

# jQuery

jQuery Library, Selectors, DOM Manipulation, Events, Plugins



SoftUni Team  
Technical Trainers



Software University

<http://softuni.bg>

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# Have a Question?

sli.do

**#JS-CORE**

# What is jQuery?

## Cross-browser JavaScript library

- Dramatically simplifies **DOM manipulation**
- Simplifies **AJAX calls** and working with RESTful services
- Free, open-source software: <https://jquery.com>

```
<script src="https://code.jquery.com/jquery-3.1.1.min.js"></script>
```

Load **jQuery** from its official CDN

```
$('.li').css('background', '#DDD');
```

Change the CSS for all **<li>** tags

# Why jQuery?

- Very popular
  - 66,179,046 live websites use jQuery
- Easy to learn
- Large community
- Cross-browser support
- Official web site: <http://jquery.com>



```
<script src="https://code.jquery.com/jquery-3.1.1.min.js" integrity="sha256-hVVnYaiADRT02PzUGmuLJr8BLUSjGIZsDYGmIJLv2b8="crossorigin="anonymous"></script>
```

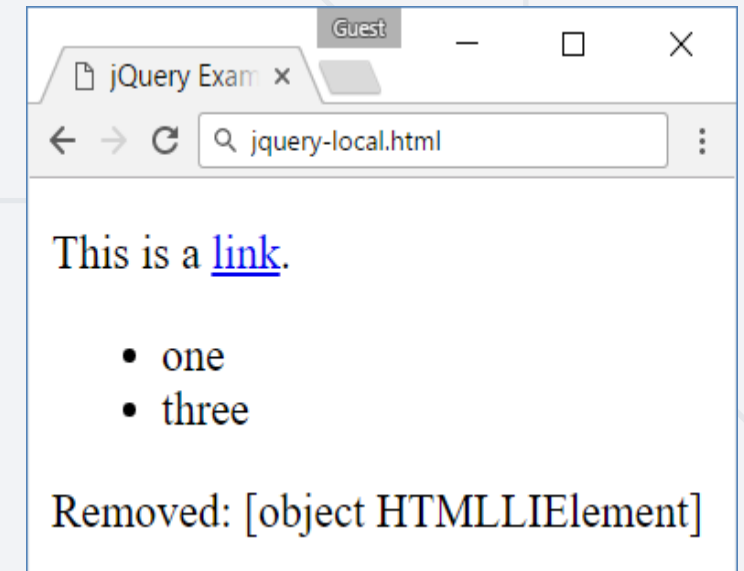
```
$(function() {  
    $("a").on('click', (event) => {  
        alert("Link forbidden!");  
        event.preventDefault();  
    });  
});
```

# Using jQuery from Local Script

```
<script src="jquery-3.1.1.min.js"></script>
```

```
<p>This is a <a href="https://softuni.bg">link</a>.  
</p><ul><li>one</li><li>two</li><li>three</li></ul>
```

```
$(function() {  
    $("body *").on('click', function(event) {  
        $(this).fadeOut();  
        $(document.body).append(  
            'Removed: ' + $(this).text() + '<br>');  
        event.preventDefault();  
        event.stopPropagation();  
    });  
});
```



- jQuery selectors return a collection matched items

```
$('#div') // document.getElementsByTagName('div');  
$('.menu-item') // document.getElementsByClassName('.menu-item');  
$('#navigation') // document.getElementById('navigation');  
$('ul.menu li') // document.querySelectorAll('ul.menu li');
```

- Selected elements can be processed as a group

```
$('#div').css('background', 'blue'); // Make all DIVs blue
```



jQuery selection is the same as the **querySelector** in Vanilla JS

- All selector

```
$('*') // Selects all elements
```

- Class selector

```
$('.class') // Select by class name
```

- Element selector

```
$('section') // Select by tag name
```

- Id selector

```
$('#id') // Selects a element by given id
```

- Multi-selector

```
$('selector1, selector2') // Combined
```

# Filter Selectors in jQuery

```
$('li:even') // Even <li>
```

```
$('li:odd') // Odd <li>
```

```
$('li:first') // First <li>
```

```
$('li:last') // Last <li>
```

```
$('li:first-child') // Selects the first child of <li>
```

```
$('li:has(p)') // Selects all <li> holding <p> inside
```

