DOM Manipulations

Create / Delete DOM Elements, Handle Browser Events

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Have a Question?

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#JS-CORE

DOM Manipulations

Create / Delete DOM Elements

Creating DOM Elements

- **Create** with **`document.createElement`**

```
let p = document.createElement("p");
```

- **Append** text to the **<p>** element

```
let text = document.createTextNode("Random Text");
```

```
p.appendChild(text);
```

- Text added to **`textContent`** will be **escaped**.
- Text added to **`innerHTML`** will be **parsed** and turned into actual HTML elements beware of **XSS attacks**!

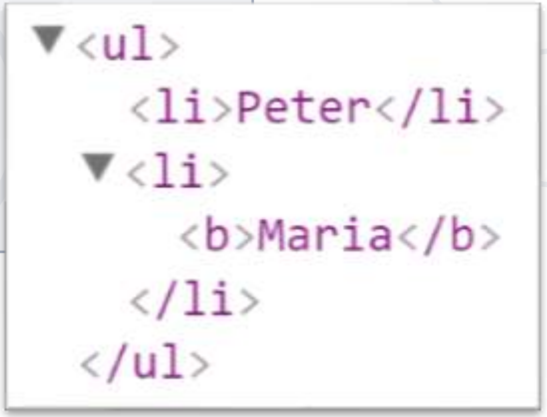
Creating DOM Elements

```
let list = document.createElement("ul");

let liPeter = document.createElement("li");
liPeter.textContent = "Peter";
list.appendChild(liPeter);

let liMaria = document.createElement("li");
liMaria.innerHTML = "<b>Maria</b>";
list.appendChild(liMaria);

document.body.appendChild(list);
```



```
▼<ul>
   <li>Peter</li>
  ▼<li>
     <b>Maria</b>
   </li>
 </ul>
```

Deleting DOM Elements

To **remove** an HTML element, you must know the **his parent**

```
<div id="div1">
     <p id="p1">This is a paragraph.</p>
     <p id="p2">This is another paragraph.</p>
</div>
```

```
let parent = document.getElementById("div1");
let child = document.getElementById("p1");
parent.removeChild(child);
```

jQuery and DOM

Using jQuery to manipulate DOM

jQuery Methods

- **text()** - reads and writes **text**

```
let text = $('#theElement').text();
$('#theElement').text('New text for element.');
```

- **html()** - returns the **HTML** of a given element

```
let html = $('#theElement').html();
$('#theElement').html('New text for element.');
```

- **val()** - gets and sets **value**

```
let theValue = $('#theFormField').val();
$('#theFormField').val('New value');
```

jQuery Methods

- **attr()** - reads and writes attributes of HTML elements. Also can take a **object** as parameter

```
let attrValue = $('#theFormField').attr('height');
$('#theFormField').attr({height : attrValue});
```

- **removeAttr()** - removes an attribute from an HTML element

```
$('#theFormField').removeAttr('height');
```

- **wrap()** - wraps the selected element in another HTML element

```
$('#someElement').wrap('<div style="border: 1px
solid black;"></div>');
```

jQuery Methods

- **replaceWith()** - replaces the selected HTML element with a new one

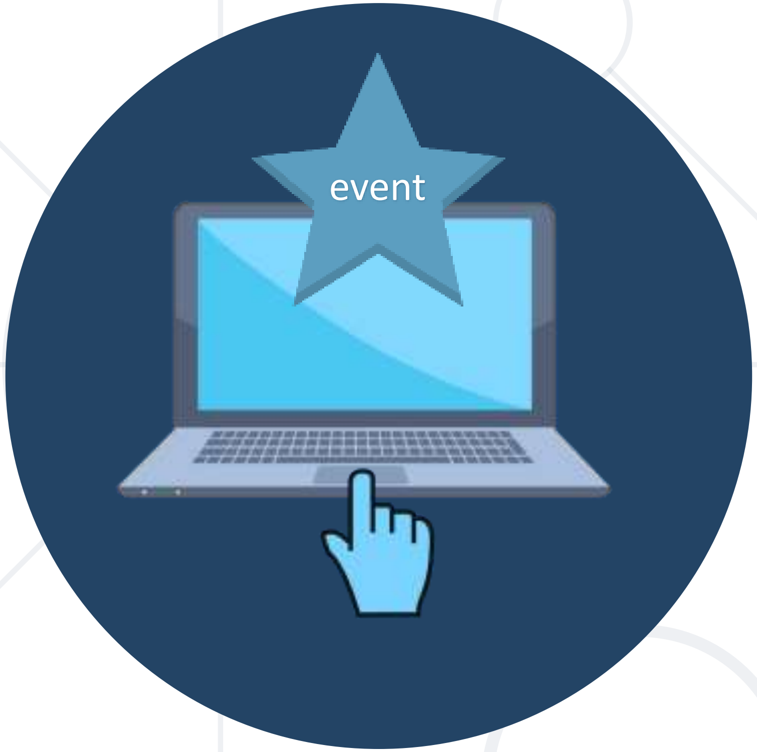
```
$('#theElement').replaceWith('<div style="border:
1px solid black;"></div>');
```

