Javascript in the browser

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Example

```
<html>
<body>
<script type="text/javascript">
        document.write("<h1>This is a heading</h1>");
        document.write("<p>This is a paragraph.</p>");
</script>
</body>
</html>
```

Javascript: Inline, embedded or separate file?

Inline

```
<button onclick="console.log("Hello World!);">Click me</button>
```

Embedded

```
<script type="text/javascript">
    console.log("Hello World!);
</style>
```

Separate file

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

Javascript in the browser is restrictive

✓ You can access elements of the webpage and the browser

✓ You can track user actions on the webpage (events)

✓ You can create threads (web workers)

✓ You can open sockets (web sockets)

✓ …

◉ You cannot access the file system (only via the upload form)

◉ You cannot access to other programs

◉ You cannot access to other tabs in the browser
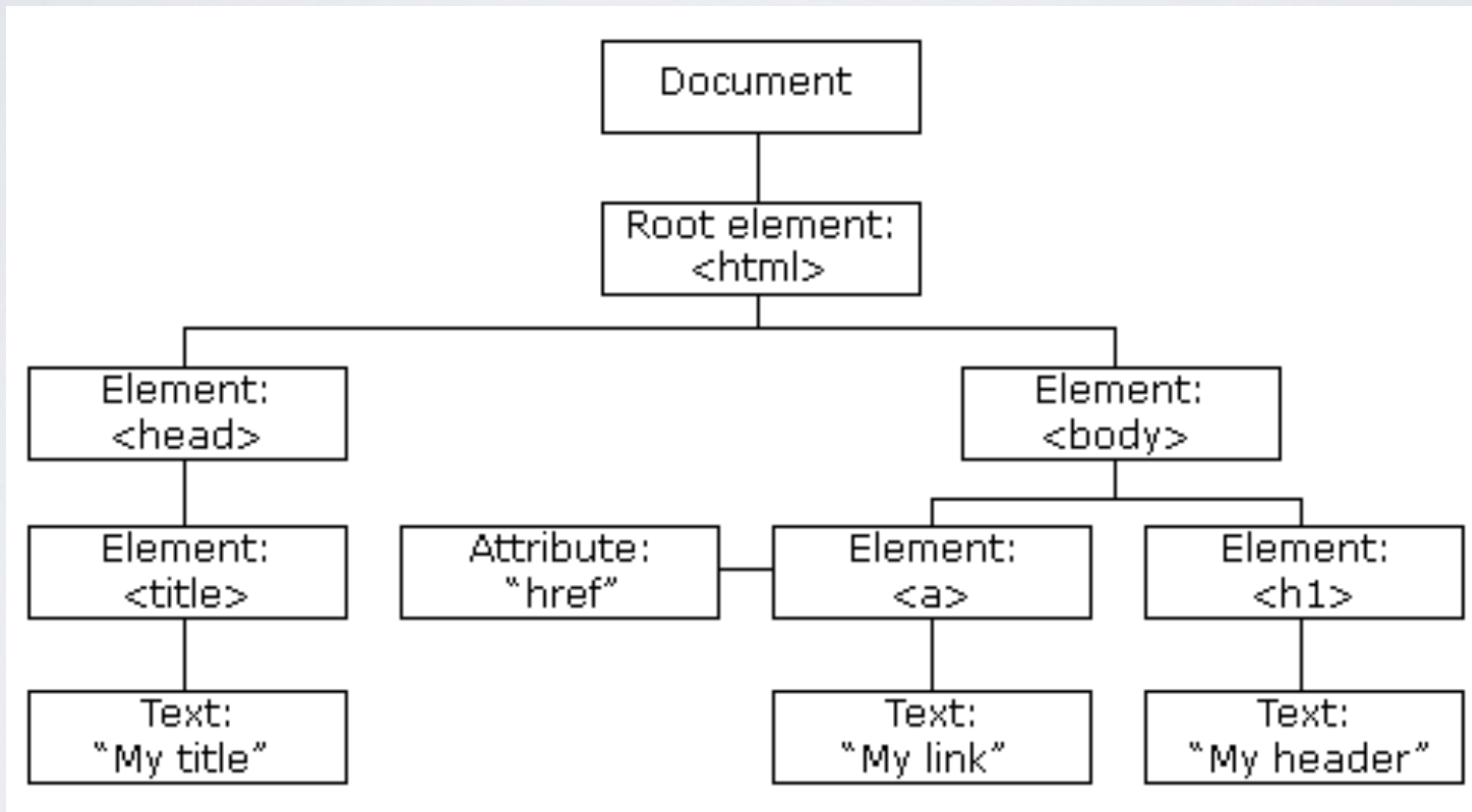
◉ …

The Browser

Pop-up Boxes

`alert("hello world!")`	dialog box with "ok" button
`confirm("are you sure?")`	dialog box with "ok" and "cancel" buttons
`prompt("Name?","John")`	input box with prompt text and default value

The Browser

screen	the visitor's screen
browser	the browser itself
window	the current browser window
url	the current url
history	Back and forward URLs

Document Object Model

DOM - Document Object Model

Node accessors

The root node

```
document
```

Accessors

```
document.getElementById("id")
document.getElementByTagName("p");
document.getElementByClassName("class");
document.querySelector("#id .class p");
document.querySelectorAll("#id .class p");
```

DOM methods

`x.innerHTML`	the content of x
`x.attributes`	the attributes nodes of x
`x.style`	css of x
`x.parentNode`	the parent node of x
`x.children`	the child nodes of x
`x.appendChild`	insert a child node to x
`x.removeChild`	remove a child node from x
. . .	. . .

https://developer.mozilla.org/en-US/docs/Web/API/Document_Object_Model

Events

DOM events and handlers

e.onload	when e is fully loaded
e.onclick	when e is clicked
e.onsubmit	when e is submitted
e.onhover	when the mouse is on top e
e.onkeydown	when a key is pressed while e is in focus
. . .	. . .

https://developer.mozilla.org/en-US/docs/Web/Events

User-defined events and listeners

```
// Listen for the event
document.addEventListener('onSomething', function(e){
    ...
});


// Dispatch the event
document.dispatchEvent(new Event('onSomething'));
```

Custom events

```javascript
// Listen for the custom event
document.addEventListener('onSomething', function(e){
    console.log(e.detail);
});


// Dispatch the custom event
document.dispatchEvent(new CustomEvent('onSomething',
{ e.detail: 'Hello World!'}));
```