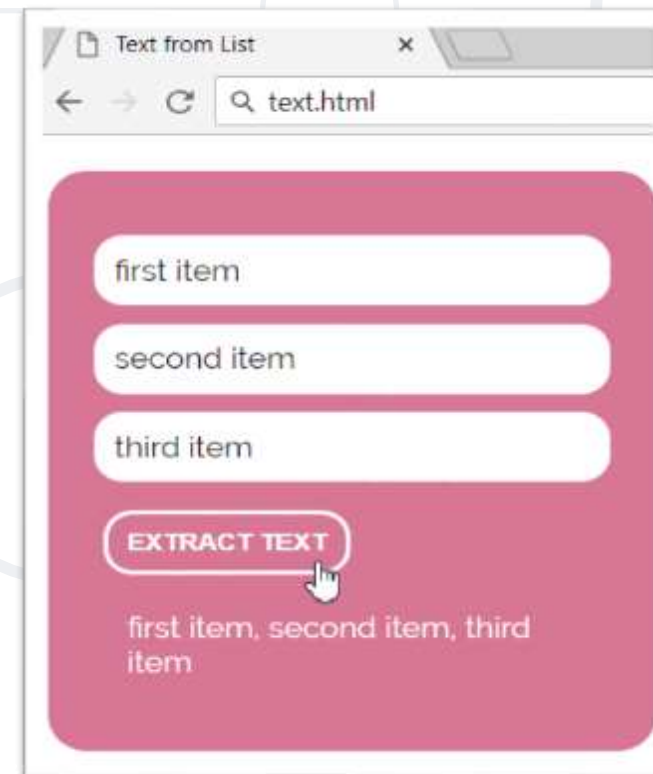
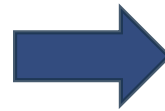
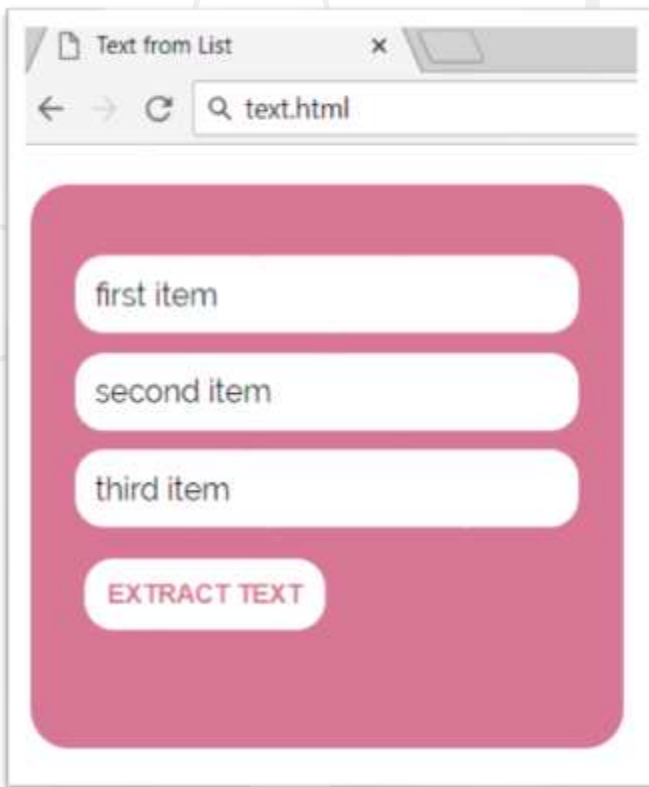
```
$('li:contains("Sofia")') // Selects <li> holding given text
```

```
$('li:eq(2)') // Selects the third <li> element
```

```
$('li:not(:checked)') // Elements not matching the selector
```