- **remove()** - removes the selected HTML element from the DOM

```
$('#theElement').remove();
```

- **empty()** - removes all child elements of the selected HTML element

```
$('#theElement').empty();
```



Handling Events

Browser Events and DOM Events

Handling Events in JS

- Browsers send **events** to notify the JS code of interesting things that have taken place

```
<div id='text'>Some text</div>
```

```
let div = document.getElementById('text');
div.onmouseover = function(event) {
  event.target.style.border = "3px solid green";
}
div.onmouseout = function() {
  this.style.border = ""; // this === event.target
}
```

Event Types in DOM API

- **Mouse** events

```
click
mouseover
mouseout
mousedown
mouseup
```

- **Touch** events

```
touchstart
touchend
touchmove
touchcancel
```

- **DOM / UI** events

```
load
unload
resize
dragstart / drop
```

- **Keyboard** events

```
keydown
Keypress
keyup
```

- **Focus** events

```
focus (got focus)
blur (lost focus)
```

- **Form** events

```
input
change
submit
reset
```

Attach / Remove Events

- Attach an event to an element.

```
let textbox = document.createElement('input');
textbox.type = 'text';
textbox.value = "I am a text box";
document.body.appendChild(textbox);

textbox.addEventListener('focus', focusHandler);
```

- Remove an event.

```
function focusHandler(event) {
  textbox.value = "Event handler removed";
  textbox.removeEventListener('focus', focusHandler);
}
```

Multiple Events

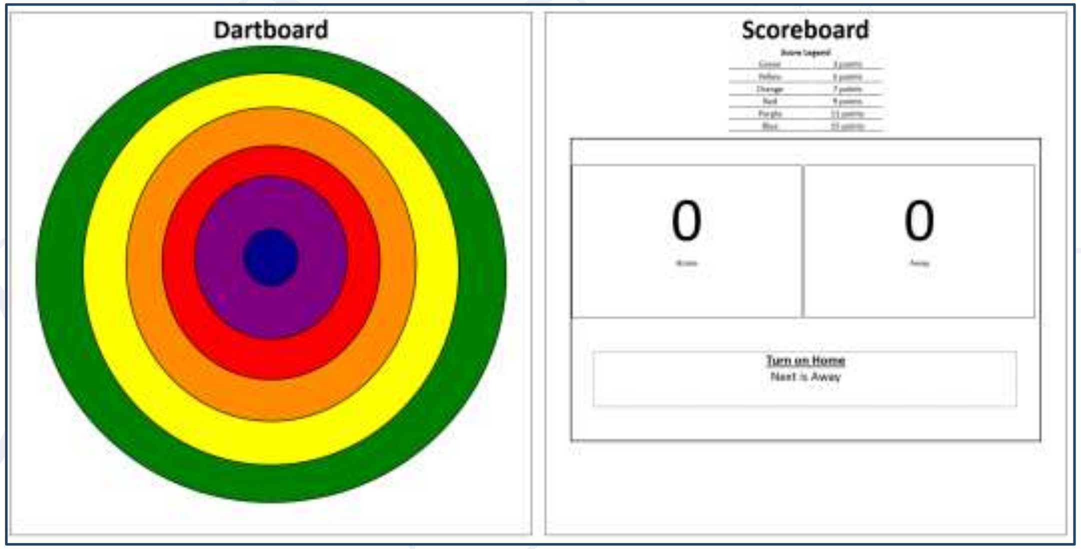
The **addEventListener()** method also allows you to add many events to the same element, without overwriting existing events:

```
element.addEventListener("click", function);
element.addEventListener("click", myFunction);
element.addEventListener("mouseover", mySecondFunction);
element.addEventListener("mouseout", myThirdFunction);
```

Note that you don't use the "on" prefix for the event; use "click" instead of "onclick".

