the Master Course

{CODENATION}

JS & DOM

Introduction

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Learning Objectives

Understand the HTML & DOM structure

To be able to apply changes to the DOM by responding to user interaction

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DOM

Lets look at...

Creating a **New** Element

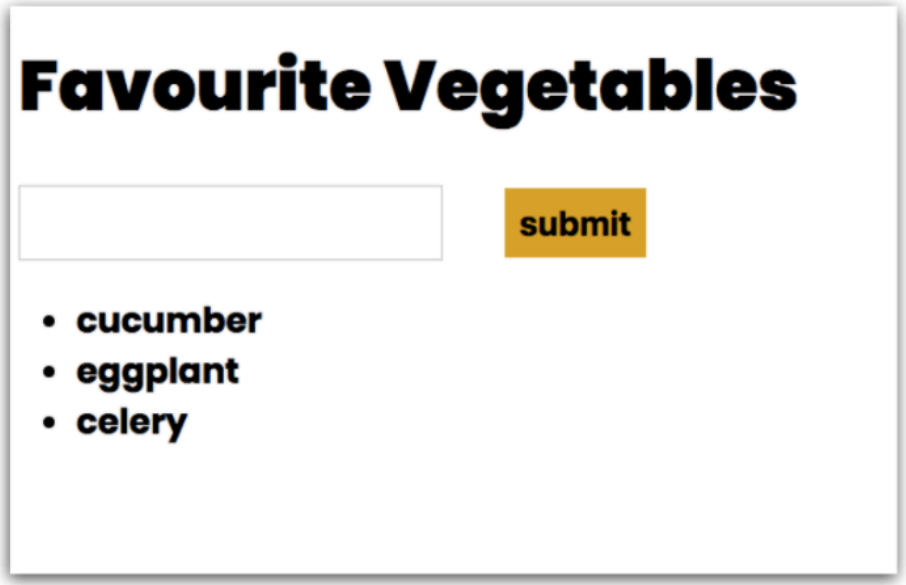
Folder 8

DOM

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <link rel="stylesheet" href="../main.css">
    <title>Creating New Elements with JS</title>
</head>
<body>
    <h1>Favourite Vegetables</h1>
    <input id="input" type="text">
    <button id="submit">submit</button>

    <ul id="list">
        <li>cucumber</li>
        <li>eggplant</li>
        <li>celery</li>
    </ul>

    <script src="app.js"></script>
</body>
</html>
```



Folder 8

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Activity(1): Create Variables

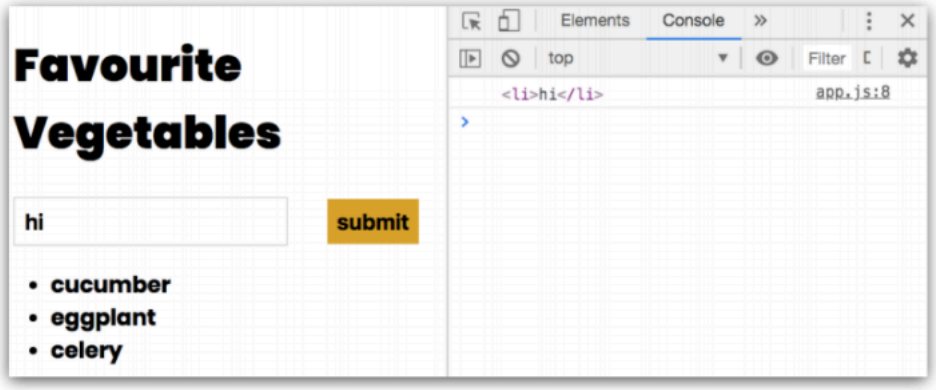
First, set up two variables, for the **input** and **submit**.