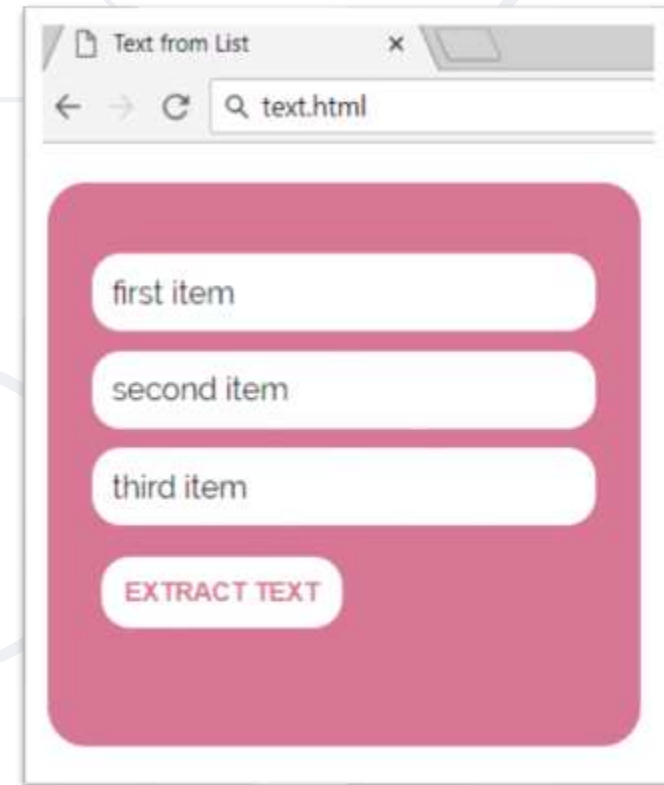
# Problem: Text from List

- An HTML page holds a list of text items + **[Extract Text]** button
- Write a JS function to display **all list items**, separated by ","



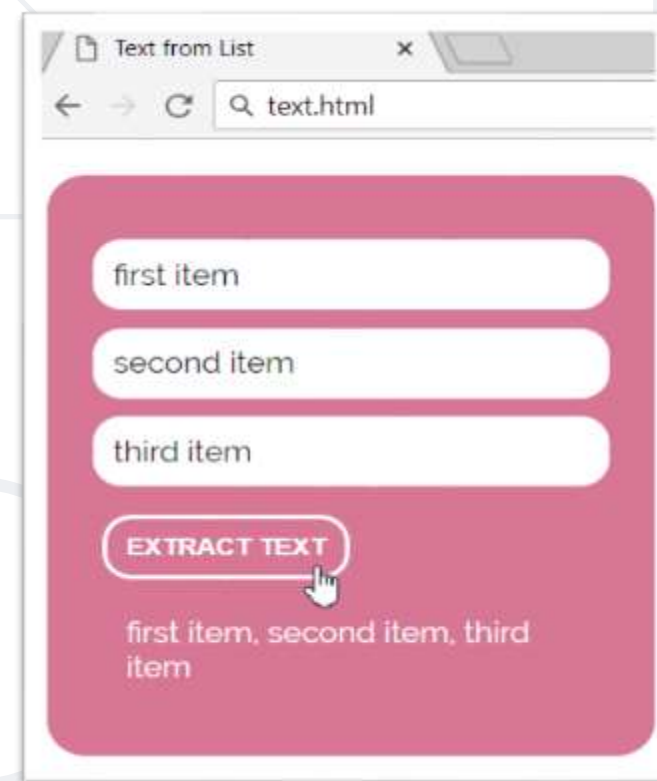
# Problem: Text from List – HTML

```
<article>
  <ul id="items">
    <li>first item</li>
    <li>second item</li>
    <li>third item</li>
  </ul>
  <button onclick="extractText()">
    Extract Text
  </button>
  <div id="result"></div>
</article>
```