Exam problem: Dart Game

- Write a **JavaScript program** that **simulates playing a Dart** and **keep tracking** the **players scores**
- Use the given **index.html** and **app.js files** to solve this problem



Dartboard

Scoreboard

Score Legend

Green	3 points
Yellow	5 points
Orange	7 points
Red	9 points
Purple	11 points
Blue	13 points

0

Home

0

Away

Turn on Home

Next is Away

Check your solution here: https://judge.softuni.bg/Contests/1390/JS-Advanced-Exam-19-December-2018

Live Exercises

DOM - Manipulations

Summary

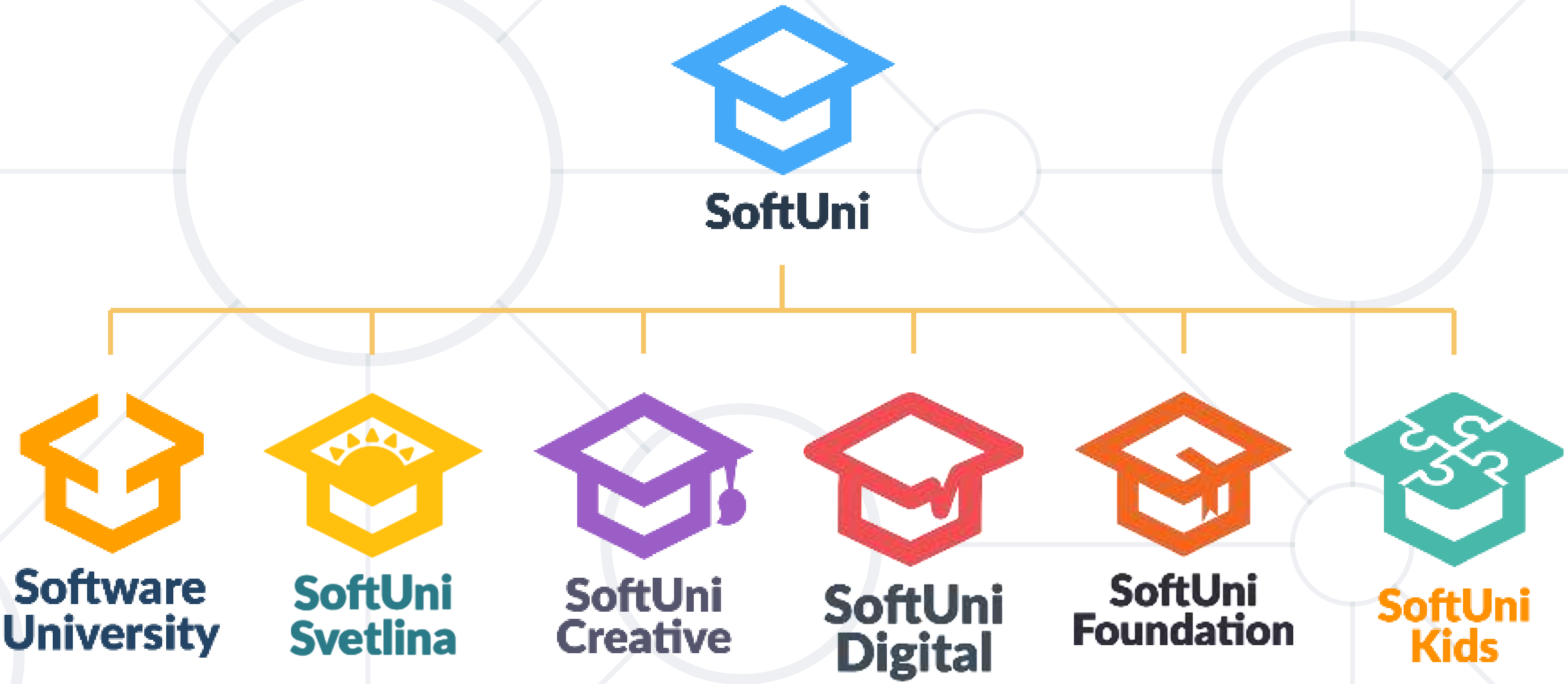
- Modifying DOM elements:

```
let menu = document.getElementById('menu');
menu.style.display = 'none';
menu.appendChild(
  document.createElement('hr'));
let link = menu.children[0];
menu.removeChild(link);
```

- Handling events:

```
let menu = document.getElementById('menu');
menu.onclick = function(event) { … }
```

Questions?



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