPrice) { 10. return products.filter((product) => product.price >= minPrice && product.price <= maxPrice); 11. } 12. 13. const minPrice = 100; // Minimum price threshold 14. const maxPrice = 500; // Maximum price threshold 15. 16. const filteredProducts = filterProductsByPriceRange(products, minPrice, maxPrice); 17. 18. filteredProducts.forEach((product) => { 19. console.log(`\${product.name} is of \${product.price}`); 20. });</pre>
reduce method	The reduce method allows you to reduce an array to a single value by applying a function to each element. It's excellent for aggregating data.	<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 1. const orderPrices = [50, 30, 25, 40, 15]; 2. 3. const totalOrderValue = orderPrices.reduce((total, price) => total + price, 0); 4. console.log(`The total value of order is `, totalOrderValue)</pre>
find method	The find method returns the first element in an array that satisfies a specified condition. It's useful for searching for specific data.	<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 1. const employees = [2. { id: 1, name: 'Alice', Eid: 'EMP001', 'Contact details': 'alice@example.com', Role: 'Manager', Des 3. { id: 2, name: 'Bob', Eid: 'EMP002', 'Contact details': 'bob@example.com', Role: 'Engineer', Design 4. { id: 3, name: 'Charlie', Eid: 'EMP003', 'Contact details': 'charlie@example.com', Role: 'Analyst', 5.]; 6. 7. const employee = employees.find((e) => e.id === 2); 8. console.log(`Details of the employee\nname: \${employee.name}\nEid: \${employee.Eid}\nContact details: \${`</pre>
2D Array	A 2D array can be created by initializing an array of arrays.	<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 1. const grid = [2. [1, 2, 3], 3. [4, 5, 6], 4. [7, 8, 9] 5.];</pre>
Access 2D Array	To access a specific element in a 2D array, you need to provide both row and column indices.	<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 1. for (let i = 0; i < grid.length; i++) { 2. for (let j = 0; j < grid[i].length; j++) { 3. console.log(`Element at (\${i}, \${j}): \${grid[i][j]}`); 4. } 5. }</pre>
2D array to book seat	You can create a booking system using 2D array.	<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10 11. 11 12. 12</pre>

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1. <!DOCTYPE html>  
2. <html>  
3. <head>  
4.   <style>  
5.     /* CSS for styling the seats */  
6.     .seating-chart {  
7.       display: grid;  
8.       grid-template-columns: repeat(3, 70px);  
9.       gap: 10px;  
10.      justify-content: center;
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11.     }
12.
13.     .seat {
14.         width: 70px;
15.         height: 40px;
16.         text-align: center;
17.         line-height: 40px;
18.         border: 1px solid #ccc;
19.         cursor: pointer;
20.     }
21.
22.     .booked {
23.         background-color: #FF0000; /* Red */
24.         cursor: not-allowed;
25.         color: white; /* Set the text color to white for booked seats */
26.     }
27.
28.     .available {
29.         background-color: #7FFF00; /* Light Green */
30.     }
31.
32.     .select-button {
33.         width: 100%;
34.         padding: 10px;
35.         margin: 10px;
36.         background-color: #007BFF; /* Blue */
37.         color: white;
38.         border: none;
39.         cursor: pointer;
40.     }
41. </style>
42. </head>
43. <body>
44.     <h2>Movie Theater Seating</h2>
45.     <div id="seating-chart" class="seating-chart">
46.         <div class="seat available" onclick="bookSeat(0, 0)">A1</div>
47.         <div class="seat available" onclick="bookSeat(0, 1)">A2</div>
48.         <div class="seat available" onclick="bookSeat(0, 2)">A3</div>
49.         <div class="seat available" onclick="bookSeat(1, 0)">B1</div>
50.         <div class="seat available" onclick="bookSeat(1, 1)">B2</div>
51.         <div class="seat available" onclick="bookSeat(1, 2)">B3</div>
52.         <div class="seat available" onclick="bookSeat(2, 0)">C1</div>
53.         <div class="seat available" onclick="bookSeat(2, 1)">C2</div>
54.         <div class="seat available" onclick="bookSeat(2, 2)">C3</div>
55.     </div>
56.
57.     <button class="select-button" onclick="bookRandomSeat()">Select Random Seat</button>
58.
59.     <script>
60.         // JavaScript for booking seats
61.         const theaterSeats = [
62.             ['X', 'O', 'X'],
63.             ['O', 'X', 'O'],
64.             ['X', 'O', 'X']
65.         ];
66.
67.         function bookSeat(row, col) {
68.             if (theaterSeats[row][col] === 'O') {
69.                 theaterSeats[row][col] = 'X';
70.                 updateSeatStatus(row, col, 'booked');
71.                 alert(`Seat ${String.fromCharCode(65 + row)}${col + 1} is booked.`);
72.             } else {
73.                 alert(`Seat ${String.fromCharCode(65 + row)}${col + 1} is already taken.`);
74.             }
75.         }
76.
77.         function updateSeatStatus(row, col, status) {
78.             const seats = document.getElementsByClassName('seat');
79.             const index = row * 3 + col;
80.             seats[index].classList.remove('available', 'booked');
81.             seats[index].classList.add(status);
82.         }
83.
84.         function bookRandomSeat() {
85.             const availableSeats = [];
86.
87.             for (let row = 0; row < theaterSeats.length; row++) {
88.                 for (let col = 0; col < theaterSeats[row].length; col++) {
89.                     if (theaterSeats[row][col] === 'O') {
90.                         availableSeats.push({ row, col });
91.                     }
92.                 }
93.             }
94.
95.             if (availableSeats.length > 0) {
96.                 const randomIndex = Math.floor(Math.random() * availableSeats.length);
97.                 const { row, col } = availableSeats[randomIndex];
98.                 bookSeat(row, col);
99.             } else {
100.                 alert('All seats are already booked.');

