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| Close-up image showing the leaf-sides of two oversized books side-by-side on a bookshelf, with additional books in soft focus background |
| **JavaScript**  BASIC |
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| **JavaScript Data type:** | |
| // Integer  let num = 42;  console.log("Integer:", num); | 42 |
| // Float  let floatNum = 3.14;  console.log("Float:", floatNum); | 3.14 |
| // String  let text = "Hello, World!";  console.log("String:", text); | Hello, World! |
| // Boolean  let isTrue = true;  console.log("Boolean:", isTrue); | true |
| // List (Array)  let myArray = [1, 2, 3];  console.log("Array:", myArray); | [1, 2, 3] |
| // Tuple  let myTuple = [1, "two", true];  console.log("Tuple:", myTuple); | [1, "two", true] |
| // Set  let mySet = new Set([1, 2, 3]);  console.log("Set:", mySet); | Set { 1, 2, 3 } |
| // Object (Dictionary)  let myObject = { key: "value", num: 42 };  console.log("Object:", myObject); | { key: 'value', num: 42 } |
| // Undefined  let undefinedVar;  console.log("Undefined:", undefinedVar); | undefined |
| // Date  let currentDate = new Date();  console.log("Date:", currentDate); | Current date and time |
| // Null  let nullVar = null;  console.log("Null:", nullVar); | null |
| // Function  let myFunction = function () {    console.log("Hello from a function!");  };  console.log("Function:", myFunction); | [Function: myFunction] |

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| **JavaScript Operators:** | | |
| // Arithmetic Operators  let addition = 10 + 5;  let subtraction = 10 - 5;  let multiplication = 10 \* 5;  let division = 10 / 5;  let modulus = 10 % 3;  console.log("Addition Result:", addition);  console.log("Subtraction Result:", subtraction);  console.log("Multiplication Result:", multiplication);  console.log("Division Result:", division);  console.log("Modulus Result:", modulus); | Addition Result: 15  Subtraction Result: 5  Multiplication Result: 50  Division Result: 2   Modulus Result: 1 | |
| // Comparison Operators  let isEqual = 10 == 5;  let isNotEqual = 10 != 5;  let isGreater = 10 > 5;  let isLess = 10 < 5;  let isGreaterOrEqual = 10 >= 5;  let isLessOrEqual = 10 <= 5;  console.log("Is Equal:", isEqual);  console.log("Is Not Equal:", isNotEqual);  console.log("Is Greater:", isGreater);  console.log("Is Less:", isLess);  console.log("Is Greater or Equal:", isGreaterOrEqual);  console.log("Is Less or Equal:", isLessOrEqual); | Is Equal: false  Is Not Equal: true  Is Greater: true  Is Less: false  Is Greater or Equal: true  Is Less or Equal: false | |
| // Increment and Decrement Operators  let counter = 0;  counter++; // Increment by 1  counter--; // Decrement by 1  console.log("Counter Value:", counter); | Counter Value: 0 | |
| // Logical Operators  let logicalAnd = true && false;  let logicalOr = true || false;  let logicalNot = !true;  console.log("Logical AND Result:", logicalAnd);  console.log("Logical OR Result:", logicalOr);  console.log("Logical NOT Result:", logicalNot); | Logical AND Result: false  Logical OR Result: true  Logical NOT Result: false | |
| // Bitwise Operators (if working with integers)  let bitwiseAnd = 5 & 3;  let bitwiseOr = 5 | 3;  let bitwiseXor = 5 ^ 3;  let bitwiseNot = ~5;  let leftShift = 5 << 1;  let rightShift = 5 >> 1;  let zeroFillRightShift = 5 >>> 1;  console.log("Bitwise AND Result:", bitwiseAnd);  console.log("Bitwise OR Result:", bitwiseOr);  console.log("Bitwise XOR Result:", bitwiseXor);  console.log("Bitwise NOT Result:", bitwiseNot);  console.log("Left Shift Result:", leftShift);  console.log("Right Shift Result:", rightShift);  console.log("Zero-Fill Right Shift Result:",  zeroFillRightShift); | Bitwise AND Result: 1  Bitwise OR Result: 7  Bitwise XOR Result: 6  Bitwise NOT Result: -6  Left Shift Result: 10  Right Shift Result: 2  Zero-Fill Right Shift Result: 2 | |
| // Ternary Operator  let isGreaterThanZero = x > 0 ? "Positive" : "Non-positive";  console.log("Is Greater Than Zero:", isGreaterThanZero); | Is Greater Than Zero: Non-positive | |
| // Typeof Operator  let variableType = typeof 42;  console.log("Variable Type:", variableType); | Variable Type: number | |
| // Assignment Operators  let x = 10;     // Initial value of x: 10  x += 5;         // x = 10 + 5 = 15  x -= 3;         // x = 15 - 3 = 12  x \*= 2;         // x = 12 \* 2 = 24  x /= 4;         // x = 24 / 4 = 6  x %= 2;         // x = 6 % 2 = 0  console.log("Updated x:", x); | Updated x: 0 | |
