## **Cheatsheet: Arrays and Objects in JavaScript**

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

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The reverse method
                                                                                                   const fruits = ["apple", "banana", "cherry"];
                                             reverses the order of
                                                                                                   fruits.reverse(); // Reverses the order of the array
reverse method
                                             elements in an array,
                                                                                                  console.log(fruits)
                                             effectively reversing
                                             the array in place.
                                             The sort method is
                                             used to sort the
                                             elements of an array
                                                                                                  const numbers = [4, 2, 8, 6, 1,10];
numbers.sort(); // Sorts as strings: [1,10, 2, 4, 6, 8]
                                             in place and returns
                                                                                                  numbers.sort((a, b) => a - b); // Sorts as numbers: [1, 2, 4, 6, 8]
sort method
                                             the sorted array. By
                                                                                                  console.log(numbers)
                                             default, it sorts
                                             elements as strings
                                             and in lexicographic
                                             order.
                                             A for loop can be
                                                                                                   const fruits = ['apple', 'banana', 'cherry', 'date'];
                                             used to iterate
                                                                                                  for (let i = 0; i < fruits.length; i++) {
                                             through the elements
Array iteration
                                                                                                          console.log(fruits[i]);
                                             of an array to access
                                             and manipulate each
                                             item in the array.
                                                                                                  function sendWelcomeEmail(email) {
                                                                                                          console.log(`Welcome email sent to ${email}`);
                                             The for Each method
                                                                                                  const users = [
                                                                                                          { name: 'Alice', email: 'alice@example.com' },
                                             iterates through an
                                                                                                           { name: 'Bob', email: 'bob@example.com'
                                             array and applies a
forEach
                                                                                                          { name: 'Charlie', email: 'charlie@example.com' },
                                             provided function to
                                             each element.
                                                                                                   users.forEach((user) => {
                                                                                                          sendWelcomeEmail(user.email);
                                                                                                  }):
                                                                                                   const products = [
                                                                                                          { name: 'Laptop', price: 1000 }, { name: 'Smartphone', price: 500 },
                                             The map method
                                             creates a new array
                                                                                                          { name: 'Tablet', price: 300 },
                                             by applying a
map method
                                                                                                  1;
                                             provided function to
                                                                                                  products.map((product) => {
                                             each element in the
                                                                                                          console.log(`The price of ${product.name} is $${product.price}`);
                                             original array.
                                                                                                  const products = [
                                                                                                          { name: '
                                                                                                                            'Laptop', price: 1000 }
                                                                                                           { name: 'Smartphone', price: 500 },
                                                                                                          { name: 'Tablet', price: 300 }, { name: 'Monitor', price: 250 }, { name: 'Keyboard', price: 50 },
                                             The filter method
                                             creates a new array
                                             containing elements
                                                                                                   function filterProductsByPriceRange(products, minPrice, maxPrice) {
                                             that pass a specified
filter method
                                                                                                          return products.filter((product) => product.price >= minPrice && product.price <= maxPrice);
                                             condition. It's useful
                                             for extracting
                                                                                                  const minPrice = 100; // Minimum price threshold
                                                                                                  const maxPrice = 500; // Maximum price threshold
const filteredProducts = filterProductsByPriceRange(products, minPrice, maxPrice);
                                             specific data from an
                                             array.
                                                                                                  filteredProducts.forEach((product) => {
                                                                                                          console.log(`${product.name} is of $${product.price}`);
                                             The reduce method
                                             allows you to reduce
                                             an array to a single
                                                                                                  const orderPrices = [50, 30, 25, 40, 15];
                                             value by applying a
                                                                                                  const totalOrderValue = orderPrices.reduce((total, price) => total + price, 0);
reduce method
                                             function to each
                                                                                                   console.log('The total value of order is ', totalOrderValue)
                                             element. It's
                                             excellent for
                                             aggregating data.
                                             The find method
                                                                                                  const employees = [
    { id: 1, name: 'Alice', Eid: 'EMP001', 'Contact details': 'alice@example.com', Role: 'Manager', Des
    { id: 2, name: 'Bob', Eid: 'EMP002', 'Contact details': 'bob@example.com', Role: 'Engineer', Design
    { id: 3, name: 'Charlie', Eid: 'EMP003', 'Contact details': 'charlie@example.com', Role: 'Analyst',
}
                                             returns the first
                                             element in an array
                                             that satisfies a
find method
                                             specified condition.
