WEB TECHNOLOGY – JAVASCRIPT

1. **Write a program to show Variables.**

```
var name = "Alice";

let age = 25;

const country = "India";


console.log("Name:", name);
console.log("Age:", age);
console.log("Country:", country);
```

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\Variables.js"
Name: Alice
Age: 25
Country: India

[Done] exited with code=0 in 0.273 seconds
```

2. **Write a program to show Operators.**

```
let a = 10, b = 5;

let sum = a + b;
let difference = a - b;
let product = a * b;
let quotient = a / b;
let remainder = a % b;

let isEqual = (a == b);
let isNotEqual = (a != b);
let isGreater = (a > b);
let isLessOrEqual = (a <= b);

let logicalAnd = (a > 0 && b > 0);
let logicalOr = (a > 0 || b < 0);
let logicalNot = !(a > 0);

let x = 10;
x += 5;

console.log("Sum:", sum);
console.log("Difference:", difference);
console.log("Product:", product);
console.log("Quotient:", quotient);
console.log("Remainder:", remainder);

console.log("a == b:", isEqual);
console.log("a != b:", isNotEqual);
console.log("a > b:", isGreater);
console.log("a <= b:", isLessOrEqual);

console.log("a > 0 && b > 0:", logicalAnd);
console.log("a > 0 || b < 0:", logicalOr);
console.log("!(a > 0):", logicalNot);

console.log("x after x += 5:", x);
```

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\Operators.js"
Sum: 15
Difference: 5
Product: 50
Quotient: 2
Remainder: 0
a == b: false
a != b: true
a > b: true
a <= b: false
a > 0 && b > 0: true
a > 0 || b < 0: true
!(a > 0): false
x after x += 5: 15

[Done] exited with code=0 in 0.162 seconds
```

3. **Write a program to implement IF Statement.**

```
let number = 10;

if (number > 0) {
    console.log("The number is positive.");
}
```

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\IFStatement.js"
The number is positive.

[Done] exited with code=0 in 0.158 seconds
```

4. **Write a program to implement IF-ELSE Statement.**

```
let age = 15;

if (age > 18) {
    console.log("You can drink and party");
} else  {
    console.log("You can't drnk and but you can do normal party");
}
```

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\IF-ELSEStatement.js"
You can't drnk and but you can do normal party

[Done] exited with code=0 in 0.219 seconds
```

5. **Write a program to implement IF-ELSE Ladder.**

```
let marks = 72;

if (marks >= 60) {
    console.log("First Division");
} else if (marks >= 50) {
    console.log("Second Division");
} else if (marks >= 40) {
    console.log("Third Division");
} else {
    console.log("Fail");
}
```

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\IF_ELSELadder.js"
First Division

[Done] exited with code=0 in 0.175 seconds
```

6. **Write a program to implement Switch.**

```
let grade = 'B';

switch (grade) {
    case 'A':
        console.log("Excellent");
        break;
    case 'B':
        console.log("Very Good");
        break;
    case 'C':
        console.log("Good");
        break;
    case 'D':
        console.log("Fair");
        break;
    case 'F':
        console.log("Fail");
        break;
    default:
        console.log("Invalid grade");
}
```

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\IF_ELSELadder.js"
First Division

[Done] exited with code=0 in 0.175 seconds
```

7. **Write a program to implement While Loop.**

```
let i = 1;

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

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\WhileLoop.js"
1
2
3
4
5

[Done] exited with code=0 in 0.206 seconds
```

8. **Write a program to implement Do-While Loop.**

```
let i = 1;

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

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\Do-While.js"
1
2
3
4
5

[Done] exited with code=0 in 0.209 seconds
```

9. **Write a program for For-Loop.**

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

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\ForLoop.js"
1
2
3
4
5

[Done] exited with code=0 in 0.435 seconds
```

10. Write a program to show Normal For-In Loop.

```
let student = {
    name: "Vishal",
    age: 24,
    grade: "A"
};

for (let key in student) {
    console.log(key + ": " + student[key]);
}
```

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\ForInLoop.js"
name: Vishal
age: 24
grade: A

[Done] exited with code=0 in 0.208 seconds
```

11. Write a program for For-In Loop with Continue and Break.

```
let student = {
    name: "Vishal",
    age: 24,
    grade: "A",
    status: "active"
};

for (let key in student) {
    if (key === "age") {
        continue;
    }
    if (key === "grade") {
        break;
    }
    console.log(key + ": " + student[key]);
}
```

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\ForInWithContinueAndBreak.
js"
name: Vishal

[Done] exited with code=0 in 0.231 seconds
```

12. Write a program for Label.

