jQuery

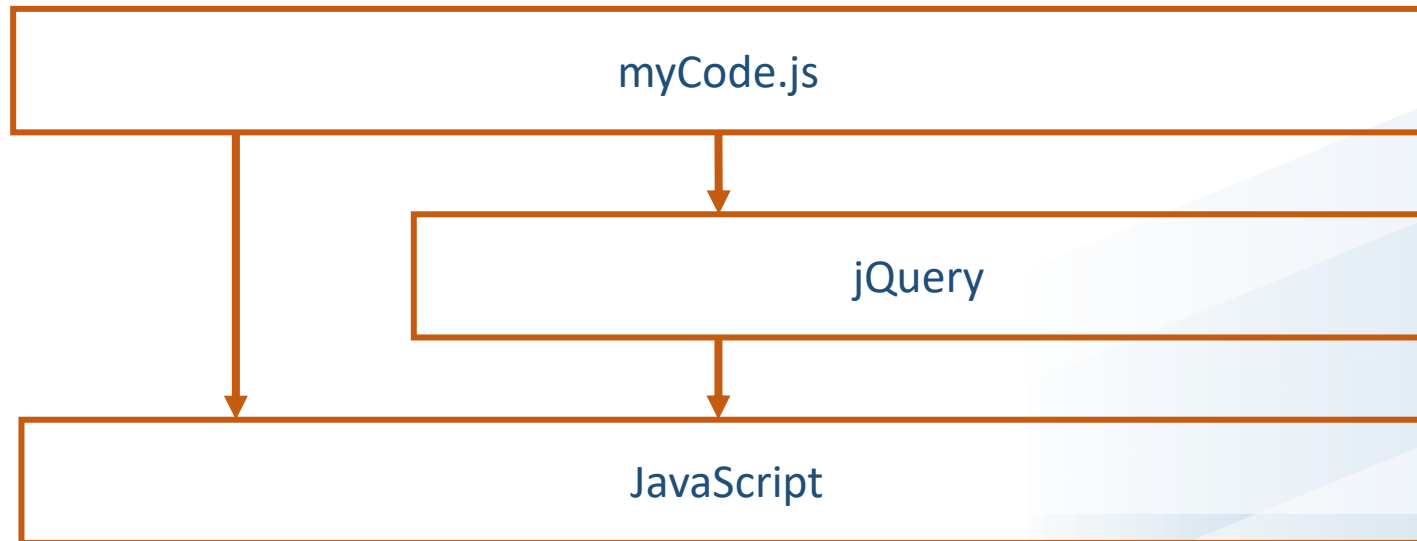Liisa Auer, Oulu University of Applied Sciences

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JavaScript library

- JavaScript library is a collection on functions written with JavaScript.
- It simplifies and makes easier (hopefully) to do the most common actions needed in application development.

```
myCode.js
  ↓
jQuery
  ↓
JavaScript
```

JavaScript files to use

- ## at the end of an html page
  - the page contents will be loaded from top to bottom in the page
  - all JavaScript files will be loaded after all html content
  - the reader (user) can start to read the page while js files are being loaded

```html
<!-- some Bootstrap components need popper.js library -->
<script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.6.0/dist/umd/popper.min.js"
    integrity="sha384-KsvD1yqQ1/1+IA7gi3P0tyJcT3vR+NdBTt13hSJ2lnve8agRGXTTyNaBYmCR/Nwi"
    crossorigin="anonymous"></script>
<!-- Bootstrap JavaScript -->
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-beta2/dist/js/bootstrap.min.js"
    integrity="sha384-nsg8ua9HAw1y0W1btsyWgBklPnCUAFLuTMS2G72MMONqmOymq585AcH49TLBQObG"
    crossorigin="anonymous"></script>


<!-- jQuery library -->
<script src="https://cdn.jsdelivr.net/npm/jquery@3.6.0/dist/jquery.min.js"
    integrity="sha256-/xUj+3OJU5yExlq6GSYGSHk7tPXikynS7ogEvDej/m4="
    crossorigin="anonymous"></script>


<!-- You may need also your own JavaScript code -->
<script src="js/mycode.js"></script>
```

Bootstrap js libraries

jQuery library

own JavaScript file is the last one

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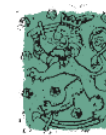ministeriö

jQuery and html

- in the html page there is ONLY html code with needed attributes and their values

- in the html page there is NO function calls

plain JS: the onclick function call in html page

```
<section>
    <h2>V1: Going in</h2>
    <label for="year">Birth year:</label><input type="number" id="year" />
    <button onclick="v01()">Going in</button>
    <p id="allow"> </p>
</section>
```

with jQuery: the button has an id but no function call

```
<section>
    <h2>V1: Going in</h2>
    <label for="year">Birth year:</label><input type="number" id="year" />
    <button id="going_in">Going in</button>
    <p id="allow"> </p>
</section>
```

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jQuery document ready

- jQuery code will be run after the whole page is loaded

```
// the JS file will start with this code

$(document).ready(function(){
    // all jQuery code will be written here

    // all JavaScript code will be written here
});
```

```
$(document).ready(function(){
    // all jQuery code will be written here

    // all JavaScript code will be written here
});
```

Event driven programming

- In this type of programming, flow of execution is determined by the events like user clicks or other events in the program.

- Examples of events
  - User clicks a button, selects radio button, selects check box (click event)
  - User makes the focus to an input element; the focus is made via programming (focusin event)
  - A keyboard key is pressed (keydown event)
  - A mouse pointer is over the element (mousemove event)

Events in an element with jQuery

element selection   **event**

```
$("#going_in").click(function(){

});
```

what to do

Note the parenthesis and semicolon.

an other way to write the event

```
$("#going_in").on("click", function(){

});
```

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Selection of html elements

- The selection uses the css syntax.

- $ sign makes the selected element as a jQuery element.

```
$("div")   // selects all HTML div elements
$("#myElement")   // selects one HTML element with ID "myElement"
$(".myClass")   // selects HTML elements with class "myClass"
$("p#myElement")   // selects HTML paragraph element with ID "myElementEnt"
$("ul li a.navigation")
// selects anchors with class "navigation" that are nested in list items
```

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JS vs jQuery

```javascript
// read data
let year = document.getElementById("year").value;
let year = Number(document.getElementById("year").value);

// set data
document.getElementById("year").value = "";

// print output
document.getElementById("allow").innerHTML = "welcome!";

// clear output
document.getElementById("allow").innerHTML = "";

// print after existing data
document.getElementById("result").innerHTML += number + " ";

// move focus to input element
document.getElementById("year").focus();
```

```javascript
// read data
let year = $("#year").val();
let year = Number($("#year").val());

// set data
$("#year").val("");

// print output
$("#allow").html("welcome!");

// clear output
$("#allow").html("");

// print after existing data
$("#result").append(number + " ");

// move focus to input element
$("#year").focus();
```

jQuery: $(select_element).what_to_do();

JS vs. jQuery

- variable definition: with let keyword like JS

- mathematics: like JS

- if, while, for: like JS

- function definitions, e.g. getRndInteger: like JS

- **jQuery is to handle elements in the html page.**

- **There are functions for different purposes.**
    - https://api.jquery.com/

Examples

```javascript
$(document).ready(function(){

    $("#going_in").click(function(){     // click event
        let date = new Date();
        let current_year = date.getFullYear();

        let year = Number($("#year").val()); // read data and make numeric

        let age = current_year - year;

        if (age < 18) {
            $("#allow").html("too young");   // print output
        } else {
            $("#allow").html("Welcome!");    // print output
        }
    });

    $("#year").focusin(function(){   // element gets focus
        $("#year").select();             // select all data in element
        $("#allow").html("");            // clear output
    });

});
```
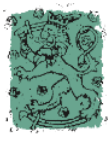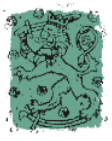
jQuery functions for different purposes

- `$(elem).val();` to read the value attribute content
- `$(elem).val("content");` to set the content to the value attribute of the element
- `$(elem).html();` to read the html element content
- `$(elem).html("content");` to write content to the html element
- `$(elem).append("content");` to write content to the html element after current content
- `$(elem).prepend("content");` to write content to the html element before current content
- `$(elem).focus();` to set focus – e.g. cursor – to some element
- `$(elem).select();` to select all content in the input element

jQuery functions for different purposes

- `$(elem).hasClass("class_name");` is there a specific value in the class attribute

- `$(elem).addClass("class_name");` to insert value to the element's class attribute

- `$(elem).removeClass("class_name");` to remove value from the element's class attribute

- `$(elem).attr("attribute");` to read element's specific attribute content

- `$(elem).attr("attribute", "content");` to set content to the attribute

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jQuery functions for different purposes

- to read the value attribute content of the selected radio button
  - `$("input[name=XXX]:checked").val()`, XXX = name attribute content of the radio button element

- to check whether a check box is selected
  - `$(elem).prop("checked");` >> returns true when selected, false if not

- to set radio button or check box selected
  - `$(elem).prop("checked", true);`