



JAVASCRIPT FUNDAMENTALS + ADVANCED



ABOUT ME

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- Chief tutor and a lecturer of COMP1710/6780
- 6+ Years experience developing website in the public and private sector.
- **Interests:** Human Computer Interaction (HCI), Web content delivery.
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WEB DEVELOPMENT UP TILL NOW

WHAT IS JAVASCRIPT (RECAP)

- JavaScript is a widely used scripting language
- Can be used to develop
 - Web applications
 - Networking applications
 - Games

APPLICATIONS OF JAVASCRIPT

- JavaScript lets us write client-side code (Although not always)
 - Doesn't have to go all the way out and contact the server
 - Highly interactive
- Dynamically updating content

FUNCTIONS OF JAVASCRIPT

- Event Listeners
 - Mouseclicks
 - Scrolling
 - Browsing
- Operations
- Storing values



BROWSER APIS

BROWSER APIS

- Document Object Model (DOM)
 - Mouse clicks
 - Scrolling
 - Browsing
- Geolocation API
- Canvas
- Third party APIs

HOW IT WORKS

- Web page loads in your browser
- Code runs (HTML, CSS and JavaScript) inside environment
- Code is executed in the order it appears on the page
 - JavaScript should be the final code loaded

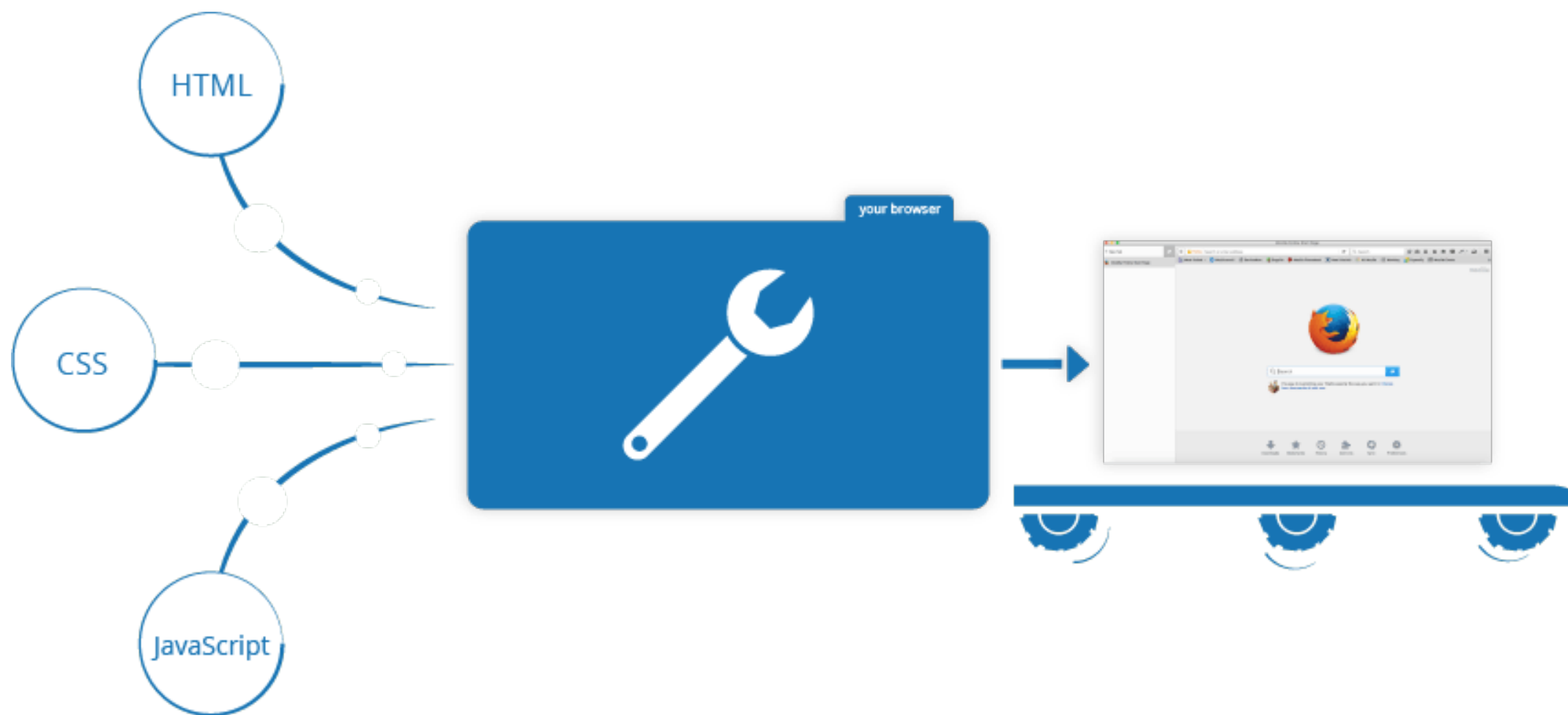


Image from Mozilla Developer Docs

ADDING JAVASCRIPT TO YOUR WEBSITE

Using inline JS

```
<script>
```

```
    // Code goes here
```

```
</script>
```

ADDING JAVASCRIPT TO YOUR WEBSITE

Using a separate JS File

```
<script src="js/script.js"></script>
```



POPULAR CMS



JAVASCRIPT EXAMPLE

```
function pictureChange() {  
    document.getElementById("theImage").src="image2.png";  
}
```

```
<html>
```

```

```

```
<input type="button" id="theButton" value="click me!" onclick="pictureChange()"></p>
```

JAVASCRIPT EXAMPLES

- Interactive Experiences
- Examples
 - [COBAYES : Animal research, let's get into it!](#)
 - [The Boat | SBS](#)

JAVASCRIPT FRAMEWORKS

- A collection of pre-defined classes and functions
- Frameworks provide a structure (like a skeleton, or a scaffolding...or a framework) to base your entire project around. This structure is created through page templates (provided by the framework) with specific areas set aside for inserting framework code (versus the library format, where the developer decides where to implement library code).