```
const input = document.getElementById("input");
const button = document.getElementById("submit");
```

Activity(2): Create a List Item

Now create a “list” item when the person presses the submit button

```
button.addEventListener("click", ()=> {
    let listItem = document.createElement("li");
    listItem.textContent = input.value;
    //console.log(listItem);
})
```



*It’s stored in the listItem for the time being.

Activity(3): Show updated list

First, create a new variable for the list:

```
let list = document.getElementsByTagName("ul")[0];
```

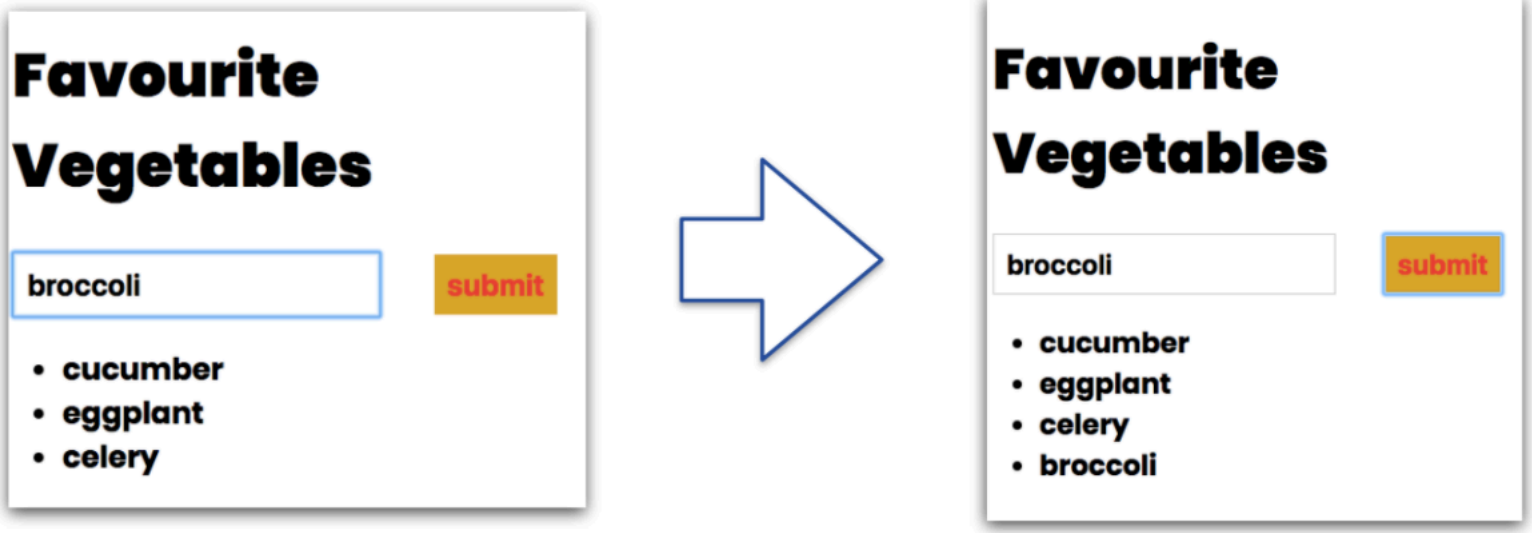
Then add the following inside the function:

```
list.appendChild(listItem);
```

DOM

```
const input = document.getElementById("input");
const button = document.getElementById("submit");
let list = document.getElementsByTagName("ul")[0];


button.addEventListener("click", ()=> {
    let listItem = document.createElement("li");
    listItem.textContent = input.value;
    list.appendChild(listItem);
    //console.log(listItem);
})
```



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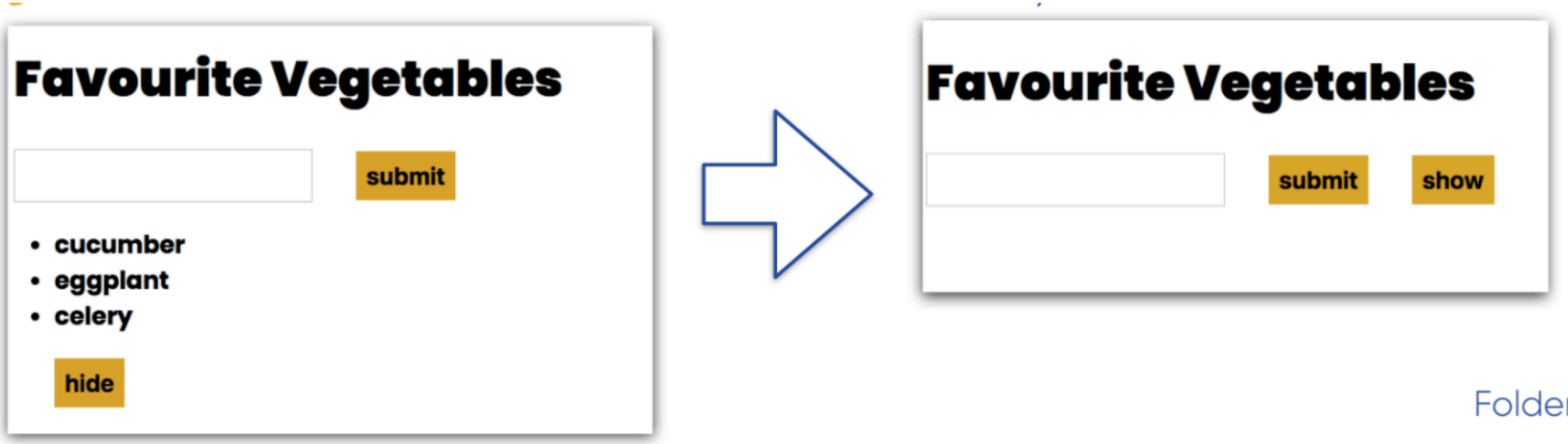
Challenge

Clear the input files when the user presses the "submit" button.

Add a feature where the user can show/hide the list



Folder 8

Solution (1 of 2)

Clear the input files when the user presses the "submit" button.

