JavaScript Basics

Introduction

This guide will walk you through the basics of JavaScript, focusing on how to declare variables, use different data types, and apply operators. Mastering these essentials, you can write simple and efficient code for dynamic web applications.

How to Declare Variables

- Step 1: Choose between `var`, `let`, or `const` to declare variables:

    - Use `var` for older code or broader scope.

    - Use `let` for variables that might change.

    - Use `const` for values that will stay constant.

- Example:

```
var age = 25; // Using var
```

```
let city = "New York"; // Using let
```

```
const country = "USA"; // Using const
```

How to Declare Variables

- Step 1: Understand the different data types JavaScript supports:

    - String: Text, e.g., `"Hello, World!"`

    - Number: Integers or decimals, e.g., `42`, `3.14`

    - Boolean: True/false, e.g., `true`

    - Object: Key-value pairs, e.g., `{name: "Alice", age: 25}`

    - Array: A list of items, e.g., `[1, 2, 3]`

- Example:

```
let name = "Alice"; // String
```

```
let age = 25; // Number
```

```
let isStudent = true; // Boolean
```

```
let scores = [95, 85, 76]; // Array
```

```
let person = {name: "Alice", age: 25}; // Object
```

How to Use Operators

- Arithmetic Operators: Use `+`, `-`, `*`, `/`, and `%` to do math.

  - Example:

```
let sum = 10 + 5; // Addition
```

```
let product = 10 * 2; // Multiplication
```

- Assignment Operators: Assign values with `=`, `+=`, `-=`, etc.

  - Example:

```
let total = 100;
```

```
total += 20; // total is now 120
```

- Comparison Operators: Compare values with `==`, `===`, `!=`, etc.

  - Example:

```
let a = 10;
```

```
let b = '10';
```

```
console.log(a == b); // true (loose comparison)
```

```
console.log(a === b); // false (strict comparison)
```

- Logical Operators: Combine conditions with `&&`, `||`, and `!`.

  - Example:

```
 let x = true;
```

```
let y = false;
```

```
console.log(x && y); // false

console.log(x || y); // true
```

Conclusion

By following this guide, you know how to declare variables, work with different data types, and use operators effectively in JavaScript. These fundamental skills will help you write more flexible and dynamic code for web development.

- **Variable Declaration:** Variables in JavaScript can be declared using var, let, or const, each serving different purposes based on scope and mutability.
- **Operators:** Operators in JavaScript include arithmetic, assignment, comparison, and logical operators, which are used to perform operations on variables and values.
- **Data Types:** JavaScript supports various data types including String, Number, Boolean, Object, and Array, each used for different kinds of data.