                                                                                                  const employee = employees.find((e) => e.id === 2);
                                             It's useful for
                                                                                                  console.log(`Details of the employee \verb|\nmame: ${employee.name} \verb|\nEid: ${employee.Eid} \verb|\nContact details: ${employee.Eid} \verb|\nContact details: ${employee.mame} \verb|\nEid: ${employee.mame} \verb
                                             searching for specific
                                             data.
                                                                                                   const grid = [
                                             A 2D array can be
                                                                                                          [1, 2, 3],
                                             created by
                                                                                                           [4, 5, 6],
2D Array
                                             initializing an array
                                                                                                           [7, 8, 9]
                                             of arrays.
```

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for (let i = 0; i < grid.length; i++) {
    for (let j = 0; j < grid[i].length; j++) {</pre>
                          To access a specific
                          element in a 2D
                                                                    console.log(`Element at (${i}, ${j}): ${grid[i][j]}`);
Access 2D Array
                          array, you need to
                          provide both row and
                          column indices.
                                                           <!DOCTYPE html>
2D array to book
                          You can create a
                                                           <html>
                          booking system
                                                           <head>
                          using 2D array.
                                                                <style>
                                                                    /* CSS for styling the seats */
                                                                     .seating-chart {
                                                                         display: grid;
                                                                         grid-template-columns: repeat(3, 70px);
                                                                         gap: 10px;
                                                                         justify-content: center;
                                                                     .seat {
                                                                         width: 70px;
                                                                         height: 40px;
                                                                         text-align: center;
                                                                         line-height: 40px;
                                                                         border: 1px solid #ccc;
                                                                         cursor: pointer;
                                                                     .booked {
                                                                         background-color: #FF0000; /* Red */
                                                                         cursor: not-allowed;
                                                                         color: white; /* Set the text color to white for booked seats */
                                                                     .available {
                                                                         background-color: #7FFF00; /* Light Green */
                                                                    .select-button {
                                                                         width: 100%;
                                                                         padding: 10px;
                                                                         margin: 10px;
                                                                         background-color: #007BFF; /* Blue */
                                                                         color: white;
                                                                         border: none;
                                                                         cursor: pointer;
                                                               </style>
                                                           </head>
                                                           <body>
                                                                <h2>Movie Theater Seating</h2>
                                                               </div>
                                                                <button class="select-button" onclick="bookRandomSeat()">Select Random Seat/button>
                                                                <script>
                                                                    // JavaScript for booking seats
                                                                    const theaterSeats = [
                                                                         ['X', '0', 'X'],
['0', 'X', '0'],
['X', '0', 'X']
                                                                    function bookSeat(row, col) {
                                                                         if (theaterSeats[row][col] === '0') {
                                                                              theaterSeats[row][col] = 'X';
updateSeatStatus(row, col, 'booked');
alert(`Seat ${String.fromCharCode(65 + row)}${col + 1} is booked.`);
                                                                         } else {
                                                                              alert(`Seat ${String.fromCharCode(65 + row)}${col + 1} is already taken.`);
                                                                    function updateSeatStatus(row, col, status) {
   const seats = document.getElementsByClassName('seat');
   const index = row * 3 + col;
                                                                         seats[index].classList.remove('available', 'booked');
                                                                         seats[index].classList.add(status);
                                                                    function bookRandomSeat() {
                                                                         const availableSeats = [];
for (let row = 0; row < theaterSeats.length; row++) {
   for (let col = 0; col < theaterSeats[row].length; col++) {</pre>
                                                                                  if (theaterSeats[row][col] === '0')
                                                                                       availableSeats.push({ row, col });
                                                                              }
                                                                         if (availableSeats.length > 0) {
                                                                              const randomIndex = Math.floor(Math.random() * availableSeats.length);
const { row, col } = availableSeats[randomIndex];
                                                                              bookSeat(row, col);
                                                                         } else {
                                                                              alert('All seats are already booked.');
```

```
</script>
                                                              </body>
                                                              </html>
                                                              class Person {
                                                                constructor(firstName, lastName) {
                                                                  this.firstName = firstName;
                            Classes are a way to
                                                                   this.lastName = lastName;
                            create blueprint or
                            templates for objects.
