

Information Technologies for Industrial Engineers

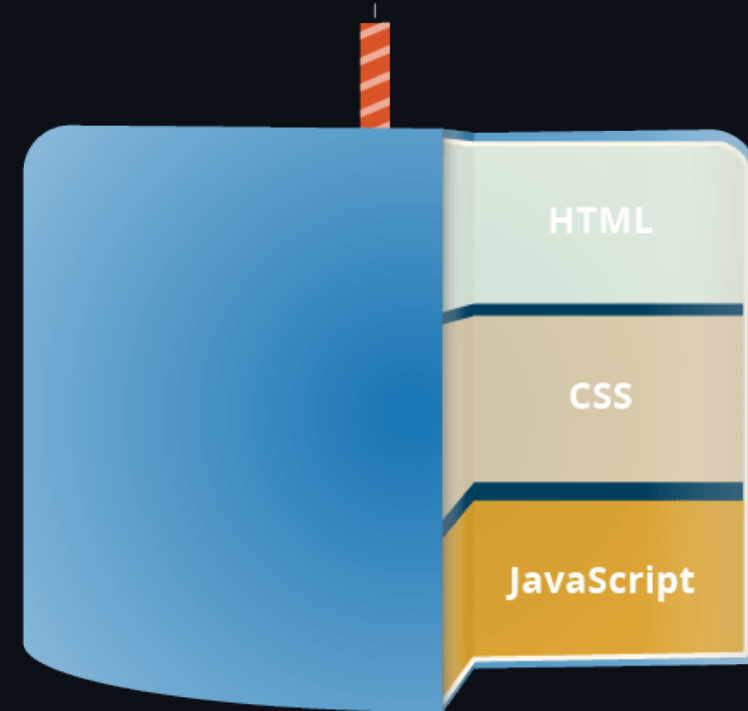
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JavaScript

- JavaScript is a scripting or programming language
- Allows implementation of complex features on web pages.
 - Content updates
 - Animation
 - Interactive maps
 - Audio/video contents

3 Layers in Web Technology

- **HTML** : markup language
 - Defining structure
- **CSS** : stylesheet language
 - Apply styling to HTML content
- **JavaScript** : scripting language
 - Add dynamics to content



HTML

```
<p>Player 1: Chris</p>
```

CSS

```
p {  
  font-family: "helvetica neue", helvetica, sans-serif;  
  letter-spacing: 1px;  
  text-transform: uppercase;  
  text-align: center;  
  border: 2px solid rgba(0, 0, 200, 0.6);  
  background: rgba(0, 0, 200, 0.3);  
  color: rgba(0, 0, 200, 0.6);  
  box-shadow: 1px 1px 2px rgba(0, 0, 200, 0.4);  
  border-radius: 10px;  
  padding: 3px 10px;  
  display: inline-block;  
  cursor: pointer;  
}
```

JavaScript

```
const para = document.querySelector("p");

para.addEventListener("click", updateName);

function updateName() {
  let name = prompt("Enter a new name");
  para.textContent = "Player 1: " + name;
}
```

- <https://codepen.io/nnnpoooh/pen/poWopXd>

What just happened?

JavaScript allows

- Storing value inside a variable (user input).
- Performing operations on variables (joining text).
- Running code in response to certain `events` occurring on a web page (click event).
- Updating content shown in the page.

Application Programming Interfaces (APIs)

- Extra functionality on top of client-side JavaScript language.
- APIs are ready-made sets of code building blocks for developers.

Types of APIs

- Browser APIs
 - Functionalities built into web browsers
- Third Parties APIs
 - Functionalities built by vendors

Browser APIs

- **DOM** (Document Object Model) API
 - Allows manipulation of HTML and CSS.
- **Geolocation** API
 - Retrieves geographical information.
- **Canvas** and **WebGL**
 - Allows creation of animated 2D and 3D graphics.
- **Audio** and **Video** APIs
 - Enables multimedia.

Third Parties APIs

- Line APIs
- Facebook APIs

Add JavaScript to the page

- Inline
- External file

Inline

HTML

```
<head>
  <script>
    //   JavaScript goes here
  </script>
</head>
<body>
  <button>Click me</button>
</body>
```

Inline

JavaScript

```
document.addEventListener("DOMContentLoaded", function () {  
  function createParagraph() {  
    let para = document.createElement("p");  
    para.textContent = "You clicked the button!";  
    document.body.appendChild(para);  
  }  
  
  const buttons = document.querySelectorAll("button");  
  
  for (let i = 0; i < buttons.length; i++) {  
    buttons[i].addEventListener("click", createParagraph);  
  }  
});
```

External file

- Create an `index.html` file with `<button>Click me</button>`
- Add `<script src="script.js" defer></script>` in `header` tag.
- Create `script.js`

External file (cont.)

- Add

```
function createParagraph() {  
  let para = document.createElement("p");  
  para.textContent = "You clicked the button!";  
  document.body.appendChild(para);  
}  
  
const buttons = document.querySelectorAll("button");  
  
for (let i = 0; i < buttons.length; i++) {  
  buttons[i].addEventListener("click", createParagraph);  
}
```


Prototyping (ลองอะไรง่าย ๆ)

- Developer tools console
- Quokka (no browser API)

Guessing Game

<https://gist.github.com/nnnpoooh/30b3d1f7effec0c3147d99c12285e6ba>