```
outerLoop: for (let i = 1; i <= 3; i++) {
    for (let j = 1; j <= 3; j++) {
        if (i === 2 && j === 2) {
            break outerLoop;  // exits both loops
        }
        console.log(`i = ${i}, j = ${j}`);
    }
}
```

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\Label.js"
i = 1, j = 1
i = 1, j = 2
i = 1, j = 3
i = 2, j = 1

[Done] exited with code=0 in 0.209 seconds
```

13. Write a program to show Events.

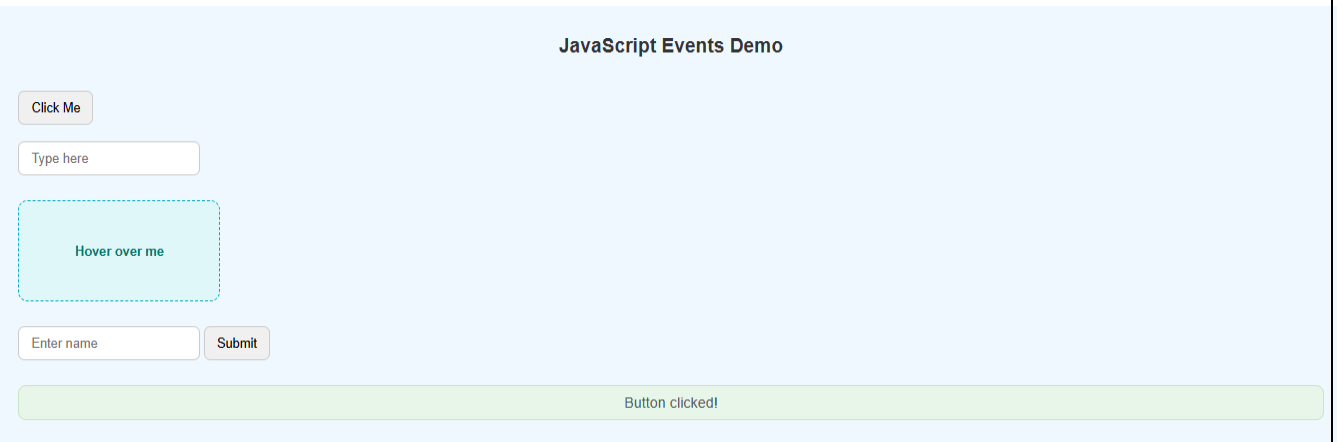
```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>JavaScript Events</title>
    <style>
        body {
            font-family: Arial, sans-serif;
            background-color: #f0f8ff;
            padding: 30px;
        }

        h2 {
            color: #333;
            text-align: center;
            margin-bottom: 30px;
        }

        button, input[type="text"] {
            padding: 10px 15px;
            margin: 10px 0;
            font-size: 16px;
            border: 1px solid #ccc;
            border-radius: 8px;
            transition: background-color 0.3s ease;
        }

        button:hover {
            background-color: #4CAF50;
            color: white;
        }

        input[type="text"]:focus {
            outline: none;
            border-color: #4CAF50;
        }

        .hover-box {
            width: 250px;
            height: 120px;
            background-color: #e0f7fa;
            display: flex;
            justify-content: center;
            align-items: center;
            border: 2px dashed #00acc1;
            border-radius: 12px;
            margin-top: 20px;
```

```
            font-weight: bold;
            color: #00796b;
        }

        form {
            margin-top: 20px;
        }

        #output {
            margin-top: 20px;
            font-size: 18px;
            color: #555;
            text-align: center;
            background-color: #e8f5e9;
            padding: 10px;
            border-radius: 10px;
            border: 1px solid #c8e6c9;
        }
    </style>
</head>
<body>

    <h2>JavaScript Events Demo</h2>

    <button onclick="onClickEvent()">Click Me</button><br>

    <input type="text" placeholder="Type here" oninput="onInputEvent()"
onkeydown="onKeyDownEvent()"><br>

    <div class="hover-box" onmouseover="onMouseOverEvent()"
onmouseout="onMouseOutEvent()">
        Hover over me
    </div>

    <form onsubmit="onSubmitEvent(event)">
        <input type="text" name="name" required placeholder="Enter name">
        <button type="submit">Submit</button>
    </form>

    <p id="output"></p>

    <script>
        function onClickEvent() {
            document.getElementById("output").innerText = "Button clicked!";
        }

        function onInputEvent() {
```