# Solution: Text from List

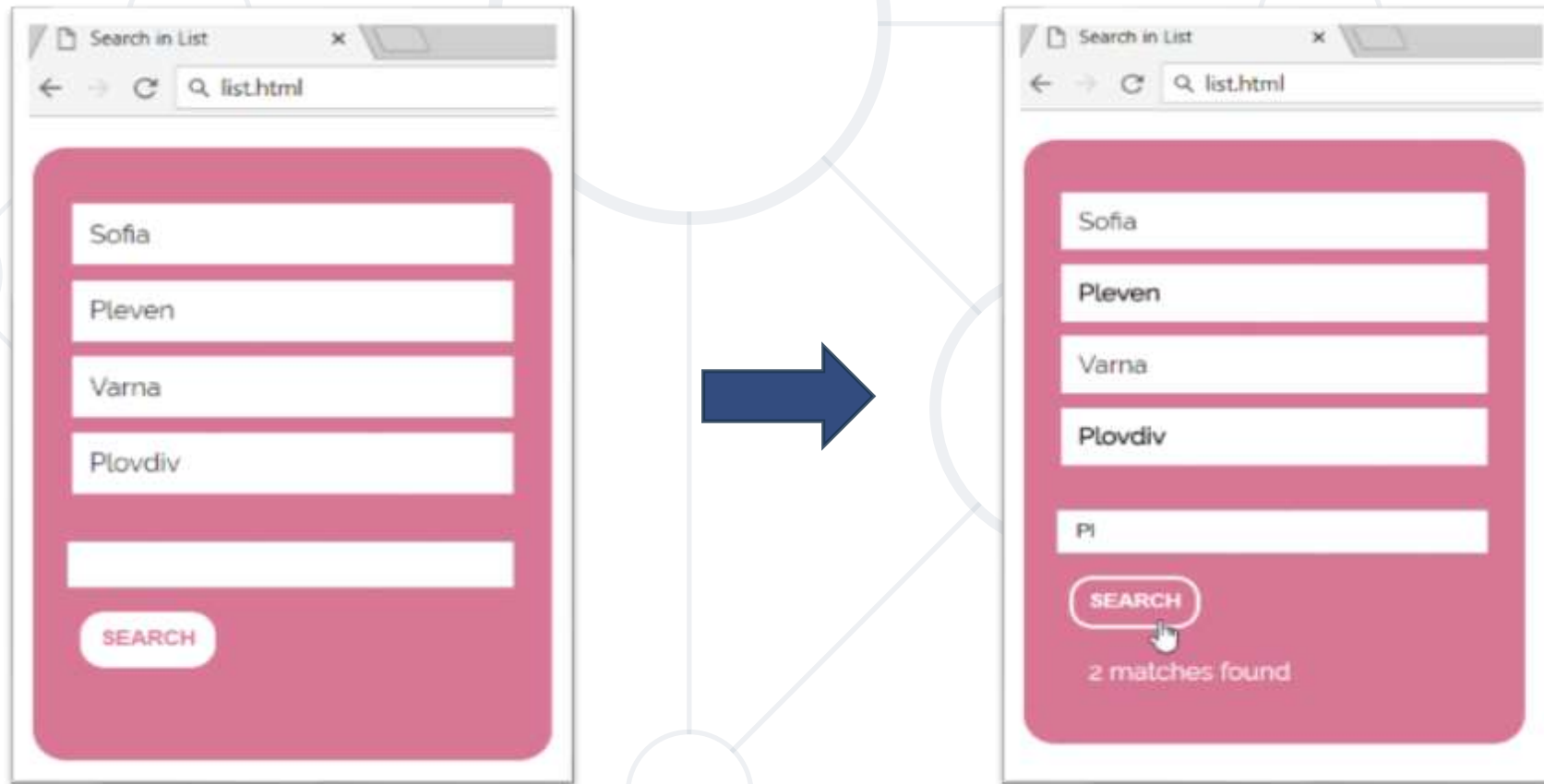
```
function extractText() {  
  let items = $("ul#items li")  
    .toArray()  
    .map(li => li.textContent)  
    .join(", ");  
  $("#result").text(items);  
}
```