POPULAR FRAMEWORKS

- REACT
- ANGULAR
- VUE
- METEOR
- ETC

REACT

- Popular
- Component based
 - Everything is a component of the web page, divided into small components to create a views.
- Virtual DOM
 - It creates a virtual copy of the original DOM and is a representation of a DOM object.
- Declarative
 - Creates interactive and dynamic UI for websites and mobile applications. Declarative views make the code readable and easy to debug.
- Performance



VUE

- Data Binding
 - This feature facilitates the manipulation or assignment of values to HTML attributes.
- Virtual DOM
 - It creates a virtual copy of the original DOM and is a representation of a DOM object.
- Templating
 - Vue provides HTML-based templates that bind the DOM with the Vue.js instance data. The templates are compiled into Virtual DOM Render functions.

WEBSITES USING VUE

- Netflix
- Adobe
- Grammarly
- Nintendo
- Gitlab

VUE EXAMPLE

```
<script>
```

```
export default {
```

```
  data() {
```

```
    return {
```

```
      count: 0
```

```
    }
```

```
  }
```

```
}
```

```
</script>
```

```
<template>
```

```
  {{ count }}
```

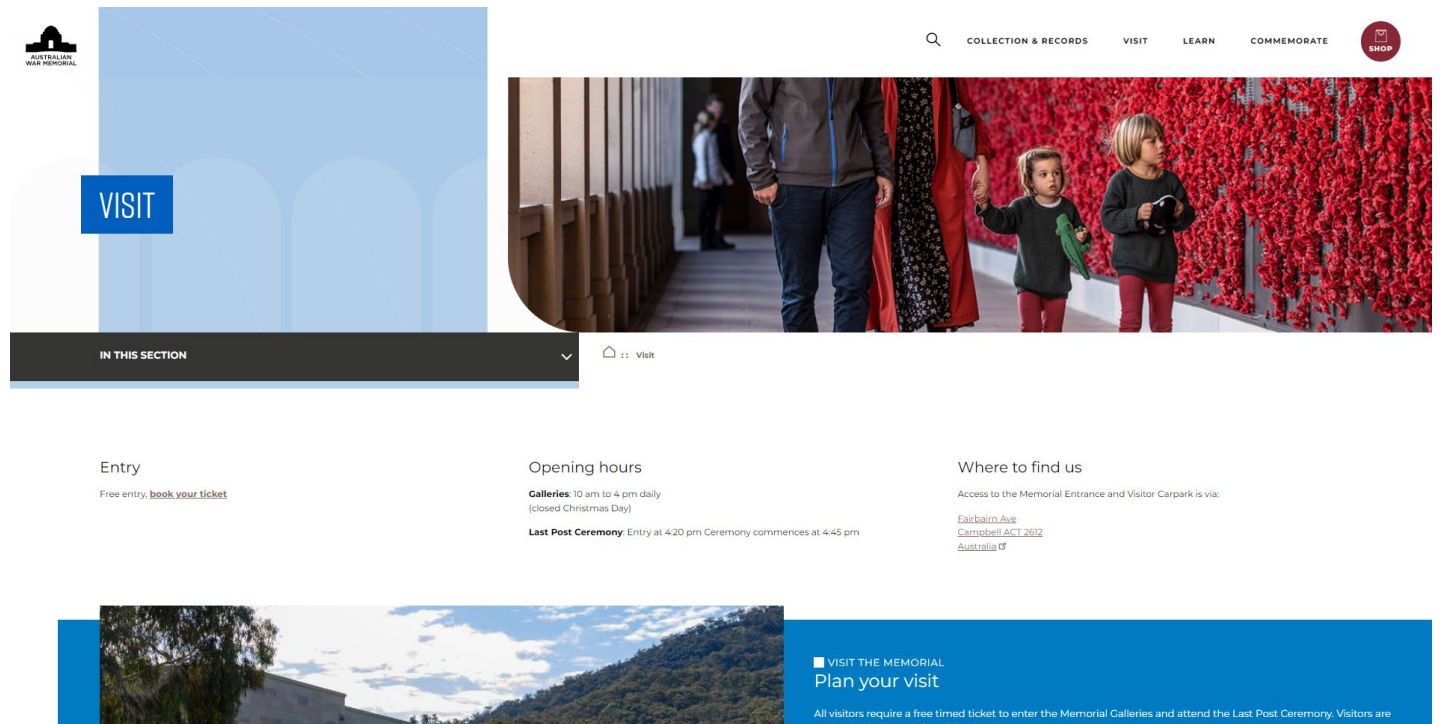
```
  <button
```

```
    @click="count++">Count</
```

```
button>
```

```
</template>
```

CASE STUDY: AUSTRALIAN WAR MEMORIAL



CASE STUDY: AUSTRALIAN WAR MEMORIAL

- Online shop
 - Stock inventory update
 - Image update
 - Filters
 - Sorting
 - Page Counts
 - One application

RECAP

- Importance of JavaScript
- How JavaScript works
- Using JavaScript
- JavaScript frameworks
- Using JavaScript frameworks



Q&A

