

1. JavaScript

JavaScript (JS) is a powerful, high-level programming language used to add interactivity, dynamic behavior, and logic to web pages.

While HTML defines the structure and CSS defines the design, JavaScript makes the page come alive by responding to user actions (clicks, form submissions, scrolling, etc.).

2. Role of JavaScript

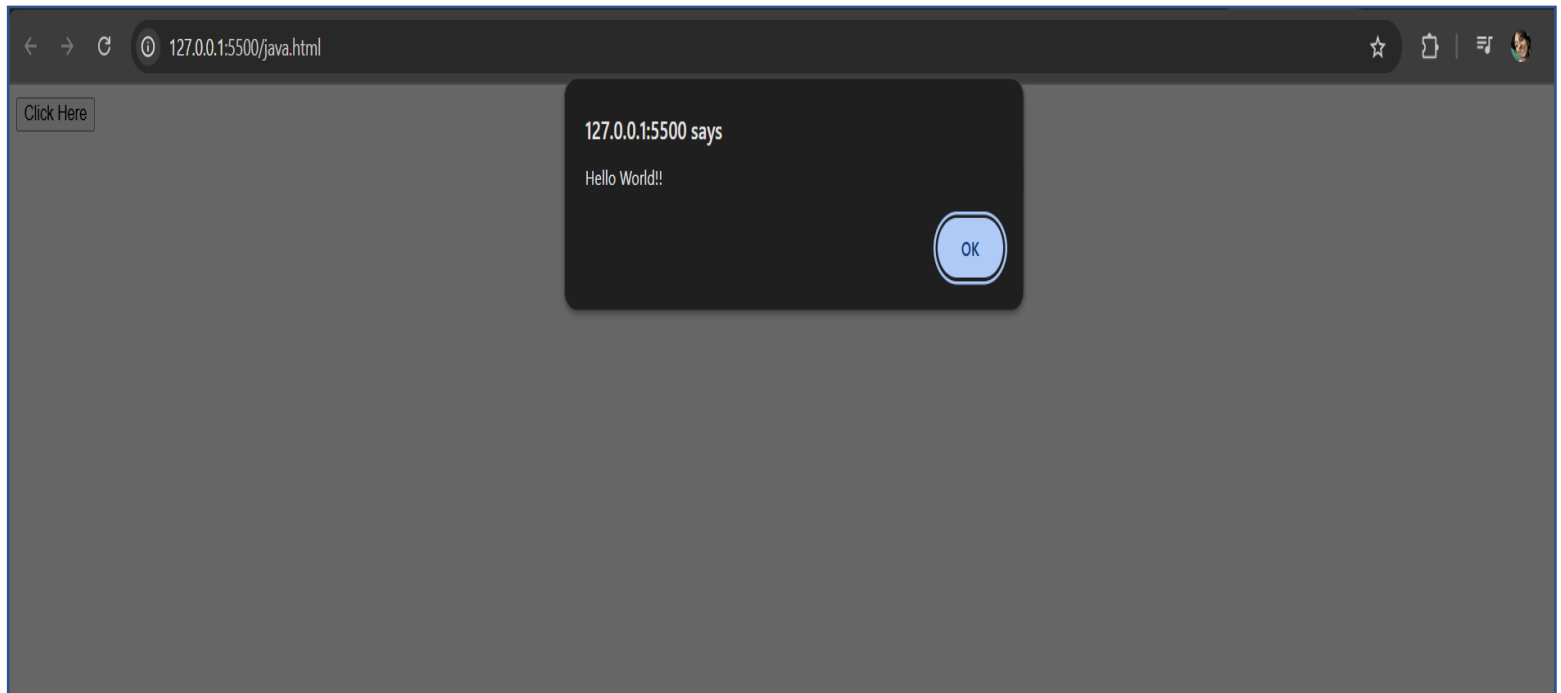
- Increases the experience of use by turning websites interactive.
- Alters the codes (changes HTML and CSS) dynamically by manipulating the DOM.
- Manages clicks, key-presses, and submission of forms.
- Checks that data is valid prior to sending it off to the server.
- Creates applications- most of the current frameworks (React, Angular, and Vue) have been created using JavaScript.

3. How JavaScript works

- JavaScript runs inside the browser.
- It can read and update HTML and CSS in real time.
- It uses event listeners to “listen” for user actions, then executes code in response.

▪ Example:

```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <meta name="viewport" content="width=device-width, initial-scale=1.0">
6   <title>Document</title>
7 </head>
8 <body>
9   <button onclick="handleClick()">Click Here</button>
10
11   <script>
12     function handleClick() {
13       alert('Hello World!!');
14     }
15   </script>
16 </body>
17 </html>
```



4. Common JavaScript concept

- Variables: They store data.
- Functions: Reusable block of code.
- Loops and conditions: Control logic flow
- Events: Actions performed like clicks, input, etc.
- DOM Manipulation: Changes text, images, or styles dynamically.

