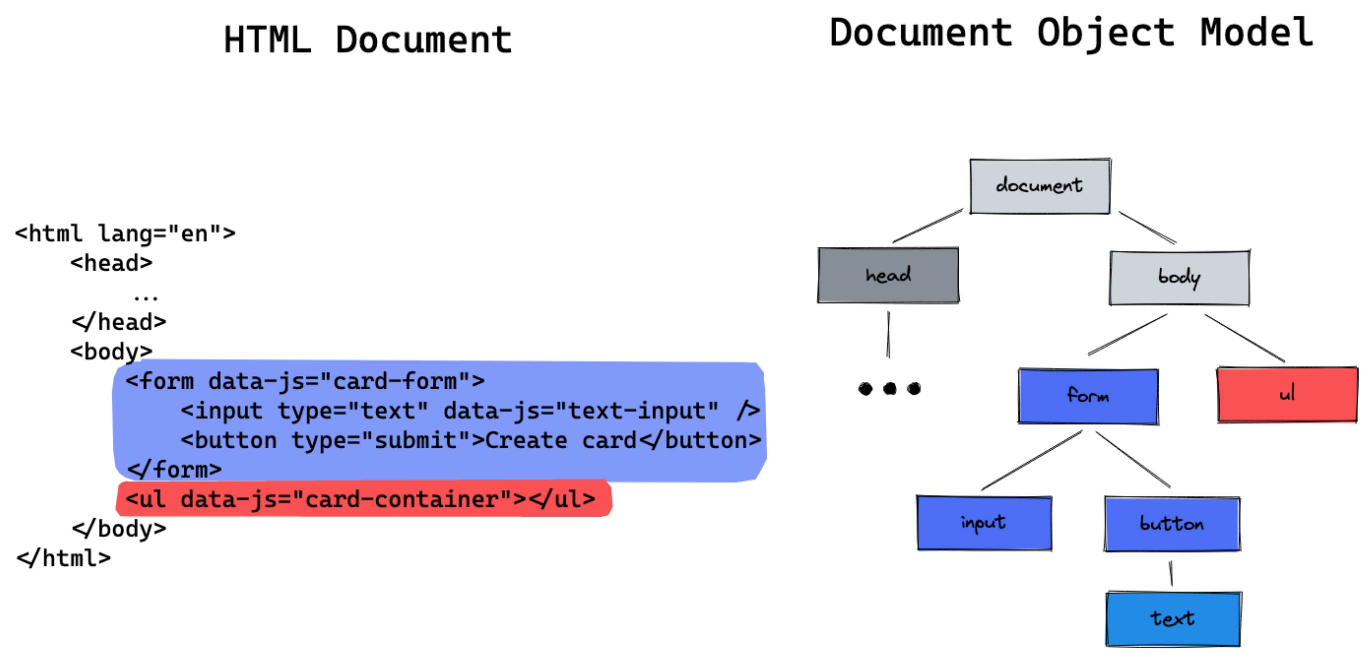
JS createElement

Learning Objectives

- knowing what the DOM is
- learning how to generate HTML in JavaScript
- using HTML element object properties and methods
- learning how to use `.innerHTML`

The DOM

The **Document Object Model** is a representation of the HTML document. Each HTML Tag is modelled as a **node** in a tree structure, which shows how HTML elements are nested. A computer program such as your JavaScript file can access and manipulate the HTML website by changing the DOM via the `document` object.



```
<html lang="en">
    <head>
        ...
    </head>
    <body>
        <form data-js="card-form">
            <input type="text" data-js="text-input" />
            <button type="submit">Create card</button>
        </form>
        <ul data-js="card-container"></ul>
    </body>
</html>
```

`document.createElement`

You can generate an HTML element with JavaScript by using the `document.createElement` method. It expects the type of element as an argument.

```
const article = document.createElement("article");
const button = document.createElement("button");
```

After generating an element, you need to place the element into the DOM. For this, you can use the `.append` method. It places the element as the **last child** into the respective element.

```
document.body.append(article); // placing the created article at the end
of the body
article.append(button); // placing the created button into the article
```

The result looks like this:

```
<body>
  ...
  <article>
    <button></button>
  </article>
</body>
```

Element Properties and Methods

As well as with queried HTML elements (via `querySelector`), we can add classes, event listeners and more to the created HTML elements.

```
article.classList.add("card");

button.addEventListener("click", () => {
  console.log("It works!");
});
```

The text of an element can be changed by reassigning the `.textContent` property:

```
button.textContent = "Click me!";
```

Common Element Properties and Methods

Property	**Effect**
`classList`	add, toggle or remove classes from element
`textContent`	get or set text inside element
`style`	define inline style, e.g. `element.style.backgroundColor = "red"`
`hidden`	boolean whether element is hidden or not
`focus()`	focusses the element on the website
`hasAttribute()`	returns true if the element has the given attribute
`querySelector()`	returns the first child that matches the given CSS selector

> 💡 You can assign HTML attributes by using the element properties. Go to the MDN Docs for a comprehensive list of element properties.

`.innerHTML`

> ❗ innerHTML can be unsafe when user input is passed into the template literal. Use it with caution. Read this article for more information about it.

The `innerHTML` property can be used to create the entire html layout of an element by passing the html code as a string. By using **template literals** the content of the html can be dynamically created.

```
const cityName = "Lissabon";

article.innerHTML = `
    <h2> ${cityName} </h2>
    <p class="card__content">
        ${cityName} is a very beautiful city in Portugal.
        Go there and enjoy the stay!
    </p>
    <button type='button' class="card__booking-button">
        Book Trip
    </button>
`;
```

This HTML code is rendered then **inside** the article element:

```
<body>
  ...
  <article>
    <h2>Lissabon</h2>
    <p class="card__content">
      Lissabon is a very beautiful city in Portugal. Go there and enjoy
the
      stay!
    </p>
    <button type="button" class="card__booking-button">Book Trip</button>
  </article>
</body>
```

Resetting Element Content

`.innerHTML` can also be used to **reset** the content of an element, e.g. a container:

HTML before:

```
<ul data-js="cardContainer">
  <li class="card">...</li>
  <li class="card">...</li>
  <li class="card">...</li>
</ul>
```

By setting the innerHTML to an empty string, the content is deleted:

```
const cardContainer = document.querySelector('[data-js="cardContainer"]');
cardContainer.innerHTML = "";
```

The result:

```
<ul data-js="cardContainer"></ul>
```

Resources

Element Properties

MDN Docs about element Properties

innerHTML

MDN Docs about securtiy risks with innerHTML