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Classes

Classes are a way to create blueprint or templates for objects. They define the structure and

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	behavior of objects of that class.	<pre>8. 8 9. 9 10. 10 11. 11 12. 12 13. 13 14. 14 1. class Person { 2. constructor(firstName, lastName) { 3. this.firstName = firstName; 4. this.lastName = lastName; 5. } 6. 7. getFullName() { 8. return `\${this.firstName} \${this.lastName}`; 9. } 10. } 11. 12. // Creating an instance of the Person class 13. const person1 = new Person("John", "Doe"); 14. console.log(person1.getFullName()); // Output: "John Doe"</pre> <div>Copied!</div>
Constructor Objects	Objects are instances of classes or can be created as standalone objects without a class. They can have properties and methods.	<pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10 11. 11 12. 12 13. 13 14. 14 1. class Car { 2. constructor(make, model, year) { 3. this.make = make; 4. this.model = model; 5. this.year = year; 6. } 7. 8. startEngine() { 9. console.log(`The \${this.make} \${this.model}'s engine is running.`); 10. } 11. } 12. 13. const myCar = new Car("Toyota", "Camry", 2022); 14. myCar.startEngine(); // Output: "The Toyota Camry's engine is running."</pre> <div>Copied!</div>
Object Literals	Object literals are a way to create ad-hoc objects without defining a class.	<pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 1. const person = { 2. firstName: "Alice", 3. lastName: "Johnson", 4. getFullName: function() { 5. return `\${this.firstName} \${this.lastName}`; 6. } 7. }; 8. console.log(person.getFullName()); // Output: "Alice Johnson"</pre> <div>Copied!</div>
Function Constructor	A function constructor is a regular JavaScript function that is used to create and initialize objects. It's a convention to name function constructors with an initial capital letter.	<pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10 1. function Car(make, model) { 2. this.make = make; 3. this.model = model; 4. } 5. 6. const car1 = new Car("Toyota", "Camry"); 7. const car2 = new Car("Honda", "Civic"); 8. 9. console.log('Car1 details are', car1); 10. console.log('Car2 details are', car2);</pre> <div>Copied!</div>
. (Dot) Notation	Dot notation is a way to access object properties.	<pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6</pre> <div>Copied!</div>