                                                                getFullName() {
Classes
                            They define the
                                                                  return `${this.firstName} ${this.lastName}`;
                                                                }
                            structure and
                            behavior of objects
                                                              // Creating an instance of the Person class
                            of that class.
                                                              const person1 = new Person("John", "Doe");
                                                              console.log(person1.getFullName()); // Output: "John Doe"
                                                              class Car {
                                                                constructor(make, model, year) {
                                                                   this.make = make;
                            Objects are instances
                                                                   this.model = model;
                            of classes or can be
                                                                  this.year = year;
                            created as standalone
Constructor Objects
                            objects without a
                                                                startEngine() {
                            class. They can have
                                                                  console.log(`The ${this.make} ${this.model}'s engine is running.`);
                            properties and
                            methods.
                                                             const myCar = new Car("Toyota", "Camry", 2022);
myCar.startEngine(); // Output: "The Toyota Camry's engine is running."
                                                              const person = {
                                                                firstName: "Alice",
lastName: "Johnson"
                            Object literals are a
                                                                getFullName: function() {
                            way to create ad-hoc
Object Literals
                                                                  return `${this.firstName} ${this.lastName}`;
                            objects without
                                                                }
                            defining a class.
                                                              console.log(person.getFullName()); // Output: "Alice Johnson"
                            A function
                            constructor is a
                                                              function Car(make, model) {
                            regular JavaScript
                                                                this.make = make
                                                                this.model = model;
                            function that is used
Function
                            to create and
                                                             const car1 = new Car("Toyota", "Camry");
const car2 = new Car("Honda", "Civic");
console.log('Car1 details are', car1);
console.log('Car2 details are', car2);
Constructor
                            initialize objects. It's
                            a convention to name
                            function constructors
                            with an initial capital
                            letter.
                                                              const person =
                                                                firstName: "John",
lastName: "Doe",
                            Dot notation is a way
                                                                age: 30
. (Dot) Notation
                            to access object
                            properties.
                                                              console.log(person.firstName); // Output: "John"
                                                              console.log(person.lastName); // Output: "Doe'
                                                              console.log(person.age);
                                                                                                    // Output: 30
                                                             const person = {
  "first name": "John",
  "last name": "Doe",
                            Bracket notation is a
                            way to access object
                            properties, especially
                                                                age: 30
                            useful when property
Bracket Notation
                                                             console.log(person["first name"]); // Output: "John'
console.log(person["last name"]); // Output: "Doe"
                            names contain
                            special characters or
                                                              console.log(person["age"]);
                                                                                                         // Output: 30
                            spaces.
                            An array of objects
                                                              const students = [
                            in JavaScript is a
                                                                { name: "Alice", age: 25 }, 
{ name: "Bob", age: 22 },
                            collection of multiple
Arrays of Objects
                            objects stored within
                                                                  name: "Charlie", age: 28 }
                                                              ];
                            a single array
                            container.
                                                              const students = [
                                                                { name: "Alice", age: 25 }, 
{ name: "Bob", age: 22 },
                            You can access
                            elements within an
Access Array of
                                                                  name: "Charlie", age: 28 }
                            array of objects using
Objects
                            the array index and
                                                             console.log(students[0].name); // Output: "Alice"
console.log(students[2].age); // Output: 28
                            using dot notation.
                                                              const students = [
Iterating Through an
                            Iteration of objects
                                                                { name: "Alice", age: 25 }, { name: "Bob", age: 22 },
Array of Objects
                            through arrays
```

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```
{ name: "Charlie", age: 28 }
                              include for loops and
                              array methods.
                                                                  for (let i = 0; i < students.length; i++) {
                                                                     console.log(students[i].name);
                                                                   //Adding Elements
                                                                  //Adding crements
const students = [
    { name: "Alice", age: 25 },
    { name: "Bob", age: 22 },
    { name: "Charlie", age: 28 }
                              You can add new
                              objects to the array
Adding Objects
                              using the push
                                                                   students.push({ name: "David", age: 20 }); // Add a new student
                              method.