```
input.value ="";
```

Add a feature where the user can show/hide the list

Solution (2 of 2)

Add a feature where the user can show/hide the list

DOM

Add a **new button** in HTML

```
<button id='showhide-btn'>hide</button>
```

In app.js add a **new const**

```
const showhidebtn=document.getElementbyId("showhide-btn");
```

Add a **function**

```
showhidebtn.addEventListener("click", () => {
    let list = document.getElementsByTagName("ul")[0];
    if(list.style.display == "none") {
        list.style.display = "block";
        showhidebtn.textContent = "hide";
    } else {
        list.style.display = "none";
        showhidebtn.textContent = "show";
    }
})
```

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DOM

```
const input = document.getElementById('input');
const button = document.getElementById('submit');
const showhidebtn = document.getElementById('showhide-btn');

button.addEventListener('click', () => {
    let listItem = document.createElement('li');
    let list = document.getElementsByTagName('ul')[0];
    listItem.textContent = input.value;
    list.appendChild(listItem);
    input.value = '';
})

showhidebtn.addEventListener("click", () => {
    let list = document.getElementsByTagName('ul')[0];
    if(list.style.display == 'none') {
        list.style.display = 'block';
        showhidebtn.textContent = 'hide';
    } else {
        list.style.display = 'none';
        showhidebtn.textContent = 'show';
    }
})
```

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DOM

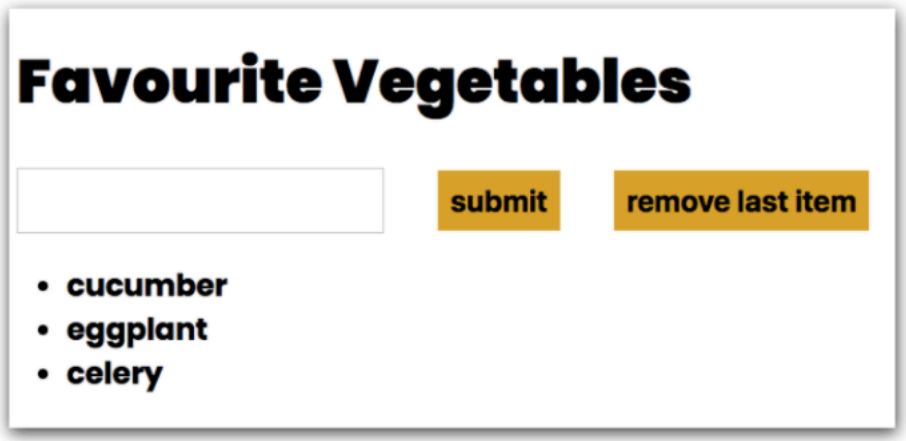
Lets look at...

Removing Elements

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <link rel="stylesheet" href="../main.css">
    <title>Removing Elements</title>
</head>
<body>
    <h1>Favourite Vegetables</h1>
    <input id="input" type="text">
    <button id="submit">submit</button>
    <button id="remove">remove last item</button>

    <ul id="list">
        <li>cucumber</li>
        <li>eggplant</li>
        <li>celery</li>
    </ul>

    <script src="app.js"></script>
</body>
</html>
```