		<pre>7. 7 8. 8 9. 9 1. const person = { 2. firstName: "John", 3. lastName: "Doe", 4. age: 30 5. }; 6. 7. console.log(person.firstName); // Output: "John" 8. console.log(person.lastName); // Output: "Doe" 9. console.log(person.age); // Output: 30</pre>
Bracket Notation	Bracket notation is a way to access object properties, especially useful when property names contain special characters or spaces.	<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 1. const person = { 2. "first name": "John", 3. "last name": "Doe", 4. age: 30 5. }; 6. 7. console.log(person["first name"]); // Output: "John" 8. console.log(person["last name"]); // Output: "Doe" 9. console.log(person["age"]); // Output: 30</pre>
Arrays of Objects	An array of objects in JavaScript is a collection of multiple objects stored within a single array container.	<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 1. const students = [2. { name: "Alice", age: 25 }, 3. { name: "Bob", age: 22 }, 4. { name: "Charlie", age: 28 } 5.];</pre>
Access Array of Objects	You can access elements within an array of objects using the array index and using dot notation.	<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 1. const students = [2. { name: "Alice", age: 25 }, 3. { name: "Bob", age: 22 }, 4. { name: "Charlie", age: 28 } 5.]; 6. console.log(students[0].name); // Output: "Alice" 7. console.log(students[2].age); // Output: 28</pre>
Iterating Through an Array of Objects	Iteration of objects through arrays include for loops and array methods.	<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 1. const students = [2. { name: "Alice", age: 25 }, 3. { name: "Bob", age: 22 }, 4. { name: "Charlie", age: 28 } 5.]; 6. for (let i = 0; i < students.length; i++) { 7. console.log(students[i].name); 8. }</pre>
Adding Objects	You can add new objects to the array using the push method.	<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10 1. //Adding Elements 2. const students = [3. { name: "Alice", age: 25 }, 4. { name: "Bob", age: 22 }, 5. { name: "Charlie", age: 28 } 6.];</pre>

		<pre>7. 8. students.push({ name: "David", age: 20 }); // Add a new student 9. console.log('After using push method '); 10. console.log(students);</pre>
		<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9</pre>
Removing Objects	You can remove objects using the pop method.	<pre>1. //Removing Elements 2. const students = [3. { name: "Alice", age: 25 }, 4. { name: "Bob", age: 22 }, 5. { name: "Charlie", age: 28 } 6.]; 7. const removedStudent = students.pop(); // Remove the last student 8. console.log('After using pop method '); 9. console.log(students);</pre>
		<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10 11. 11 12. 12</pre>
Filtering and Mapping Arrays of Objects	You can filter and transform arrays of objects using array methods like filter and map.	<pre>1. const students = [2. { name: "Alice", age: 25 }, 3. { name: "Bob", age: 22 }, 4. { name: "Charlie", age: 28 } 5.]; 6. 7. const adults = students.filter(student => student.age >= 23); // Filter students who are 18 or older 8. const studentNames = students.map(student => student.name); // Create an array of student names 9. console.log('Using Filter Method'); 10. console.log(adults); 11. console.log('Using Map Method'); 12. console.log(studentNames);</pre>
		<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9</pre>
Mapping Arrays of Objects	You can traverse and transform arrays of objects using array method like map.	<pre>1. const employees = [2. { name: "Alice", age: 35 }, 3. { name: "Bob", age: 32 }, 4. { name: "Charlie", age: 38 } 5.]; 6. const employee = employees.map((employee) => { 7. return employee; 8. }); 9. console.log(employee);</pre>
		<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7</pre>
Searching for Objects	You can search for objects within an array of objects using array methods like find.	<pre>1. const employees = [2. { name: "Alice", age: 35 }, 3. { name: "Bob", age: 32 }, 4. { name: "Charlie", age: 38 } 5.]; 6. const employee = employees.find(employee => employee.name === "Charlie"); 7. console.log(employee.age);</pre>
		<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10</pre>
Nested Array of objects	An array of objects is used to store and organize data in a way that allows you to access and manipulate the information easily.	

