JavaScript

DOM manipulation

PHP web development 2020/2021

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DOM elements

DOM elements

DOM elements

Every DOM element is a JavaScript object.

- DOM elements can be targeted and selected
- DOM elements can be created dynamically
- DOM elements can be changed dynamically

traversing the DOM

Traversing the DOM

Traversing the DOM

- DOM elements have properties concerning their position in the DOM tree:
  - They have
    - parent - their parent element
    - children
    - siblings - the elements before and after

Those properties are used to traverse the DOM

Traversing the DOM

Traversing the DOM

parentNode

- element.parentNode
  - the element direct parent
  - **document** `s parent is NULL

Traversing the DOM

Traversing the DOM

childNodes

- element.childNodes
  - returns a nodeList with element`s children
    - **child nodes**
      - including texts - **text nodes**
      - including whitespaces

Traversing the DOM

Traversing the DOM

special properties

- firstChild / lastChild

  element.firstChild
- nextSibling / nextElementSibling

  element.nextElementSibling
- previousSibling / previousElementSibling

  element.previousSibling

Manipulating the DOM

Manipulating the DOM

Manipulating the DOM

We can change the DOM dinamically using JavaScript

- add/remove HTML elements to the DOM tree
- change the HTML elements
  - **their content**
  - **styling**
  - **attributes - src, href** etc

createElement()

DOM API

createElement(tag-name)

- document.createElement(elementName)
- returns a JS object

```
var liElement = document.createElement("li");

//returns JS Object - list item
```

appendChild()

Врача Софтуер Общество

- When creating a HTML element dinamically - it is a **JavaScript object.**
  - This object is still not part of the **DOM tree**
  - The newly created element needs to be **appended to the DOM tree**

```
var studentsList = document.createElement("ul");
   var studentLi = document.createElement("li");
          studentsList.appendChild(studentLi);
                document.body.appendChild(studentsList);
```

DOM API

DOM API

element.appendChild(childElement)

- appends the child element at the end of the element

parent.insertBefore(childElement, specificElement)