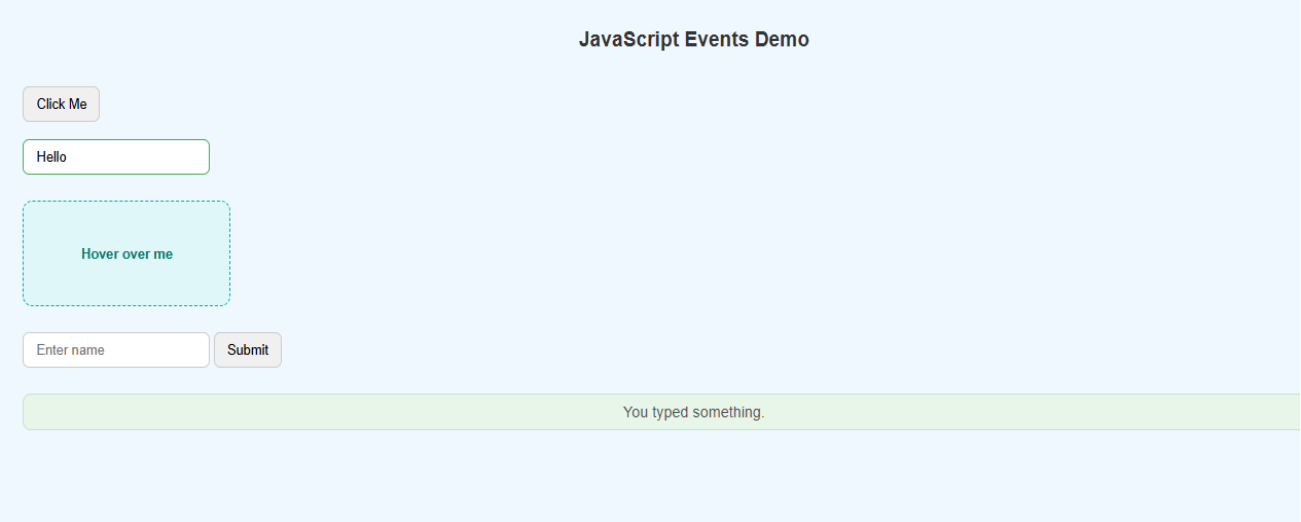
```
            document.getElementById("output").innerText = "You typed
something.";
        }

        function onKeyDownEvent() {
            document.getElementById("output").innerText = "Key pressed.";
        }

        function onMouseOverEvent() {
            document.getElementById("output").innerText = "Mouse is over the
box.";
        }

        function onMouseOutEvent() {
            document.getElementById("output").innerText = "Mouse left the
box.";
        }

        function onSubmitEvent(event) {
            event.preventDefault();
            document.getElementById("output").innerText = "Form submitted.";
        }

        window.onload = function () {
            console.log("Page loaded.");
        };
    </script>

</body>
</html>
```

Output:

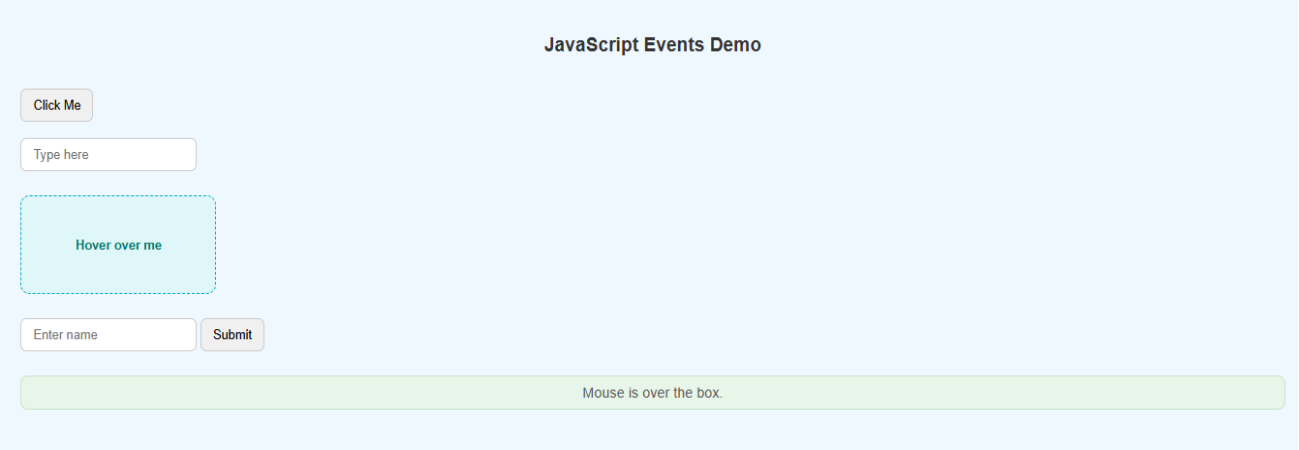
Click-Event:



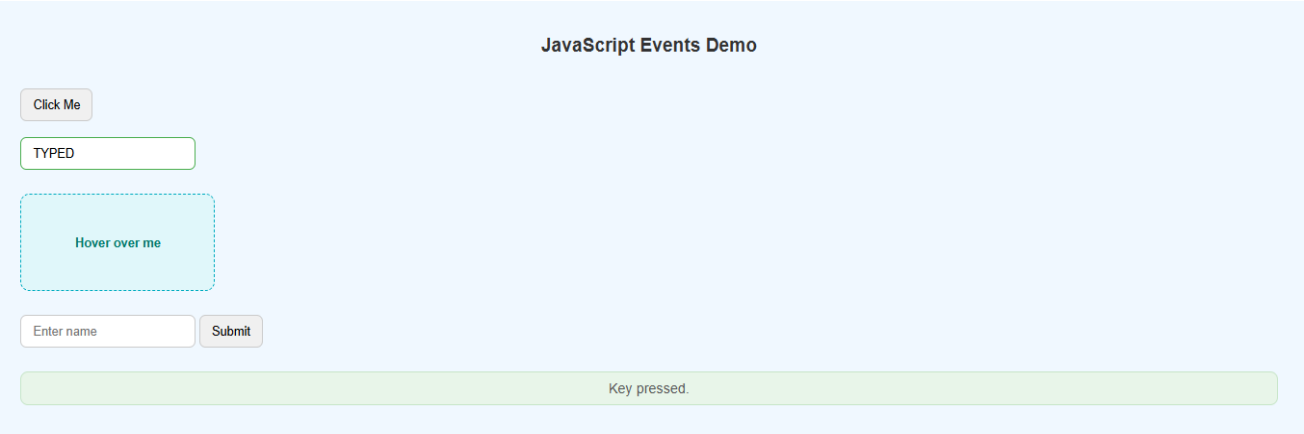
Type-Event:



Mouse-Event:



Key-Event:



14. Write a program to show functions.

```
function add(a, b) {
    return a + b;
}

    console.log(add(5, 3));
```

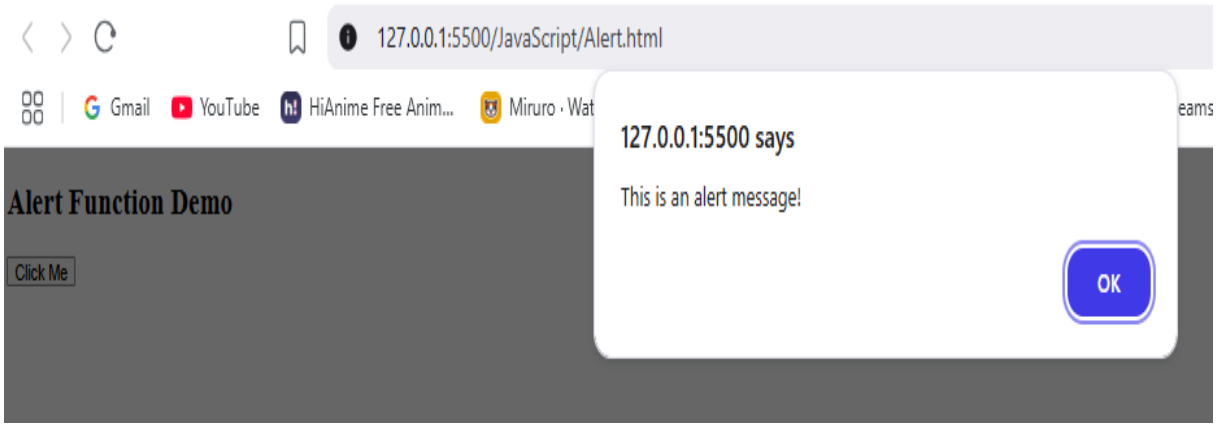
Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\NormalFunction.js"
8

[Done] exited with code=0 in 0.216 seconds
```

15. Write a function to show Alerts.