DOM

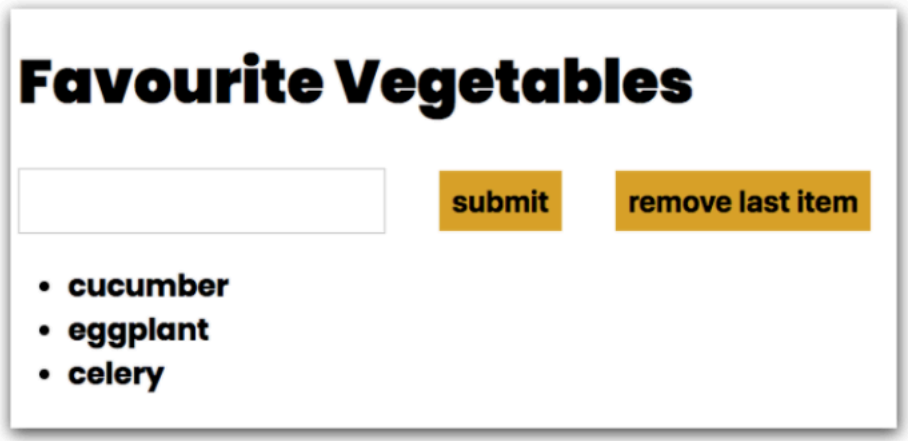
```
const input = document.getElementById('input');
const button = document.getElementById('submit');

/*from previous ex*/
button.addEventListener('click', () => {
    let listItem = document.createElement('li');

    let list = document.getElementsByTagName('ul')[0];
    listItem.textContent = input.value;

    list.appendChild(listItem);

    input.value = '';
})
```



Folder 9

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Activity: Remove last item

Think about the steps you need:

> Set a **new const** for the remove button.
> Create a **new function** to remove the last item when the button is clicked using the **last child** method:

```
node.removeChild(childElement);
```

Node in this case represents the list of items <li>, so the last child would be:

```
li:last-child
```

Solution: Remove last item

Set a new const for the remove button:

```
const removeBtn = document.getElementById('remove');
```

Create a new function to remove last item when the button is clicked using the last child method:

```
removeBtn.addEventListener('click', () => {

    let lastItem = document.querySelector('li:last-child');
    let list = document.getElementsByTagName('ul')[0];

    list.removeChild(lastItem);
})
```

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DOM

Lets look at...

setTimeout()

Times

... are calculated in **milliseconds**. 1,000ms = 1s

Activity: setTimeout()

```
window.setTimeout((something)=> {
    console.log(something);
}, 5000, "Greetings Everyone");
```

What is an event?

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DOM

click

dblclick

mousedown

mouseup

mousemove

mouseout

touchstart

touchmove

touchend

keydown

keyup

keypress

More on MDN Event Reference - https://developer.mozilla.org/en-US/docs/Web/Events

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DOM

Lets look at...

addEventListener,
mouseover, mouseout

Folder 11

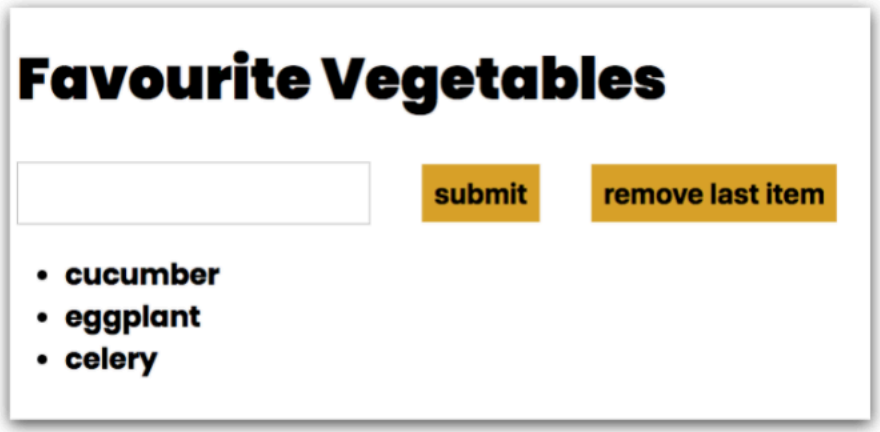
DOM

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <link rel="stylesheet" href="../main.css">
    <title>Mouseover Mouseout</title>
</head>
<body>
    <h1>Favourite Vegetables</h1>

    <input id="input" type="text">
    <button id="submit">submit</button>
    <button id="remove">remove last item</button>

    <ul id="list">
        <li>cucumber</li>
        <li>eggplant</li>
        <li>celery</li>
    </ul>

    <script src="app.js"></script>
</body>
</html>
```



Folder 11

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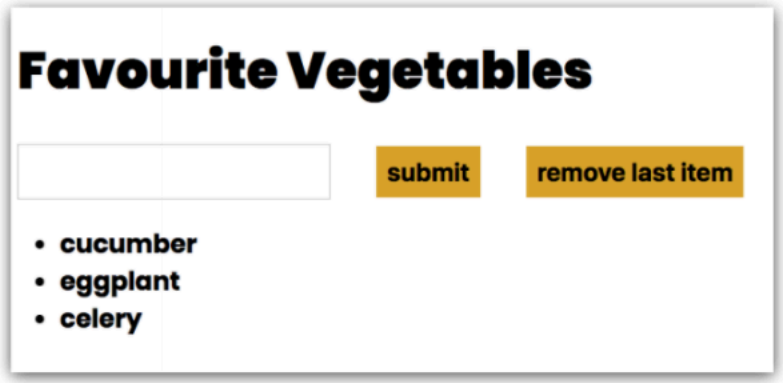
DOM

```
const input = document.getElementById('input');
const button = document.getElementById('submit');
const removeBtn = document.getElementById('remove');

button.addEventListener('click', () => {
    let listItem = document.createElement('li');

    let list = document.getElementsByTagName('ul')[0];
    listItem.textContent = input.value;

    list.appendChild(listItem);

    input.value = '';
})

removeBtn.addEventListener('click', () => {
    let listItem = document.querySelector('li:last-child');
    let list = document.getElementsByTagName('ul')[0];

    list.removeChild(listItem);
})
```



Folder 11

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Activity: add listItem

DOM

Add these to your code:

A new Const

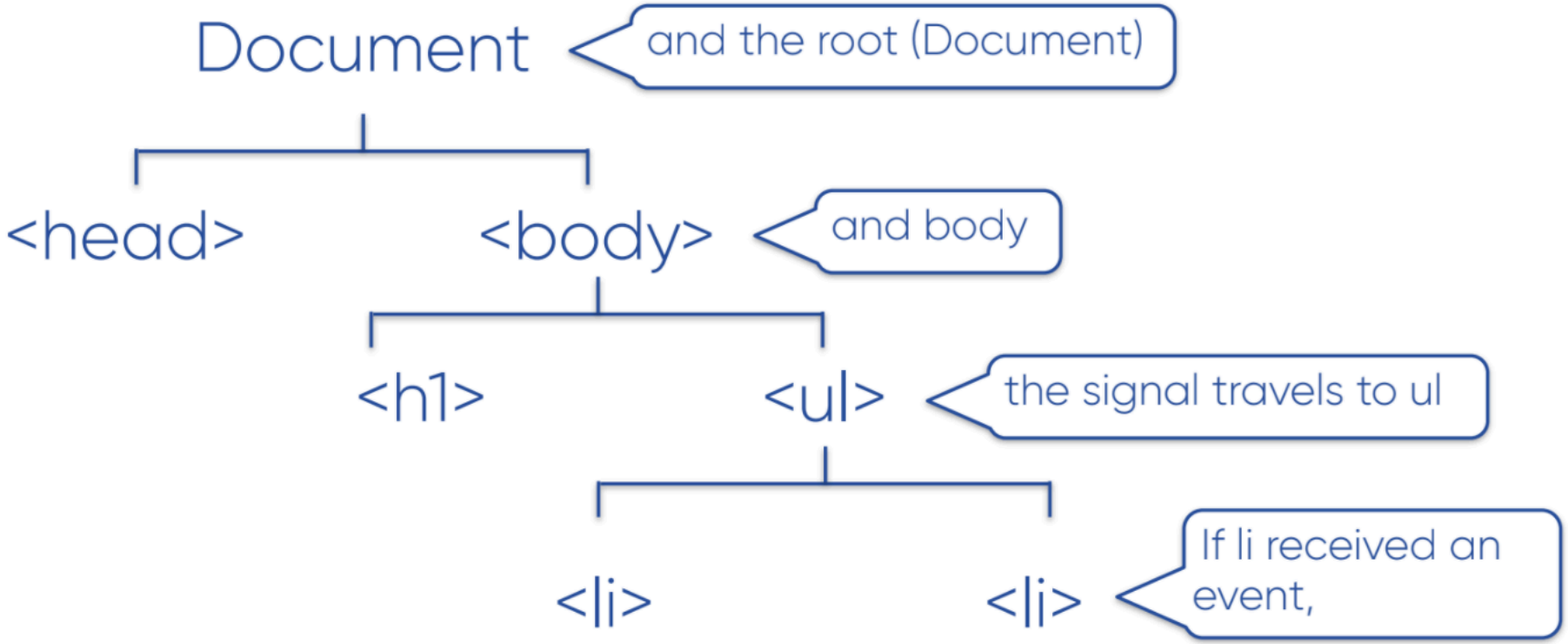
```
const listItems = document.getElementsByTagName("li");
```

Add a for loop:

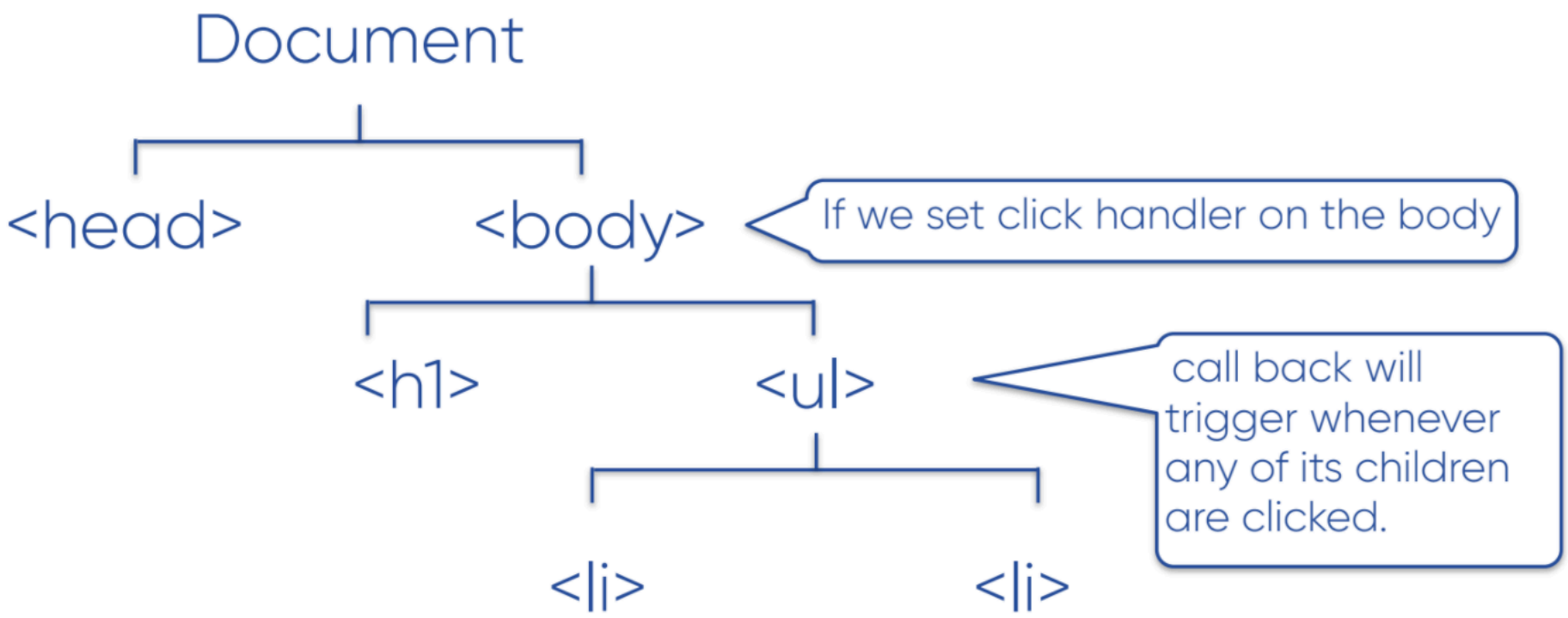
```
for (let listItem of listItems) {
    listItem.addEventListener("mouseover", () => {
        listItem.textContent = listItem.textContent.toUpperCase();
    });

