

# Java

## 1. What is JavaScript and what can it do?

- JavaScript (JS) is an internet-based programming language used in the browser to give websites interactivity and dynamism.
- HTML stands for structure, CSS stands for style and JavaScript stands for behavior.
- Invented in 1995, today it is one of the main web technologies along with HTML & CSS.
  - Without JS – pages are static.
  - With JS- page can react to clicks, input, scrolling, or even fetch live data.

## 2. Why JavaScript is important?

- Has the ability to edit HTML / CSS on the fly and not be needed to reload page.
- Manages user-inputs such as clicks, typing and scrolling.
- Composes with APIs to retrieve and present info on servers.
- Applied both at the front-end (browsers) and back-end (Node.js) development.

## 3. How JavaScript Works:

- Browsers in run (Chrome, Firefox, edge, Safari).
- Works in the browser (Chrome, Firefox, Edge, Safari).
- Communicates with the DOM (Document Object Model) to change or modify real-time HTML and CSS.
- Can listen to events (such as button clicks, form submission, typing) and execute functions on their occurrence.

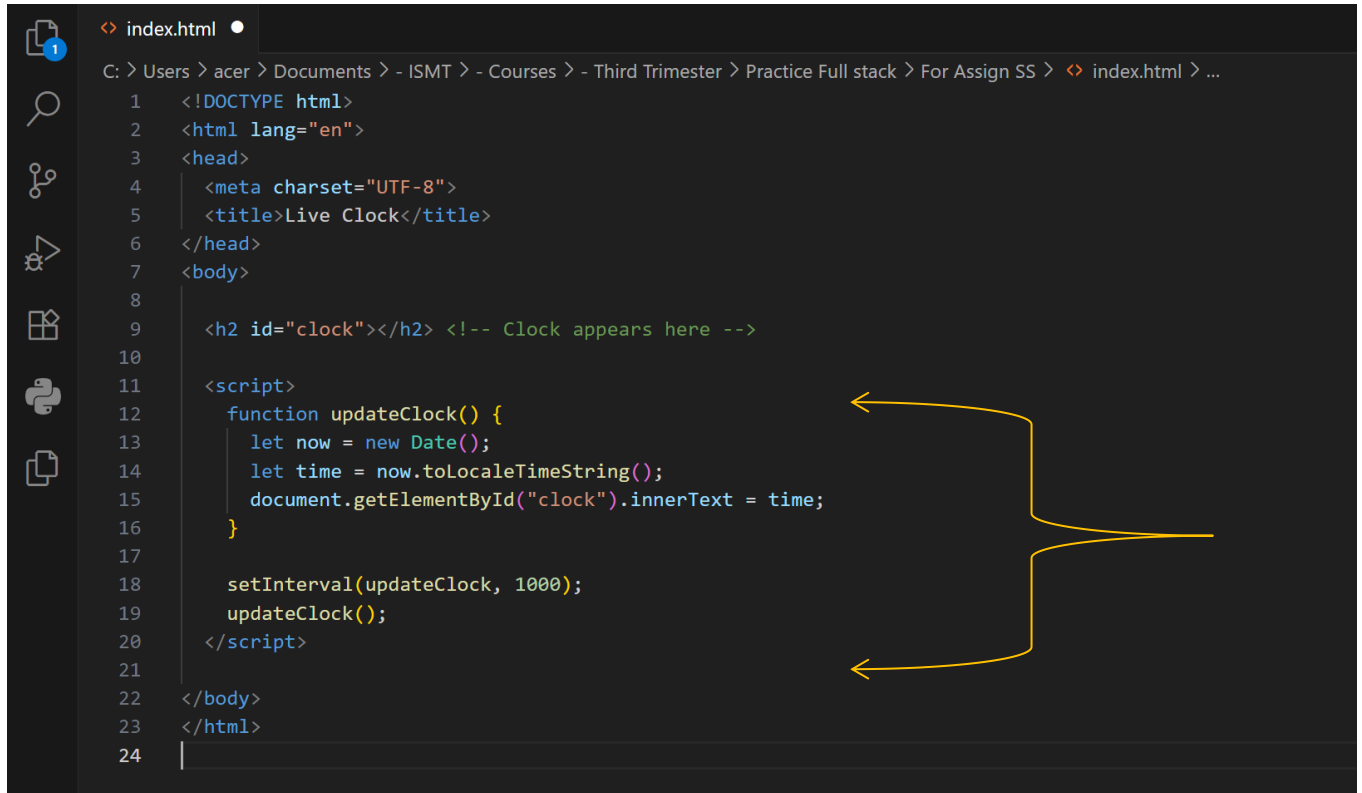
## 4. Where JavaScript Works

- It is works in three ways:
  - 1) Inline-inside an HTML tag.
  - 2) Internal-inside a `<script>` tag in HTML.
  - 3) External – in a .js file linked via `< script src="script.js"></script>`.

Some examples of JavaScript:

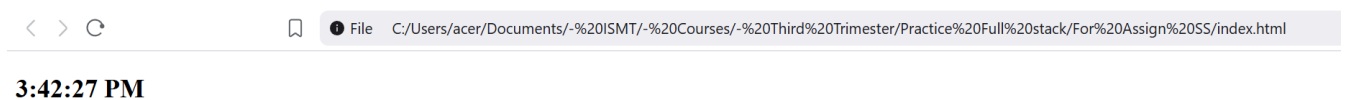
Here is the example of Live Clock.

I show you where JavaScript is used in below image.



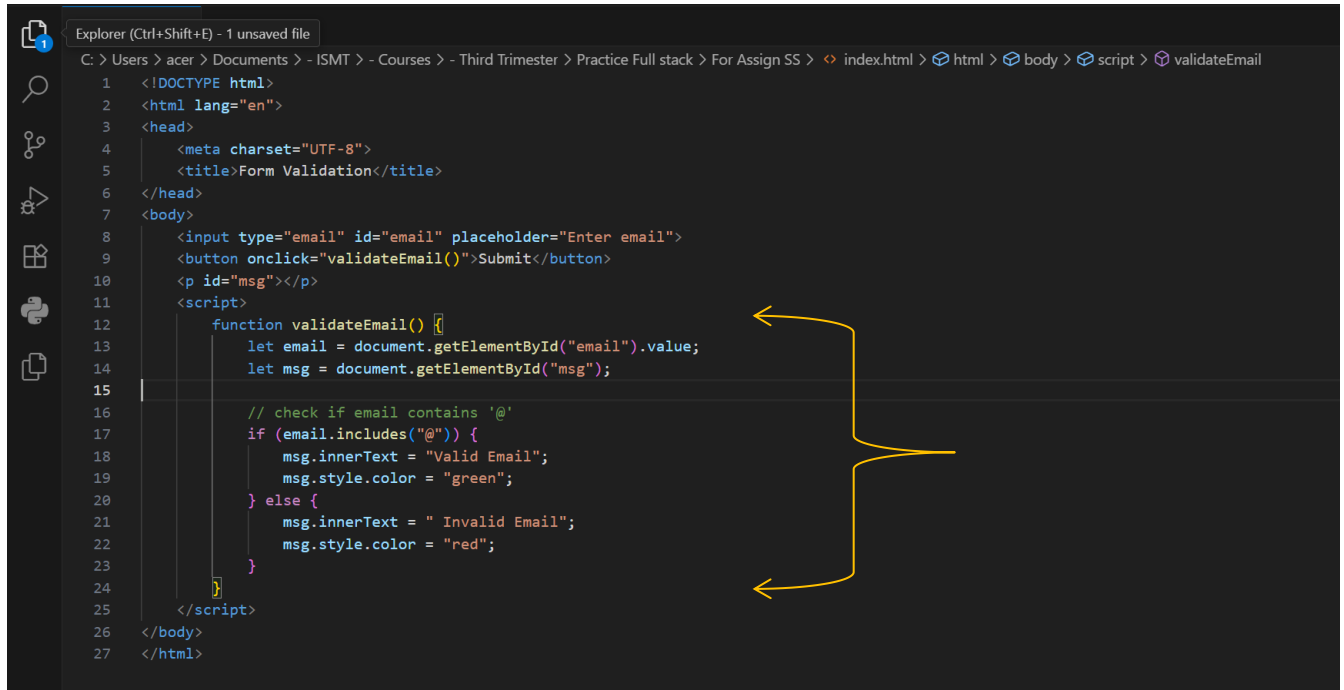
```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <title>Live Clock</title>
6 </head>
7 <body>
8
9   <h2 id="clock"></h2> <!-- Clock appears here -->
10
11   <script>
12     function updateClock() {
13       let now = new Date();
14       let time = now.toLocaleTimeString();
15       document.getElementById("clock").innerText = time;
16     }
17
18     setInterval(updateClock, 1000);
19     updateClock();
20   </script>
21
22 </body>
23 </html>
24
```