| **JavaScript input/output:** | |  |
| // Using prompt  let userInputPrompt = prompt("Enter something:");  console.log("Using prompt - You entered:", userInputPrompt); | |  |
| / /Using alert to display the input in alert box          alert("You entered: " + userInput); | |  |
| // Using document.write to prompt the user for input          document.write("Enter something: "); | |  |
| // Method 1: Using document.write          document.write("Method 1: Using document.write<br>");            // Method 2: Using console.log          console.log("Method 2: Using console.log");          // Method 3: Using alert          alert("Method 3: Using alert"); | | Method 1: Using document.write  (Output will be written directly in the document)    Method 2: Using console.log  (Output will be logged to the browser console)   Method 3: Using alert  (Output will be shown in a popup dialog) |

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| **JavaScriot math method/function:** | | |
| // Square Root  let numSqrt = Math.sqrt(25);  console.log("Square Root of 25:", numSqrt); | Square Root of 25: 5.0 | |
| // Power  let numPower = Math.pow(2, 3);  console.log("2 raised to the power of 3:", numPower); | 2 raised to the power of 3: 8.0 | |
| // Absolute Value  let absoluteValue = Math.abs(-10.5);  console.log("Absolute Value of -10.5:", absoluteValue); | Absolute Value of -10.5: 10.5 | |
| // Ceil  let ceilValue = Math.ceil(4.2);  console.log("Ceil of 4.2:", ceilValue); | Ceil of 4.2: 5 | |
| // Floor  let floorValue = Math.floor(4.8);  console.log("Floor of 4.8:", floorValue); | Floor of 4.8: 4 | |
| // Trigonometric Functions (in radians)  let sinValue = Math.sin((30 \* Math.PI) / 180);  console.log("Sin of 30 degrees:", sinValue);  let cosValue = Math.cos((45 \* Math.PI) / 180);  console.log("Cos of 45 degrees:", cosValue);  let tanValue = Math.tan((60 \* Math.PI) / 180);  console.log("Tan of 60 degrees:", tanValue); | Sin of 30 degrees: 0.49999999999999994  Cos of 45 degrees: 0.7071067811865475  Tan of 60 degrees: 1.7320508075688772 | |
| // Logarithmic Functions  let logValue = Math.log10(100);  console.log("Log base 10 of 100:", logValue); | Log base 10 of 100: 2.0 | |
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| **JavaScript Strings:** | | |
| // Slicing  let message = "Hello, World!";  console.log(message.slice(7)); | | World! |
| // Length of a String  let text = "Hello, World!";  let length = text.length;  console.log(length); | | 13 |
| // Lowercase  let text = "Hello, World!";  let lowerText = text.toLowerCase();  console.log(lowerText); | | hello, world! |
| // Uppercase  let text = text = "hello, world!";  let upperText = text.toUpperCase();  console.log(upperText); | | HELLO, WORLD! |
| // Capitalize  Let text = "hello, world!";  let capitalizedText = text.charAt(0).toUpperCase() + text.slice(1);  console.log(capitalizedText); | | Hello, world! |
| // Find  let text = "Hello, World!";  let indexWorld = text.indexOf("World");  console.log(indexWorld);  // Replace  let text = text = "hello, world!";  let newText = text.replace("World", "Universe");  console.log(newText); | | 7  Hello, Universe! |
| // Startswith  text = "Hello, World!";  let startsWithHello = text.startsWith("Hello");  console.log(startsWithHello); | | True |
| // Endswith  text = "Hello, World!";  let endsWithWorld = text.endsWith("World!");  console.log(endsWithWorld); | | True |
| // Trim leading and trailing spaces  let spacedText = "   Hello, World!   ";  console.log(spacedText.trim()); | | "Hello, World!" |
| // Check if the text includes the substring "World"  let includedText = "Hello, World!";  console.log(includedText.includes("World")); | | true |
| // Concatenate two strings  let part1 = "Hello, ";  let part2 = "World!";  console.log(part1.concat(part2)); | | "Hello, World!" |
| // Replace "World" with "Universe"  let originalText = "Hello, World!";  console.log(originalText.replace("World", "Universe")); | | "Hello, Universe!" |
| // Extract a substring from index 7 to 12  let sourceText = "Hello, World!";  console.log(sourceText.substring(7, 12)); | | "World" |
| // Get the character at index 7  let greeting = "Hello, World!";  console.log(greeting.charAt(7)); | | "W" |
| // Split by comma  let fruitsText = "apple,orange,banana";  let fruitsArray = fruitsText.split(",");  console.log("split:", fruitsArray); | | split: ['apple', 'orange', 'banana'] |