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1. let arrayOfObjects = [  
2.   {  
3.     name: 'John',  
4.     age: 25,  
5.     hobbies: ['Reading', 'Traveling'],  
6.     address: {  
7.       street: '123 Main St',  
8.       city: 'New York',  
9.       zip: '10001'  
10.    }  
11.  },  
12.  {  
13.    name: 'Alice',  
14.    age: 30,  
15.    skills: ['JavaScript', 'React', 'Node.js'],  
16.    projects: [  
17.      { title: 'Project A', completed: true },  
18.      { title: 'Project B', completed: false }  
19.    ],  
20.  },  
21.  {  
22.    title: 'Special Object',  
23.    data: [1, 2, 3],  
24.    metadata: { key: 'value' }  
25.  },  
26.  {  
27.    // An object with no specific properties  
28.  },  
29.  {  
30.    anotherObject: true,  
31.    nestedArrays: [  
32.      [1, 2, 3],  
33.      ['a', 'b', 'c']  
34.    ],  
35.    additionalProperty: 'Extra'  
36.  }  
37. ];
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Access Nested Array- Code Above Using . dot operator array can be accessed, which has been described in just above code.

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1. // Accessing properties of the first object  
2. console.log(arrayOfObjects[0].name); // Output: John  
3. console.log(arrayOfObjects[0].hobbies[0]); // Output: Reading  
4. // Accessing properties of the second object  
5. console.log(arrayOfObjects[1].skills[2]); // Output: Node.js  
6. console.log(arrayOfObjects[1].projects[0].title); // Output: Project A  
7. // Accessing properties of the third object  
8. console.log(arrayOfObjects[2].metadata.key); // Output: value  
9. // Accessing properties of the fourth object  
10. console.log(arrayOfObjects[3]); // Output: {}  
11. // Accessing properties of the fifth object  
12. console.log(arrayOfObjects[4].anotherObject); // Output: true  
13. console.log(arrayOfObjects[4].additionalProperty); // Output: Extra
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Strings Strings are data type in JavaScript used to represent text. They can contain letters, numbers, symbols,

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1. 1  
  
1. const message = "This is a message.";
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	and whitespace characters.	
	Strings are data type in JavaScript used to represent text. They can contain letters, numbers, symbols, and whitespace characters.	<pre>1. 1</pre>
Strings		<pre>1. const message = "This is a message.";</pre> <div>Copied!</div>
	Template literals in JavaScript are strings allowing embedded expressions, denoted by backticks (), enabling easy multiline strings and interpolation of variables using <code>\${}</code> .	<pre>1. 1</pre> <pre>1. const fullName = `\${firstName} \${lastName}`;</pre> <div>Copied!</div>
template literals		
	The concatenation operator <code>+</code> in JavaScript is used to combine (join) two or more strings together to create a single, longer string.	<pre>1. 1 2. 2 3. 3</pre> <pre>1. const firstName='Peter'; 2. const greeting = 'Hello, ' + firstName + '!'; 3. console.log(greeting);</pre> <div>Copied!</div>
String Concatenation		
	To determine the length of a string, length property can be used.	<pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6</pre> <pre>1. const message1 = "This is a message."; 2. const Stringlength1 = message1.length; 3. const message2 = "Thisisamessage"; 4. const Stringlength2 = message2.length; 5. console.log(Stringlength1); 6. console.log(Stringlength2)</pre> <div>Copied!</div>
String Length		
	Individual characters within a string can be accessed using bracket notation and a zero-based index.	<pre>1. 1 2. 2</pre> <pre>1. const text = "JavaScript"; 2. const firstCharacter = text[0];</pre> <div>Copied!</div>
Accessing Characters		
	JavaScript provides methods to change the case of a string into lowercase and uppercase.	<pre>1. 1 2. 2 3. 3 4. 4 5. 5</pre> <pre>1. const text = "Hello, World!"; 2. const lowercaseText = text.toLowerCase(); // "hello, world!" 3. const uppercaseText = text.toUpperCase(); // "HELLO, WORLD!" 4. console.log('The lowercase for text is ',lowercaseText); 5. console.log('The uppercase for text is ',uppercaseText);</pre> <div>Copied!</div>
toLowerCase and toUpperCase		
	<code>indexOf</code> returns the index of the first occurrence of a specified substring within a string. It returns -1 if the substring is not found.	<pre>1. 1 2. 2 3. 3</pre> <pre>1. const sentence = "The quick brown fox jumps over the lazy dog."; 2. const indexOfFox = sentence.indexOf("fox"); // 16 3. console.log(indexOfFox);</pre> <div>Copied!</div>
indexOf() method		
	<code>includes</code> returns a boolean indicating whether a specified substring is found within a string, returning true if found and false if not.	<pre>1. 1 2. 2 3. 3</pre> <pre>1. const sentence = "The quick brown fox jumps over the lazy dog."; 2. const hasFox = sentence.includes("fox"); // true 3. console.log(hasFox);</pre> <div>Copied!</div>
includes() method		
	<code>substring</code> extracts characters from a string between two specified indices. It means extracting a substring from the text starting at index 0 and ending at index 5 (excluding index 5).	<pre>1. 1 2. 2 3. 3</pre> <pre>1. const text = "Hello, World!"; 2. const subText1 = text.substring(0, 5); // "Hello" 3. console.log(subText1);</pre> <div>Copied!</div>
substring() methods		
	<code>slice</code> extracts a section of a string and returns it as a	<pre>1. 1 2. 2 3. 3</pre>
slice() method		