                                                                  console.log('After using push method ');
                                                                  console.log(students);
                                                                  //Removing Elements
                                                                  //Removing Liements
const students = [
    { name: "Alice", age: 25 },
    { name: "Bob", age: 22 },
    { name: "Charlie", age: 28 }
                              You can remove
Removing Objects
                              objects using the pop
                                                                  1;
                              method.
                                                                  const removedStudent = students.pop();
                                                                                                                             // Remove the last student
                                                                  console.log('After using pop method'');
                                                                  console.log(students);
                                                                  const students = [
  { name: "Alice", age: 25 },
  { name: "Bob", age: 22 },
  { name: "Charlie", age: 28 }
                              You can filter and
Filtering and
                              transform arrays of
                                                                  const adults = students.filter(student => student.age >= 23);  // Filter students who are 18 or oldercc
const studentNames = students.map(student => student.name);  // Create an array of student names
Mapping Arrays of
                              objects using array
                              methods like filter
Objects
                                                                  console.log('Using Filter Method');
                              and map.
                                                                  console.log(adults);
                                                                  console.log('Using Map Method'
                                                                  console.log(studentNames);
                                                                  const employees = [
                                                                     { name: "Alice", age: 35 }, { name: "Bob", age: 32 },
                              You can traverse and
                                                                     { name: "Charlie", age: 38 }
Mapping Arrays of
                              transform arrays of
Objects
                              objects using array
                                                                  const employee = employees.map((employee) => {
                              method like map.
                                                                  return employee});
                                                                  console.log(employee);
                                                                   const employees = [
                                                                     { name: "Alice", age: 35 }, 
{ name: "Bob", age: 32 }, 
{ name: "Charlie", age: 38 }
                              You can search for
                              objects within an
Searching for
                              array of objects using
Objects
                              array methods like
                                                                   const employee = employees.find(employee => employee.name === "Charlie");
                              find.
                                                                  console.log(employee.age);
```

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```
let arrayOfObjects = [
                                                             name: 'John',
                                                              age: 25,
                                                             hobbies: ['Reading', 'Traveling'],
                                                             address: {
                                                               street: '123 Main St',
                                                               city: 'New York',
zip: '10001'
                                                             name: 'Alice',
                                                             age: 30,
                                                              skills: ['JavaScript', 'React', 'Node.js'],
                          An array of objects is
                                                             projects: [
    { title: 'Project A', completed: true },
                          used to store and
                                                                { title: 'Project B', completed: false }
                          organize data in a
Nested Array of
                          way that allows you
objects
                          to access and
                          manipulate the
                                                             title: 'Special Object',
                                                             data: [1, 2, 3],
                          information easily.
                                                             metadata: { key: 'value' }
                                                             // An object with no specific properties
                                                             anotherObject: true,
                                                             nestedArrays: [
                                                               [1, 2, 3],
['a', 'b', 'c']
                                                              additionalProperty: 'Extra'
                                                         ];
                                                         // Accessing properties of the first object
                                                         console.log(arrayOfObjects[0].name); // Output: John
                                                         console.log(arrayOfObjects[0].hobbies[0]); // Output: Reading
// Accessing properties of the second object
                          Using . dot operator
                                                         console.log(arrayOfObjects[1].skills[2]); // Output: Node.js
console.log(arrayOfObjects[1].projects[0].title); // Output: Project A
                          elements of nested
Access Nested Array-
                          array can be accesed,
                                                         // Accessing properties of the third object
                                                         console.log(arrayOfObjects[2].metadata.key); // Output: value
Code Above
                          which has been
                                                         // Accessing properties of the fourth object
                          described in just
                                                         console.log(arrayOfObjects[3]); // Output: {}
// Accessing properties of the fifth object
                          above code.
                                                         console.log(arrayOfObjects[4].anotherObject); // Output: true
                                                         console.log(arrayOfObjects[4].additionalProperty); // Output: Extra
                          Strings are data type
                          in JavaScript used to
                          represent text. They
                                                         const message = "This is a message.";
Strings
                          can contain letters,
                          numbers, symbols,
                          and whitespace
                          characters.
                          Strings are data type
                          in JavaScript used to
                          represent text. They
                                                         const message = "This is a message.";
Strings
                          can contain letters,
                          numbers, symbols,
                          and whitespace
                          characters.
                          Template literals in
                          JavaScript are strings
                          allowing embedded
                          expressions, denoted
                                                         const fullName = `${firstName} ${lastName}`;
template literals
                          by backticks (),
                          enabling easy
                          multiline strings and
                          interpolation of
                          variables using ${}`.
                          The concatenation
                          operator + in
                                                         const firstName='Peter';
                          JavaScript is used to
                                                         const greeting = 'Hello, ' + firstName + '!';
String Concatenation
                          combine (join) two
                                                         console.log(greeting);
                          or more strings
                          together to create a
                          single, longer string.
String Length
                          To determine the
                                                         const message1 = "This is a message.";
                                                         const Stringlength1 = message1.length;
                          length of a string,
```

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20/25, 11.19 PM	length property can be used.	about.blank  const message2 = "Thisisamessage";  const Stringlength2 = message2.length;  console.log(Stringlength1);  console.log(Stringlength2)
Accessing Characters	Individual characters within a string can be accessed using bracket notation and a zero-based index.	<pre>const text = "JavaScript"; const firstCharacter = text[0];</pre>
toLowerCase and toUpperCase	JavaScript provides methods to change the case of a string into lowercase and uppercase.	<pre>const text = "Hello, World!"; const lowercaseText = text.toLowerCase(); // "hello, world!" const uppercaseText = text.toUpperCase(); // "HELLO, WORLD!" console.log('The lowercase for text is ',lowercaseText); console.log('The uppercase for text is ',uppercaseText);</pre>
indexOf() method	indexOf returns the index of the first occurrence of a specified substring within a string. It returns -1 if the substring is not found.	<pre>const sentence = "The quick brown fox jumps over the lazy dog."; const indexOfFox = sentence.indexOf("fox"); // 16 console.log(indexOfFox);</pre>
includes() method	includes returns a boolean indicating whether a specified substring is found within a string, returning true if found and false if not.	<pre>const sentence = "The quick brown fox jumps over the lazy dog."; const hasFox = sentence.includes("fox"); // true console.log(hasFox);</pre>
substring() methods	substring 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>const text = "Hello, World!"; const subText1 = text.substring(0, 5); // "Hello" console.log(subText1);</pre>
slice() method	slice extracts a section of a string and returns it as a 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.	<pre>const text = "Hello, World!"; const subText2 = text.slice(7);  // "World!" console.log(subText2);</pre>
substr() method	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.	<pre>const text = "Hello, World!"; const subText3 = text.substr(7, 5); // "World" console.log(subText3);</pre>
Replacing Substrings	The replace method allows you to replace substrings with new values.	<pre>const text = "Hello, World!"; const updatedText = text.replace("World", "Universe"); console.log(updatedText);</pre>
Splitting Strings	You can split a string into an array of substrings using the split method.	<pre>const csvData = "Alice,25,New York;Bob,30,Los Angeles;Charlie,28,Chicago"; const peopleArray = csvData.split(';'); console.log(peopleArray);</pre>
trim()method	The trim method removes leading and	<pre>const text = " Trim me! "; console.log(text.length); const trimmedText = text.trim();</pre>

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```
console.log(trimmedText.length);
                         trailing whitespace
                         from a string.
                         round() rounds a
                         number to the nearest
                         integer. ceil() rounds
                                                       const number = 3.6;
round(), ceil() and
                                                       const rounded = Math.round(number); // Round to nearest integer: 4
                         a number up to the
floor() Math
                                                       const ceil = Math.ceil(number);
                                                                                           // Round up: 4
                         nearest integer.
Methods
                                                       const floor = Math.floor(number);
                                                                                              // Round down: 3
                         floor() rounds a
                         number down to the
                         nearest integer.
                         pow() raises a
                         number to a specified
                                                       const base = 2;
                         exponent. sqrt()
                                                       const exponent = 3;
pow(), sqrt() and
                         returns the square
                                                       const power = Math.pow(base, exponent); // Power: 8
log() Math Methods
                         root of a number.