5. Creating a Counter Program using JavaScript

- Using HTML and CSS, I created some counter labels and buttons.
- I used JavaScript to increase or decrease the counter label by +1.

❖ Code Screenshot:



java.css



java.html



java.js

java.html > html > body > script

```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <meta name="viewport" content="width=device-width, initial-scale=1.0">
6   <title>Document</title>
7   <link rel="stylesheet" href="java.css">
8 </head>
9 <body>
10  <label id="countLabel">0</label>
11  <br>
12  <div id="btnContainer">
13    <button id="decreaseBtn" class="buttons">decrease</button>
14    <button id="resetBtn" class="buttons">reset</button>
15    <button id="increaseBtn" class="buttons">increase</button>
16  </div>
17
18  <script src="java.js"></script>
19
20 </body>
21 </html>
```

```
java.css > .buttons
1  #countLabel{
2      display: block;
3      text-align: center;
4      font-size: 11em;
5      font-family: Verdana, Geneva, Tahoma, sans-serif;
6  }
7  #btnContainer{
8      text-align: center;;
9  }
10 .buttons{
11     padding: 10px 20px;
12     font-size: 1.5em;
13     margin: 10px;
14     border-radius: 5px;
15     border: none;
16     background-color: #4CAF50; /* Green */
17     color: white;
18     cursor: pointer;
19 }
```

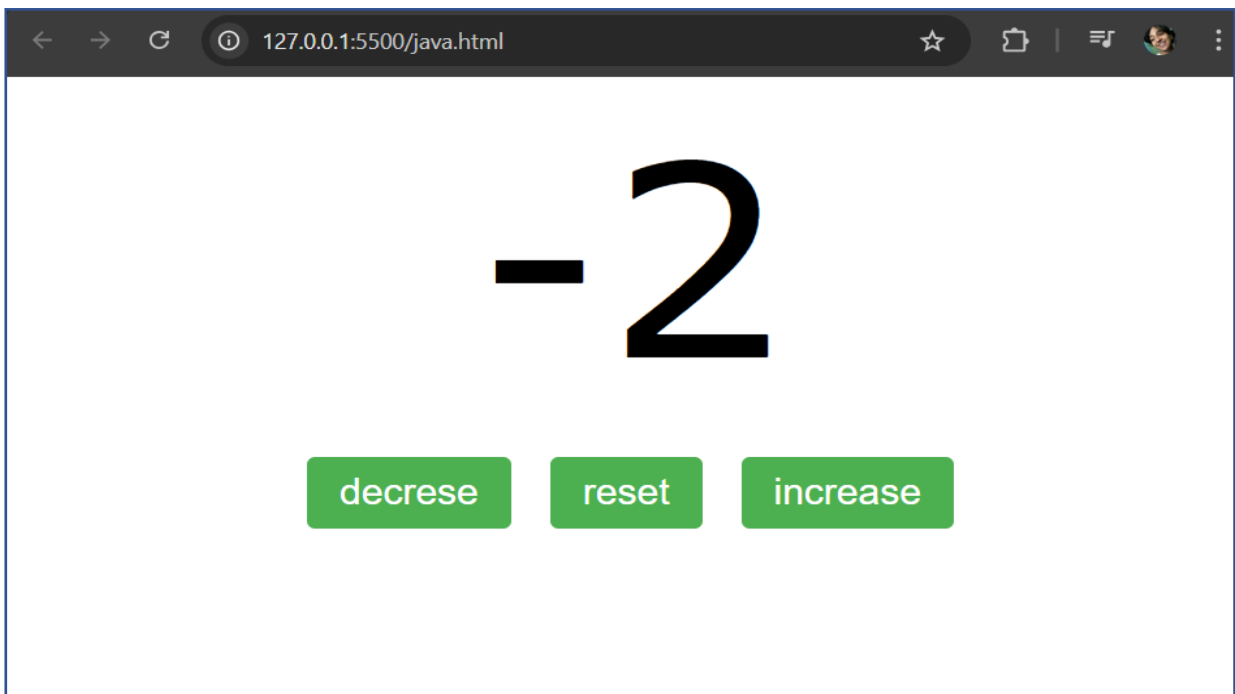
```
java.js > ...
5  let count = 0;
6
7  increaseBtn.onclick = function() {
8      count++;
9      countLabel.textContent = count;
10 }
11 decreaseBtn.onclick = function() {
12     count--;
13     countLabel.textContent = count;
14 }
15 resetBtn.onclick = function() {
16     count = 0;
17     countLabel.textContent = count;
18 }
19
```

- Output Screenshot:

a. Increase button:



b. Decrease button:



c. Reset button:

