

WEB1100B- WEBUTVIKLING OG HCI

Lecture 10 – Introduksjon til Javascript og jQuery
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LÆRINGSMÅL LEKSJON

Dere skal lære dere noe om

- Events in HTML documents
- Working with Form
- Document Object Model (DOM)
- jQuery
- HTML attributes manipulation with jQuery

WORKING WITH FORM

1. Creating a Javascript function
2. Access to HTML elements
3. Change values and properties of HTML elements
4. Trigger the function to happen

EVENTS IN JAVASCRIPT

- Click, touch, load, drag, change, input, error, resize ...
- `OnClick()`: Fires on a mouse click on the element
- `Onsubmit()`: Fires when a form is submitted
- `Onchange()`: Fires the moment when the value of the element is changed
- ...



```
1 <!DOCTYPE html>
2 <html>
3 <body>
4
5 <h1>My First JavaScript</h1>
6
7 <button type="button"
8 onclick="getdate();">
9 Click me to display Date and Time.</button>
10
11 <p id="demo"></p>
12 <script type="text/javascript">
13     function getdate(){
14         document.getElementById( 'demo' ).innerHTML = Date();
15     }
16 </script>
17 </body>
18 </html>
```

WORKING WITH FORM

1. Creating a Javascript function
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`document.getElementById('demo').innerHTML = Date()`

DOM - DOCUMENT OBJECT MODEL

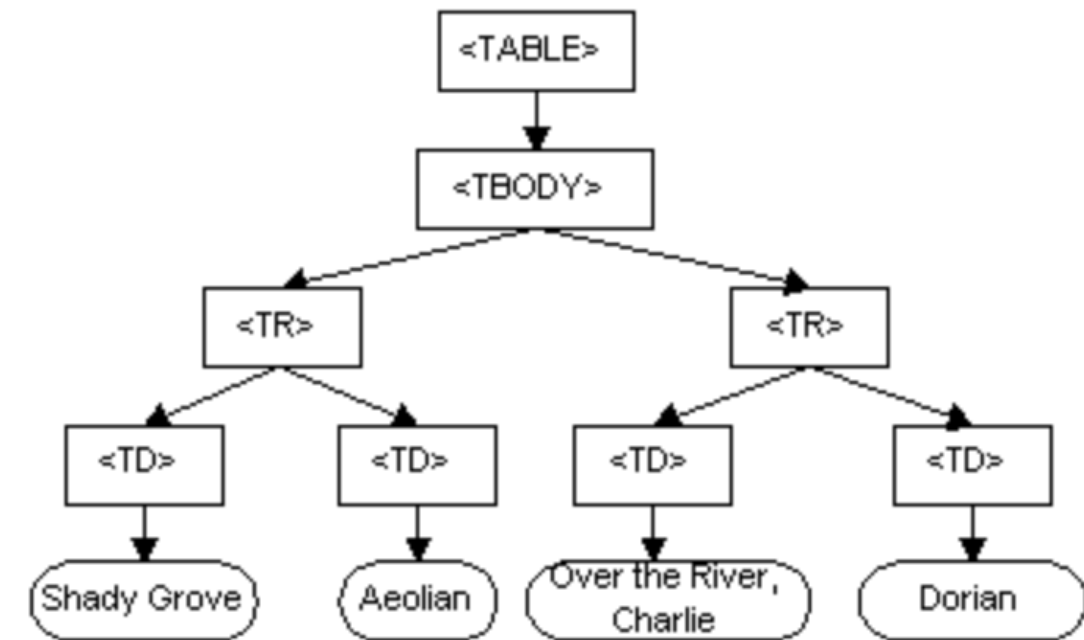
- *"The W3C Document Object Model (DOM) is a platform and language-neutral interface that allows programs and scripts to dynamically access and update the content, structure, and style of a document."*
- Core DOM - standard model for all document types
- XML DOM - standard model for XML documents
- HTML DOM - standard model for HTML documents
 - **The HTML DOM is a standard for how to get, change, add, or delete HTML elements.**

DOM AND JAVASCRIPT

- Selecting Elements from your HTML
- Update the element HTML on the fly.
- Add event triggers.
- Style your elements dynamically
- Read and validate inputs

DOM - DOCUMENT OBJECT MODEL

```
<TABLE>  
  <TBODY>  
    <TR>  
      <TD>Shady Grove</TD>  
      <TD>Aeolian</TD>  
    </TR>  
    <TR>  
      <TD>Over the River, Charlie</TD>  
      <TD>Dorian</TD>  
    </TR>  
  </TBODY>  
</TABLE>
```



BASIC OF JAVASCRIPT DOM MANIPULATION

1. Creation of a DOM Element
2. Addition of Created Element to DOM
3. Styling an HTML Element
4. Getting and Setting Values the HTML Elements
5. Accessing DOM Elements

```
<script type="text/javascript">  
    function myFunction() {  
        var btn = document.createElement("BUTTON");  
        document.body.appendChild(btn);  
    }  
</script>
```

BASIC OF JAVASCRIPT DOM MANIPULATION

1. Creation of a DOM Element
2. Addition of Created Element to DOM
3. Styling an HTML Element
4. Getting and Setting Values the HTML Elements
5. Accessing DOM Elements

```
<script type="text/javascript">  
    function myFunction() {  
        document.getElementById("myH1").style.color = "red";  
    }  
</script>
```

BASIC OF JAVASCRIPT DOM MANIPULATION

1. Creation of a DOM Element
2. Addition of Created Element to DOM
3. Styling an HTML Element
4. Getting and Setting Values the HTML Elements
5. Accessing DOM Elements

```
<script type="text/javascript">  
    function myFunction(){  
        document.getElementById("myText").value = "Johnny Bravo";  
    }  
</script>
```

BASIC OF JAVASCRIPT DOM MANIPULATION

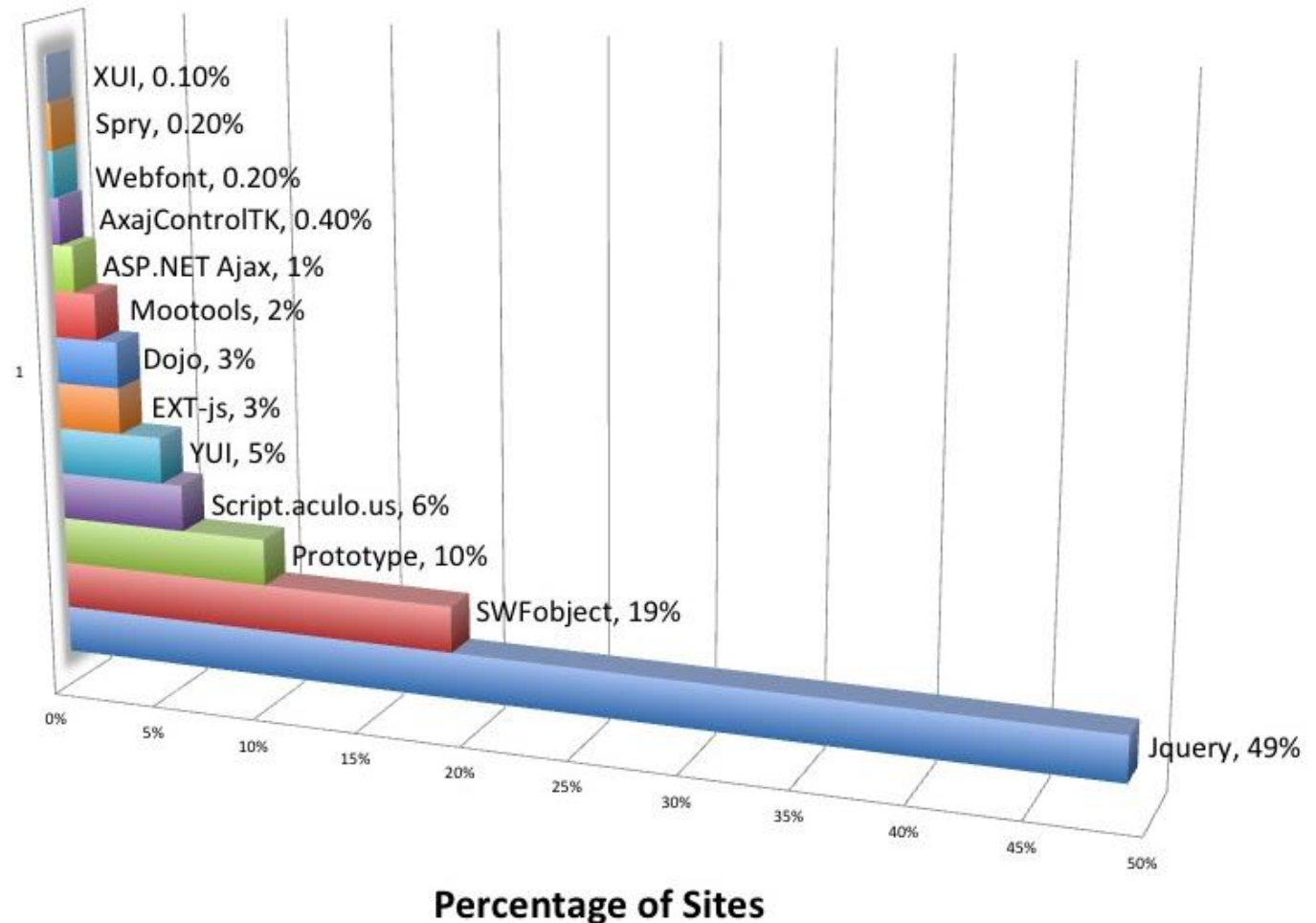
1. Creation of a DOM Element
2. Addition of Created Element to DOM
3. Styling an HTML Element
4. Getting and Setting Values the HTML Elements
5. Accessing DOM Elements

```
var element = document.getElementById("myid");  
var elements = document.getElementsByClassName("myclass");  
var elementer = document.getElementsByTagName("LI");
```

JAVASCRIPT LIBRARIES

- Pre-written JavaScript which allows for easier development of JavaScript
- Your web can “link” to a library to allow you access to that functionality
- Save your time and effort on rewriting common functions

JavaScript Library Popularity



QUERY

- A **query** is a request for information from a database



JQUERY

- created by John Resig in 2006
- simplifies HTML document traversing, event handling, animating, and Ajax interactions



<https://jquery.com/>

HOW TO CALL A JQUERY LIBRARY FUNCTIONS?

```
$(document).ready(function() { // do stuff when DOM is ready })
```

Shorthand: ready(function() { // do stuff when DOM is ready })

```
<html>
<head>
  <title>The jQuery Example</title>
  <script type = "text/javascript"
    src = "https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js">
  </script>
  <script type = "text/javascript" language = "javascript">
    $(document).ready(function() {
      $("div").click(function() {alert("Hello, world!");});
    });
  </script>
</head>
<body>
  <div id = "mydiv"> Click on this to see a dialogue box. </div>
</body>
</html>
```

SELECTING ELEMENTS FROM THE DOCUMENT

- All starts with `$()`
- It uses the three basic building blocks while selecting an element
 - Element name: `$('p')`
 - Element ID: `$('#myid')`
 - Element class: `$('.class')`