	<p>new string, specifying the start and end positions. It means extracting a substring from the text starting at index 7 until the end of the string.</p> <p>substr extracts a specified number of characters from a string, starting at a specified index. It means extracting a substring from the text starting at the 7th index and including 5 characters.</p>	<pre>1. const text = "Hello, World!"; 2. const subText2 = text.slice(7); // "World!" 3. console.log(subText2);</pre> <div>Copied!</div>
substr() method		<pre>1. 1 2. 2 3. 3</pre> <pre>1. const text = "Hello, World!"; 2. const subText3 = text.substr(7, 5); // "World" 3. console.log(subText3);</pre> <div>Copied!</div>
Replacing Substrings	<p>The replace method allows you to replace substrings with new values.</p>	<pre>1. 1 2. 2 3. 3</pre> <pre>1. const text = "Hello, World!"; 2. const updatedText = text.replace("World", "Universe"); 3. console.log(updatedText);</pre> <div>Copied!</div>
Splitting Strings	<p>You can split a string into an array of substrings using the split method.</p>	<pre>1. 1 2. 2 3. 3</pre> <pre>1. const csvData = "Alice,25,New York;Bob,30,Los Angeles;Charlie,28,Chicago"; 2. const peopleArray = csvData.split(';'); 3. console.log(peopleArray);</pre> <div>Copied!</div>
trim()method	<p>The trim method removes leading and trailing whitespace from a string.</p>	<pre>1. 1 2. 2 3. 3 4. 4</pre> <pre>1. const text = " Trim me! "; 2. console.log(text.length); 3. const trimmedText = text.trim(); 4. console.log(trimmedText.length);</pre> <div>Copied!</div>
round(), ceil() and floor() Math Methods	<p>round() rounds a number to the nearest integer. ceil() rounds a number up to the nearest integer. floor() rounds a number down to the nearest integer.</p>	<pre>1. 1 2. 2 3. 3 4. 4</pre> <pre>1. const number = 3.6; 2. const rounded = Math.round(number); // Round to nearest integer: 4 3. const ceil = Math.ceil(number); // Round up: 4 4. const floor = Math.floor(number); // Round down: 3</pre> <div>Copied!</div>
pow(), sqrt() and log() Math Methods	<p>pow() raises a number to a specified exponent. sqrt() returns the square root of a number. log() returns the natural logarithm (base e) of a number.</p>	<pre>1. 1 2. 2 3. 3 4. 4 5. 5</pre> <pre>1. const base = 2; 2. const exponent = 3; 3. const power = Math.pow(base, exponent); // Power: 8 4. const squareRoot = Math.sqrt(base); // Square Root: 1.41421356237 5. const naturalLog = Math.log(base); // Natural Logarithm: 0.69314718056</pre> <div>Copied!</div>
random() Method	<p>The random() method in JavaScript generates a pseudo-random floating-point number between 0 (inclusive) and n (exclusive).</p>	<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10 11. 11 12. 12 13. 13 14. 14 15. 15 16. 16 17. 17 18. 18 19. 19 20. 20 21. 21 22. 22 23. 23 24. 24 25. 25 26. 26</pre>