```
<!DOCTYPE html>
<html>
<head>
    <title>Alert Example</title>
</head>
<body>

    <h2>Alert Function Demo</h2>
    <button onclick="showAlert()">Click Me</button>

    <script>
        function showAlert() {
            alert("This is an alert message!");
        }
    </script>

</body>
</html>
```

Output:



16. Write a program to show objects.

```
let car = {
    brand: "Toyota",
    model: "Corolla",
    year: 2020,
    displayInfo: function() {
        return `Car Info: ${this.brand} ${this.model}, Year: ${this.year}`;
    }
};

console.log(car.brand);
console.log(car.model);
console.log(car.year);

console.log(car.displayInfo());
```

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\Objects.js"
Toyota
Corolla
2020
Car Info: Toyota Corolla, Year: 2020

[Done] exited with code=0 in 0.233 seconds
```

17. Write a program to implement Arrays.

```
let fruits = ["Apple", "Banana", "Orange", "Grapes"];

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

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

fruits.push("Mango");
console.log(fruits);

fruits.pop();
console.log(fruits);
```

Output:

```
[Running] node "c:\Users\hp\OneDrive\Desktop\WebTechnologies\JavaScript\Array.js"
Apple
Orange
Apple
Banana
Orange
Grapes
[ 'Apple', 'Banana', 'Orange', 'Grapes', 'Mango' ]
[ 'Apple', 'Banana', 'Orange', 'Grapes' ]

[Done] exited with code=0 in 0.363 seconds
```

18. Write a program to show Validation in a Form.

```
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Form Validation</title>
    <style>
        body {
            font-family: Arial, sans-serif;
            background-color: #f4f7fc;
            display: flex;
            justify-content: center;
            align-items: center;
            height: 100vh;
            margin: 0;
        }

        h2 {
            color: #333;
            text-align: center;
            margin-bottom: 20px;
        }

        form {
            background-color: #fff;
            padding: 20px;
            border-radius: 10px;
            box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);
            width: 100%;
            max-width: 400px;
        }

        label {
            display: block;
            font-size: 16px;
            margin-bottom: 8px;
            color: #555;
        }

        input[type="text"], input[type="email"] {
            width: 100%;
            padding: 12px;
            font-size: 16px;
            border: 1px solid #ccc;
            border-radius: 8px;
            margin-bottom: 20px;
            box-sizing: border-box;
            transition: border-color 0.3s;
        }
```

```
        input[type="text"]:focus, input[type="email"]:focus {
            border-color: #4CAF50;
            outline: none;
        }

        input[type="submit"] {
            background-color: #4CAF50;
            color: white;
            padding: 12px;
            font-size: 16px;
            border: none;
            border-radius: 8px;
            cursor: pointer;
            transition: background-color 0.3s;
            width: 100%;
        }

        input[type="submit"]:hover {
            background-color: #45a049;
        }

        #error-message {
            color: red;
            font-size: 14px;
            margin-top: -15px;
        }
    </style>
</head>
<body>

    <div>
        <h2>Form Validation Example</h2>
        <form id="myForm" onsubmit="return validateForm()">
            <label for="name">Name:</label>
            <input type="text" id="name" name="name">
            <br>

            <label for="email">Email:</label>
            <input type="email" id="email" name="email">
            <br>

            <input type="submit" value="Submit">
        </form>
        <p id="error-message"></p>
    </div>

    <script>
```

```
        function validateForm() {
            let name = document.getElementById("name").value;
            let email = document.getElementById("email").value;
            let errorMessage = "";

            if (name == "") {
                errorMessage += "Name is required.\n";
            }
            if (email == "") {
                errorMessage += "Email is required.\n";
            } else if (!/\S+@\S+\.\S+/.test(email)) {
                errorMessage += "Please enter a valid email address.\n";
            }

            if (errorMessage != "") {
                document.getElementById("error-message").innerText =
errorMessage;
                return false;
            }

            return true;
        }
    </script>

</body>
</html>
```

Output: