# What is JavaScript?

**JavaScript (JS)** is a programming language used to make web pages interactive and dynamic.

Without JavaScript, a webpage is mostly static. JavaScript allows you to:

- Respond to button clicks
- Validate forms
- Show/hide content
- Create animations
- Update page content without reloading
- Build games and web applications

# How to Save and Run JavaScript

## Step 1: Open Notepad or VS Code

Create a file called:

```
index.html
```

## Step 2: Paste the code

Example:

```
<!DOCTYPE html>
<html>
<head>
    <title>JavaScript Practice</title>
</head>
<body>

<h1>JavaScript Revision</h1>

<script>
    console.log("Hello JavaScript");
</script>

</body>
</html>
```

### Step 3: Save

Save as:

```
index.html
```

### Step 4: Run

Double-click the file.

It opens in Chrome/Edge.

### Step 5: View Output

Press:

```
F12
```

Open **Console** tab.

You will see:

```
Hello JavaScript
```

---

# 1. Variables

```
<!DOCTYPE html>
<html>
<body>

<script>

let name = "Rahul";
let city = "Mumbai";
const age = 22;

console.log(name);
console.log(city);
console.log(age);

</script>

</body>
</html>
```

### Explanation

```
let name = "Rahul";
```

Stores text value.

```
const age = 22;
```

Stores number that should not change.

Output:

```
Rahul
Mumbai
22
```

---

# 2. Data Types

```
<!DOCTYPE html>
<html>
<body>

<script>

let name = "Rahul";
let age = 22;
let isStudent = true;

console.log(typeof name);
console.log(typeof age);
console.log(typeof isStudent);

</script>

</body>
</html>
```

### Explanation

`typeof` checks data type.

Output:

```
string
number
boolean
```

---

# 3. Operators

```
<!DOCTYPE html>
<html>
```

```
<body>

<script>

let a = 10;
let b = 5;

console.log("Addition:", a + b);
console.log("Subtraction:", a - b);
console.log("Multiplication:", a * b);
console.log("Division:", a / b);

</script>

</body>
</html>
```

Output:

```
Addition: 15
Subtraction: 5
Multiplication: 50
Division: 2
```

---

# 4. If Else

```
<!DOCTYPE html>
<html>
<body>

<script>

let marks = 75;

if(marks >= 40)
{
    console.log("Pass");
}
else
{
    console.log("Fail");
}

</script>

</body>
</html>
```

### Explanation

Condition:

```
marks >= 40
```

If true:

```
Pass
```

Otherwise:

```
Fail
```

---

# 5. For Loop

```
<!DOCTYPE html>
<html>
<body>

<script>

for(let i = 1; i <= 5; i++)
{
    console.log(i);
}

</script>

</body>
</html>
```

### Explanation

```
let i = 1
```

Start from 1

```
i <= 5
```

Continue until 5

```
i++
```

Increase by 1

Output:

```
1
2
3
4
5
```

# 6. While Loop

```
<!DOCTYPE html>
<html>
<body>

<script>

let i = 1;

while(i <= 5)
{
    console.log(i);
    i++;
}

</script>

</body>
</html>
```

Output:

```
1
2
3
4
5
```

---

# 7. Functions

```
<!DOCTYPE html>
<html>
<body>

<script>

function greet()
{
    console.log("Welcome");
}

greet();

</script>

</body>
</html>
```

### Explanation

Function created:

```
function greet()
```

Called using:

```
greet();
```

Output:

```
Welcome
```

---

# 8. Function With Parameters

```
<!DOCTYPE html>
<html>
<body>

<script>

function greet(name)
{
    console.log("Hello " + name);
}

greet("Rahul");
greet("Amit");

</script>

</body>
</html>
```

Output:

```
Hello Rahul
Hello Amit
```

---

# 9. Arrays

```
<!DOCTYPE html>
<html>
<body>

<script>
```

```
let fruits = ["Apple","Mango","Banana"];

console.log(fruits[0]);
console.log(fruits[1]);
console.log(fruits[2]);

</script>

</body>
</html>
```

### Explanation

Array indexes:

```
0 = Apple
1 = Mango
2 = Banana
```

Output:

```
Apple
Mango
Banana
```

---

# 10. Array Loop

```
<!DOCTYPE html>
<html>
<body>

<script>

let fruits = ["Apple","Mango","Banana"];

for(let i = 0; i < fruits.length; i++)
{
    console.log(fruits[i]);
}

</script>

</body>
</html>
```

### Explanation

```
fruits.length
```

Returns total elements.

Output:

```
Apple
Mango
Banana
```

---

# 11. Objects

```
<!DOCTYPE html>
<html>
<body>

<script>

let student =
{
    name: "Rahul",
    age: 22,
    city: "Mumbai"
};

console.log(student.name);
console.log(student.age);
console.log(student.city);

</script>

</body>
</html>
```

### Explanation

Object stores data in key-value format.

Output:

```
Rahul
22
Mumbai
```

---

# 12. DOM Manipulation

```
<!DOCTYPE html>
<html>
<body>
```

```
<h1 id="title">Hello</h1>

<button onclick="changeText()">
    Click Me
</button>

<script>

function changeText()
{
    document.getElementById("title").innerHTML =
    "Welcome To JavaScript";
}

</script>

</body>
</html>
```

### Explanation

Find element:

```
document.getElementById("title")
```

Change text:

```
.innerHTML
```

---

# 13. Input Box Example

```
<!DOCTYPE html>
<html>
<body>

<input type="text" id="username">

<button onclick="showName()">
Submit
</button>

<p id="result"></p>

<script>

function showName()
{
    let name =
    document.getElementById("username").value;

    document.getElementById("result").innerHTML =
    "Welcome " + name;
```

```
}

</script>

</body>
</html>
```

### Example

Input:

```
Rahul
```

Output:

```
Welcome Rahul
```

---

# 14. Change Background Color

```
<!DOCTYPE html>
<html>
<body>

<button onclick="changeColor()">
Change Color
</button>

<script>

function changeColor()
{
    document.body.style.backgroundColor = "yellow";
}

</script>

</body>
</html>
```

### Explanation

```
document.body
```

Access page body.

```
style.backgroundColor
```

Changes background color.

# 15. Mini Project: Counter App

```
<!DOCTYPE html>
<html>
<body>

<h1 id="count">0</h1>

<button onclick="increase()">
+
</button>

<button onclick="decrease()">
-
</button>

<script>

let count = 0;

function increase()
{
    count++;
    document.getElementById("count").innerHTML =
    count;
}

function decrease()
{
    count--;
    document.getElementById("count").innerHTML =
    count;
}

</script>

</body>
</html>
```

### Output

Click:

```
+
```

Count increases.

Click:

```
-
```

Count decreases.