SELECTING ELEMENTS FROM THE DOCUMENT

```
<!DOCTYPE html>
<html>
<head>
  <script type="text/javascript" src="http://ajax.googleapis.com/
  ajax/libs/jquery/2.1.3/jquery.min.js">
  </script>
  <script type="text/javascript" language="javascript">
    $(document).ready(function() {
      $("p").css("background-color", "pink");
    });
  </script>
</head>
<body>
  <p>This is first paragraph.</p>
  <p>This is second paragraph.</p>
  <p>This is third paragraph.</p>
</body>
</html>
```

DIFFERENT JQUERY SELECTORS

#id	<code>\$("#firstname")</code>	It will select the element with id="firstname"
.class	<code>\$(".primary")</code>	It will select all elements with class="primary"
class,.class	<code>\$(".primary,.secondary")</code>	It will select all elements with the class "primary" or "secondary"
element	<code>\$("p")</code>	It will select all p elements.
el1,el2,el3	<code>\$("h1,div,p")</code>	It will select all h1, div, and p elements.
:first	<code>\$("p:first")</code>	This will select the first p element
:last	<code>\$("p:last")</code>	This will select the last p element
:even	<code>\$("tr:even")</code>	This will select all even tr elements
:odd	<code>\$("tr:odd")</code>	This will select all odd tr elements

MODIFYING STYLES ON A PAGE

- Hide and show elements:

```
$("#hide").click(function(){  
    $("p").hide();  
});  
$("#show").click(function(){  
    $("p").show();  
});
```

- Retrieving and changing style sheet properties

```
$(this).css("text-decoration", "underline");
```

```
<html>
<head>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
<script>
$(document).ready(function(){
    $("button").click(function(){
        $("p").css("text-decoration", "underline");
    });
});
</script>
</head>
<body>

<button>Set all paragraphs underlined</button>

<p>This is a paragraph.</p>
<p>This is another paragraph.</p>

</body>
</html>
```



```
<!DOCTYPE html>
<html>
<head>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
<script>
$(document).ready(function(){
    $("#hide").click(function(){
        $("p").hide();
    });
    $("#show").click(function(){
        $("p").show();
    });
});
</script>
</head>
<body>

<p>If you click on the "Hide" button, I will disappear.</p>

<button id="hide">Hide</button>
<button id="show">Show</button>

</body>
</html>
```

HTML ATTRIBUTES MANIPULATION

<code>attr()</code>	Get or set the value of specified attribute of the target element(s).
<code>prop()</code>	Get or set the value of specified property of the target element(s).
<code>html()</code>	Get or set html content to the specified target element(s).
<code>text()</code>	Get or set text for the specified target element(s).
<code>val()</code>	Get or set value property of the specified target element.

```
$('selector expression').attr('name','value');
```

```
$('div').attr('class','yellowDiv');
```


HTML ATTRIBUTES MANIPULATION

```
$('#myDiv').attr('class')  $('#myDiv').prop('class')  
  
<div id="myDiv" class="divCls">  
  <p style="background-color:yellow;width:100%">  
    This is paragraph.  
  </p>  
</div>  
  
<div id="firstNameDiv">  
  <label>First Name</label><input type="text" value="John" />  
</div>  
  
<input type="button" value="Get Value" id="addBtn" style="width:100px" />
```

Diagram illustrating HTML attribute manipulation using jQuery:

- `$('#myDiv').attr('class')` and `$('#myDiv').prop('class')` point to the `class="divCls"` attribute in the `<div>` tag.
- `$('#myDiv').html()` points to the entire content of the `<div id="myDiv">` element.
- `$('#myDiv').text()` points to the text content "This is paragraph." inside the `<p>` element.
- `$('#input:text').val()` points to the `value="John"` attribute of the text input field.
- `$('#label').text()` points to the text "First Name" inside the `<label>` element.
- `$('#input:button').val()` points to the `value="Get Value"` attribute of the button input field.
- `$('#input:button').prop('style').width` points to the `width:100px` attribute of the button input field.

OPPSUMMERINGEN

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- Working with Form
- Document Object Model (DOM)
- jQuery
- HTML attributes manipulation with jQuery