## Output:



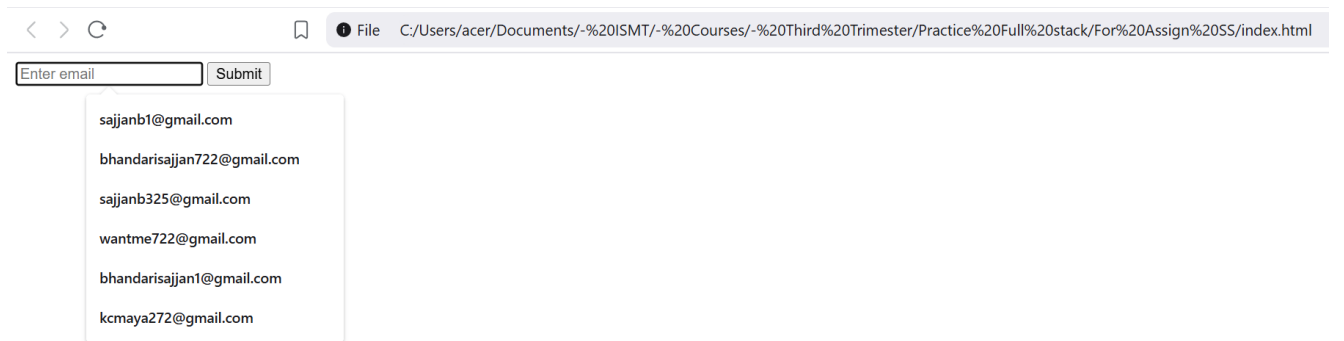
Another example using JavaScript.

I show you where, JavaScript is used in below image.

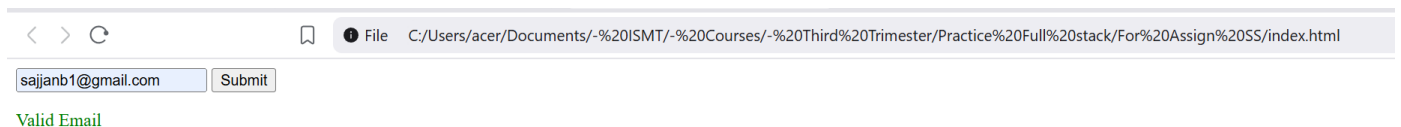


```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <title>Form Validation</title>
6 </head>
7 <body>
8   <input type="email" id="email" placeholder="Enter email">
9   <button onclick="validateEmail()">Submit</button>
10  <p id="msg"></p>
11  <script>
12    function validateEmail() {
13      let email = document.getElementById("email").value;
14      let msg = document.getElementById("msg");
15
16      // check if email contains '@'
17      if (email.includes("@")) {
18        msg.innerText = "Valid Email";
19        msg.style.color = "green";
20      } else {
21        msg.innerText = "Invalid Email";
22        msg.style.color = "red";
23      }
24    }
25  </script>
26 </body>
27 </html>
```

Output:



We can see both valid E-mail and Invalid E-mail below.



<

>

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🔖

🔔 File C:/Users/acer/Documents/-%20ISMT/-%20Courses/-%20Third%20Trimester/Practice%20Full%20stack/For%20Assign%20SS/index.html

sajjanb1gmail.com

Submit

Invalid Email

Please include an '@' in the email address. 'sajjanb1gmail.com' is missing an '@'.