    listItem.addEventListener("mouseout", () => {
        listItem.textContent = listItem.textContent.toLowerCase();
    });
}
```

Event Bubbling

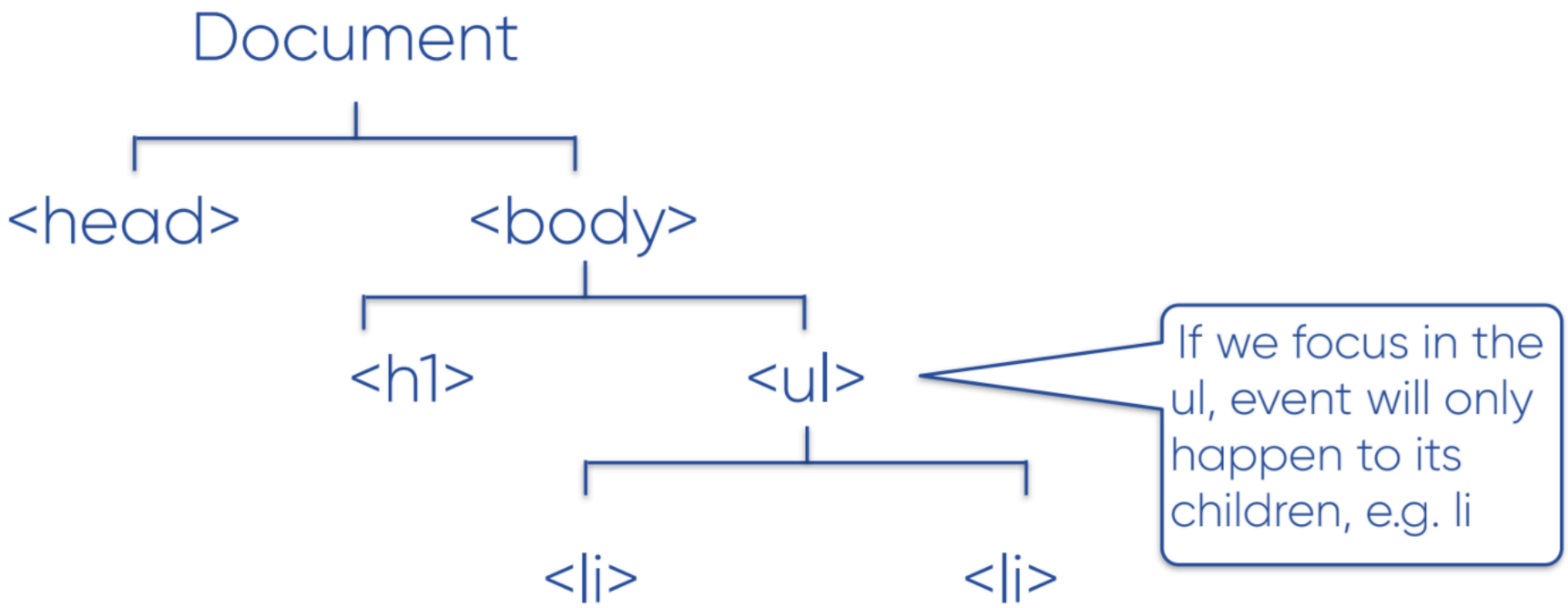
Li receiving a signal



Setting click handler on the body



Setting click handler on the ul



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DOM

Lets look at...

Event Object

Folder 12

Activity: checking event in console

Inside app.js, we want to check which object we are clicking:

```
document.addEventListener("click", (event) => {
    console.log(event);
    console.log(event.target);
})
```

Activity: add listItem

Consider our code from earlier. How could we write it **without a loop?**

```
for (let listItem of listItems) {
    listItem.addEventListener("mouseover", () => {
        listItem.textContent = listItem.textContent.toUpperCase();
    });

    listItem.addEventListener("mouseout", () => {
        listItem.textContent = listItem.textContent.toLowerCase();
    });
}
```

Solution: add listItem

Implement into **addEventListener!**