- appends the child element before specific element

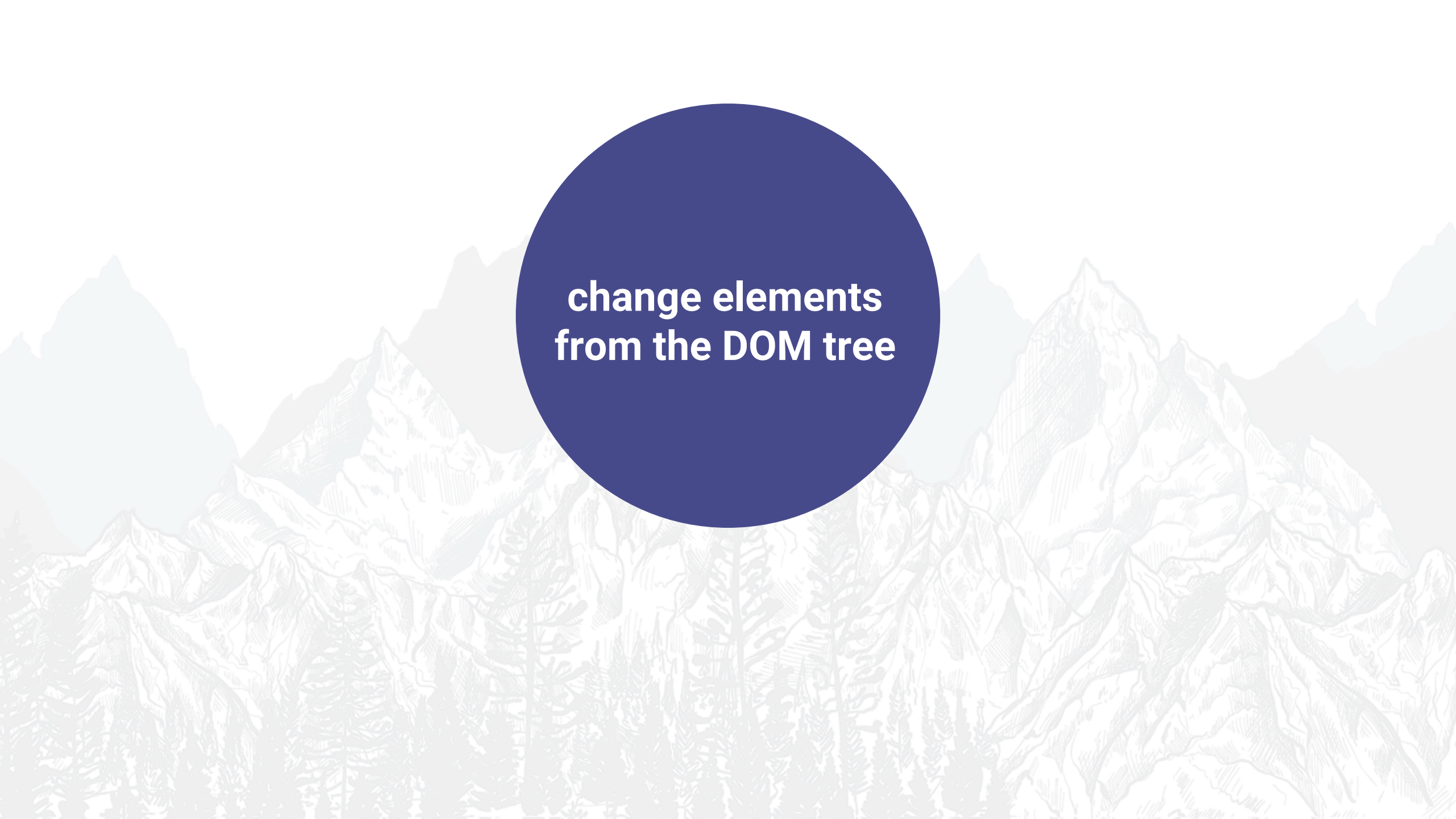
Remove elements from the DOM

DOM API

DOM API

element.removeChild(elToRemove)