		<pre>27. 27 28. 28 29. 29 30. 30 31. 31 1. <!DOCTYPE html> 2. <html> 3. <head> 4. <title>Random Quote Generator</title> 5. </head> 6. <body> 7. <h1>Random Quote Generator</h1> 8. 9. <p id="quoteDisplay"></p> 10. 11. <button onclick="generateRandomQuote()">Get Quote</button> 12. 13. <script> 14. const quotes = [15. "Life is what happens when you're busy making other plans. - John Lennon", 16. "The only way to do great work is to love what you do. - Steve Jobs", 17. "In three words, I can sum up everything I've learned about life: it goes on. - Robert Frost", 18. "Don't count the days, make the days count. - Muhammad Ali", 19. "The only thing we have to fear is fear itself. - Franklin D. Roosevelt", 20. "To be yourself in a world that is constantly trying to make you something else is the greatest a 21.]; 22. 23. function generateRandomQuote() { 24. const randomIndex = Math.floor(Math.random() * quotes.length); // Generate a random index 25. const randomQuote = quotes[randomIndex]; // Get a random quote 26. 27. document.getElementById("quoteDisplay").textContent = randomQuote; 28. } 29. </script> 30. </body> 31. </html></pre>
		<div>Copied!</div> <pre>1. 1 2. 2 3. 3</pre>
Date Object	Date objects are used to represent specific moments in time.	<pre>1. const currentDate = new Date(); // Current date and time 2. const specificDate = new Date(2023, 0, 15); // January 15, 2023 3. const fromMilliseconds = new Date(1672569600000); // From milliseconds since the epoch</pre>
		<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7</pre>
Retrieving Date	Date objects provide access to individual components of a date, such as year, month, day, and hour.	<pre>1. const date = new Date(); 2. const year = date.getFullYear(); // Current year 3. const month = date.getMonth(); // Current month (0-11) 4. const day = date.getDate(); // Day of the month (1-31) 5. const hours = date.getHours(); // Hours (0-23) 6. const minutes = date.getMinutes(); // Minutes (0-59) 7. const seconds = date.getSeconds(); // Seconds (0-59)</pre>
		<div>Copied!</div> <pre>1. 1 2. 2 3. 3</pre>
toLocaleDateString() and toLocaleTimeString()	toLocaleDateString() to converts a date to a string representing the date portion according to the locale's formatting conventions. toLocaleTimeString() to converts a date to a string representing the time portion according to the locale's formatting conventions.	<pre>1. const date = new Date(); 2. const formattedDate = date.toLocaleDateString(); // "11/15/2023" 3. const formattedTime = date.toLocaleTimeString(); // "1:30:45 PM"</pre>
		<div>Copied!</div> <pre>1. 1 2. 2 3. 3 4. 4 5. 5</pre>
Date Arithmetic	Date objects allow for various date arithmetic operations, including adding and subtracting time intervals.	<pre>1. const date = new Date(); 2. date.setFullYear(2024); // Set the year to 2024 3. date.setDate(date.getDate() + 7); // Add 7 days 4. const futureDate = new Date(); 5. futureDate.setDate(futureDate.getDate() + 30); // Date 30 days from now</pre>
		<div>Copied!</div> <pre>1. 1 2. 2 3. 3</pre>
setTimeout() Method	The setTimeout function schedules the execution of a function after a specified delay in milliseconds:	<pre>1. setTimeout(function() { 2. console.log("This message appears after a delay."); 3. }, 2000); // Displayed after a 2-second delay</pre>

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- 1. 1
- 2. 2
- 3. 3
- 4. 4
- 5. 5
- 6. 6
- 7. 7
- 8. 8

setInterval

setInterval repeatedly executes a function at a specified interval.

```
1. let count = 0;
2. const intervalId = setInterval(function() {
3.   console.log("Count: " + count);
4.   count++;
5.   if (count > 5) {
6.     clearInterval(intervalId); // Stop after 6 iterations
7.   }
8. }, 1000); // Displayed every second.
```

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