```
list.addEventListener("mouseover", (event) => {
    event.target.textContent = event.target.textContent.toUpperCase();
});

list.addEventListener("mouseout", (event) => {
    event.target.textContent = event.target.textContent.toLowerCase();
});
```

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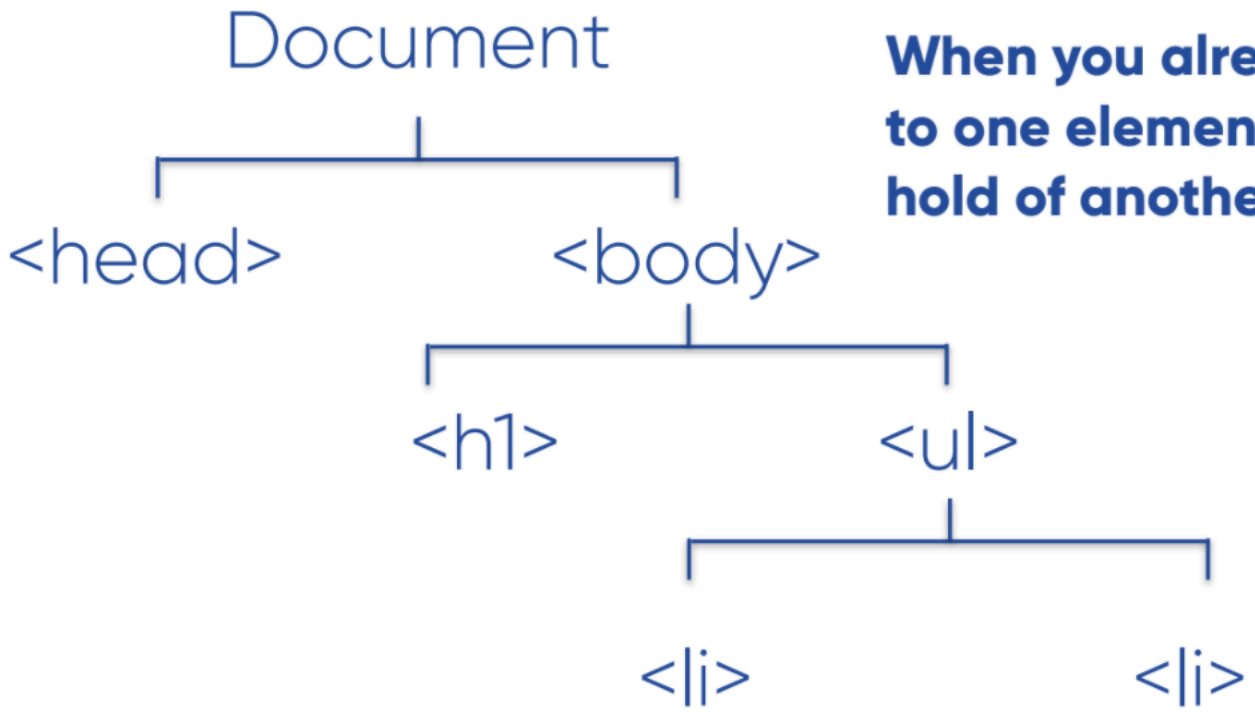
DOM

Lets look at...

Event Object

DOM Traversal



When you already have a reference to one element and you need to get hold of another element nearby.

*It is a way to move from one part of the DOM to another and select an element based on its relationship to another element

Example

```
let paragraph = document.getElementById("myParagraph");
let parent = paragraph.parentNode;
parent.removeChild(paragraph);
```

Activity

using **parent node**

```
list.addEventListener("click", (event) => {
    const li = event.target;
    const ul = li.parentNode;
    ul.removeChild(li);
});
```

```
const input = document.getElementById('input');
const button = document.getElementById('submit');
const removeBtn = document.getElementById('remove');
const listItem = document.getElementsByTagName('li');
const list = document.getElementById('list');

button.addEventListener('click', () => {
    let listItem = document.createElement('li');
    let list = document.getElementsByTagName('ul')[0];

    listItem.textContent = input.value;
    list.appendChild(listItem);
    input.value = '';
})

list.addEventListener('click', (event) => {
    const li = event.target;
    const ul = li.parentNode;
    ul.removeChild(li);
});
```

So the li will be removed when clicked on.

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Learning Objectives

Understand the HTML & DOM structure

To be able to apply changes to the DOM by responding to user interaction

More Info

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

https://caniuse.com/