- target parent element
- target element in parent to remove


change elements
from the DOM tree

DOM API

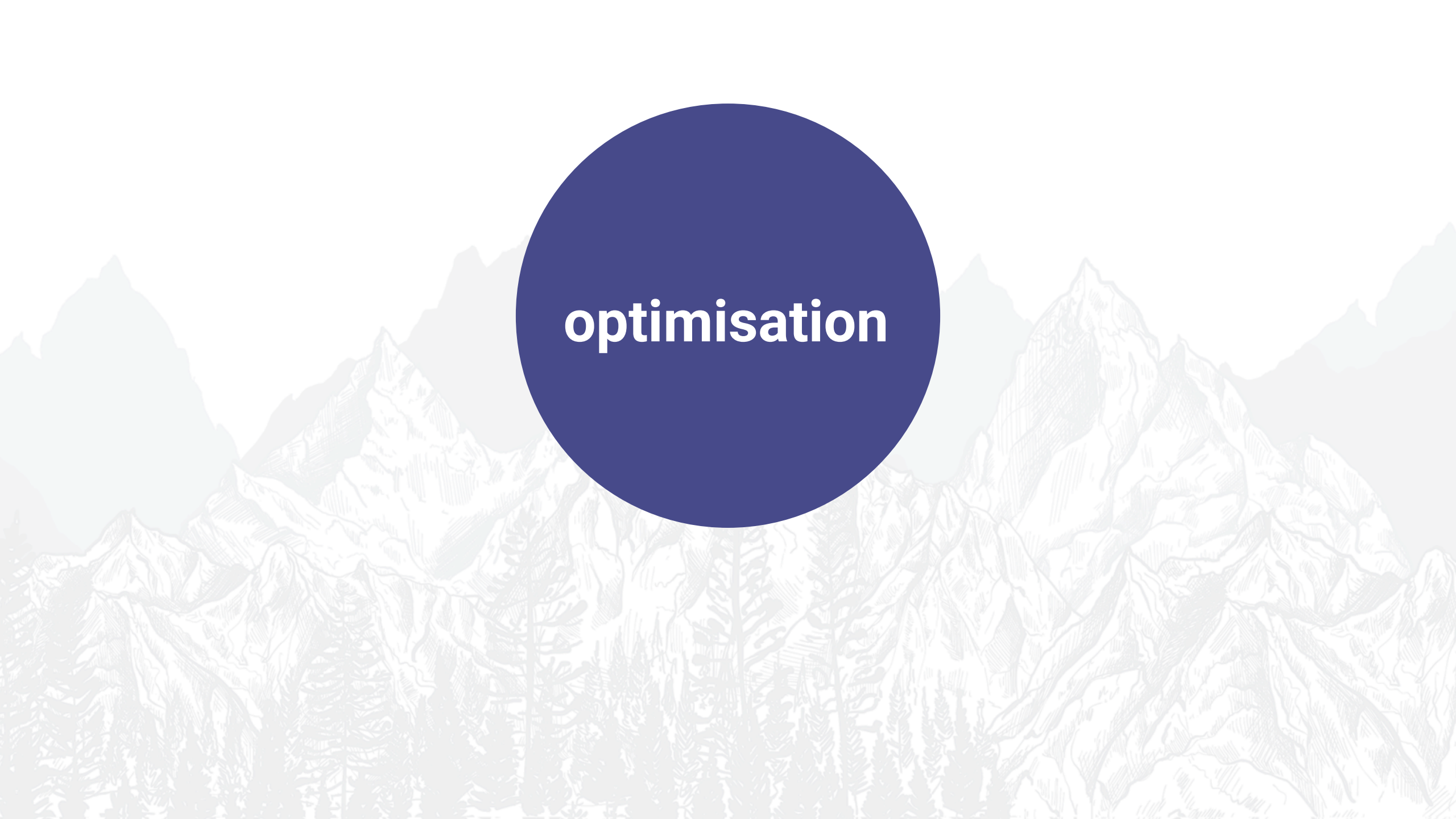
DOM API

changing element style

- JS changes the element`s inline style
- JS doesn`t change the linked .css files

element.style.property

```
var div = document.getElementById("content");
  div.style.display = "block";
  div.style.width = "123px";
```


optimisation

optimisation

optimisation

Adding elements to the DOM tree is a **slow process**

- Every time a new element is appended the document is reloaded
- It is recommended all new elements to be appended together - the document will be reloaded only once

optimisation

optimisation

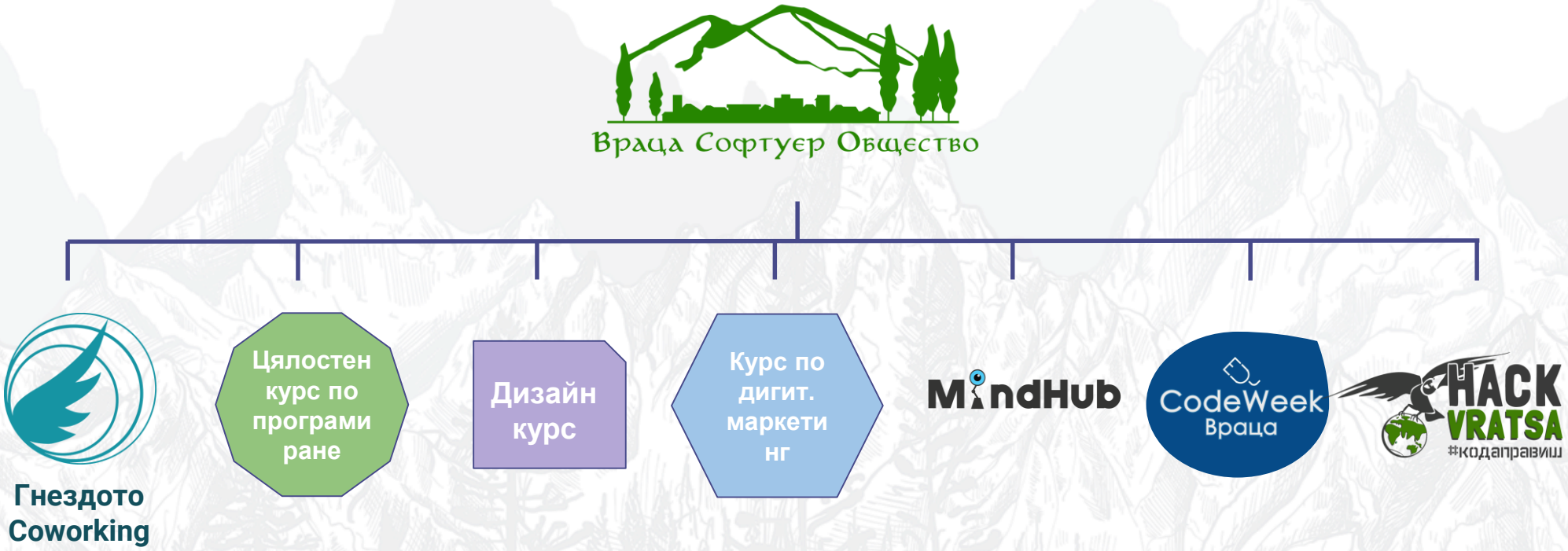
DocumentFragment

- a small **DOM element**
- all new elements are appended to **DocumentFragment**
- to the DOM is appended the DocumentFragment
- the DocumentFragment ‘dissolves’ after being appended to the DOM tree - only the element it contains remain in the DOM tree

documentFragment

```
var dFrag = document.createDocumentFragment();
    dFrag.appendChild(div);
    //appending more elements
……..
    document.body.appendChild(dFrag);
```

Questions?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