                                                       const squareRoot = Math.sqrt(base);
                                                                                                   // Square Root: 1.41421356237
                                                       const naturalLog = Math.log(base);
                                                                                                   // Natural Logarithm: 0.69314718056
                         log() returns the
                         natural logarithm
                         (base e) of a number.
                                                       <!DOCTYPE html>
                                                       <html>
                                                       <head>
                                                         <title>Random Quote Generator</title>
                                                       </head>
                                                       < hody>
                                                         <h1>Random Ouote Generator</h1>
                                                         <button onclick="generateRandomQuote()">Get Quote</button>
                         The random()
                                                         <script>
                         method in JavaScript
                                                           const auotes = [
                                                              "Life is what happens when you're busy making other plans. - John Lennon",
                         generates a pseudo-
                                                              "The only way to do great work is to love what you do. - Steve Jobs",
random() Method
                         random floating-
                                                              "In three words, I can sum up everything I've learned about life: it goes on. - Robert Frost",
                         point number
                                                              "Don't count the days, make the days count. - Muhammad Ali"
                                                              "The only thing we have to fear is fear itself. - Franklin D. Roosevelt",
"To be yourself in a world that is constantly trying to make you something else is the greatest a
                         between 0 (inclusive)
                         and n (exclusive).
                                                           function generateRandomQuote() {
                                                             const randomIndex = Math.floor(Math.random() * quotes.length); // Generate a random index
const randomQuote = quotes[randomIndex]; // Get a random quote
                                                             document.getElementById("quoteDisplay").textContent = randomQuote;
                                                         </script>
                                                       </body>
                                                       </html>
                                                       const currentDate = new Date(); // Current date and time
                         Date objects are used
                                                       const specificDate = new Date(2023, 0, 15); // January 15, 2023
Date Object
                         to represent specific
                                                       const fromMilliseconds = new Date(1672569600000); // From milliseconds since the epoch
                         moments in time.
                                                       const date = new Date():
                         Date objects provide
                                                       const year = date.getFullYear();
                                                                                                // Current year
                                                       const month = date.getMonth();
                                                                                                // Current month (0-11)
                         access to individual
                                                       const day = date.getDate();
                                                                                               // Day of the month (1-31)
Retrieving Date
                         components of a
                                                       const hours = date.getHours();
                                                                                               // Hours (0-23)
                         date, such as year,
                                                       const minutes = date.getMinutes();
                                                                                              // Minutes (0-59)
                         month, day, and hour.
                                                       const seconds = date.getSeconds(); // Seconds (0-59)
                         toLocaleDateString()
                         to converts a date to
                         a string representing
                         the date portion
                         according to the
                         locale's formatting
                                                       const date = new Date();
toLocaleDateString()
                                                       const formattedDate = date.toLocaleDateString(); // "11/15/2023"
const formattedTime = date.toLocaleTimeString(); // "1:30:45 PM"
                         conventions.
                         toLocaleTimeString()
toLocaleTimeString()
                         to converts a date to
                         a string representing
                         the time portion
                         according to the
                         locale's formatting
                         conventions.
Date Arithmetic
                         Date objects allow
                                                       const date = new Date();
                                                       date.setFullYear(2024); // Set the year to 2024
                         for various date
                                                       date.setDate(date.getDate() + 7); // Add 7 days
                         arithmetic
                                                       const futureDate = new Date();
                         operations, including
                                                       futureDate.setDate(futureDate.getDate() + 30); // Date 30 days from now
                         adding and
```

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	subtracting time intervals.	
setTimeout() Method	The setTimeout function schedules the execution of a function after a specified delay in milliseconds:	<pre>setTimeout(function() {   console.log("This message appears after a delay."); }, 2000); // Displayed after a 2-second delay</pre>
setInterval	setInterval repeatedly executes a function at a specified interval.	<pre>let count = 0; const intervalId = setInterval(function() {    console.log("Count: " + count);    count++;    if (count &gt; 5) {       clearInterval(intervalId); // Stop after 6 iterations    } }, 1000); // Displayed every second.</pre>



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