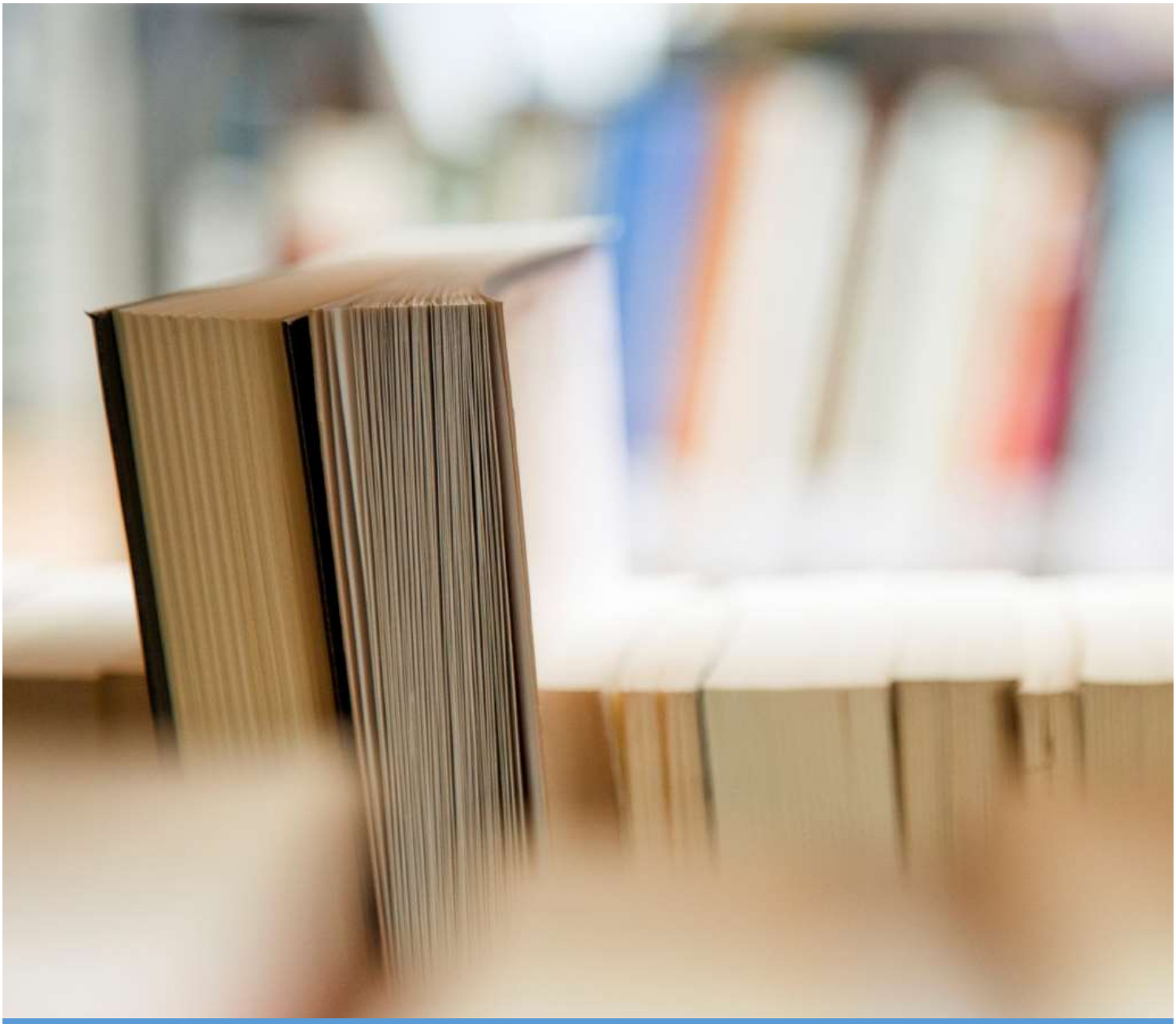

JavaScript

BASIC

10/15/23

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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]
```

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
```

```
Counter Value: 0
```

`console.log("Counter Value:", counter);`	
`// 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`	`Updated x: 0`

```
x %= 2;          // x = 6 % 2 = 0
console.log("Updated x:", x);
```

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)
```

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
```

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']`