Check your solution here: <https://judge.softuni.bg/Contests/1547>

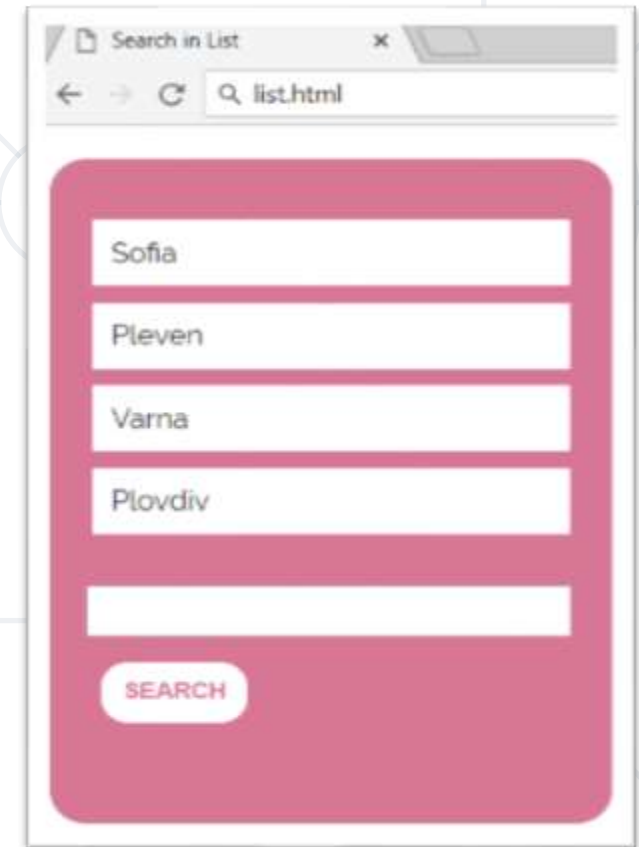
# Problem: Search in List

- A HTML page holds a list of towns + search box + [Search] button
- Write a JS function to highlight all towns holding the search text



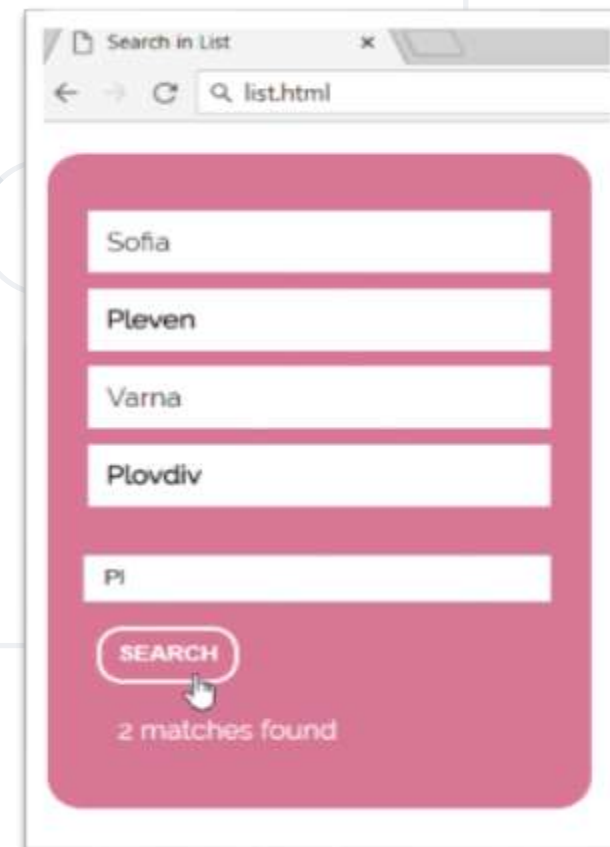
# Problem: Search in List – HTML

```
<article>
  <ul id="towns">
    <li>Sofia</li>
    <li>Pleven</li>
    <li>Varna</li>
    <li>Plovdiv</li>
  </ul>
  <input type="text" id="searchText" />
  <button onclick="search()">Search</button>
  <div id="result"></div>
</article>
```



# Solution: Search in List

```
function search() {  
  let searchText = $('#searchText').val();  
  let matchedElements =  
    $('#towns li:contains('${searchText}')');  
  $('#towns li').css('font-weight', '');  
  matchedElements.css('font-weight', 'bold');  
  $('#result').text(matchedElements.length +  
    ' matches found.');
```



Check your solution here: <https://judge.softuni.bg/Contests/1547>





# **Adding and Removing DOM Elements**

## **Altering the DOM with jQuery**

# Adding Elements with jQuery

Select the parent element, then use:

- **append() / prepend()**
- **appendTo() / prependTo()**

```
<div id="wrapper">  
  <div>Hello, student!</div>  
  <div>Goodbye, student!</div>  
</div>
```

```
<h1>Greetings</h1>  
▼ <div id="wrapper">  
  ▼ <div>  
    "Hello, student!"  
    <p>It's party time :)</p>  
  </div>  
  ▼ <div>  
    "Goodbye, student!"  
    <p>It's party time :)</p>  
  </div>  
</div>
```

```
$('#wrapper div').append("<p>It's party time :)</p>");
```

```
$('<h1>Greetings</h1>').prependTo('body');
```

# Creating / Removing Elements

```
let div = $('<div>');  
div.text('I am a new div.');
```

div.css('background', 'blue');

div.css('color', 'white');

```
$(document.body).append(div);
```

```
let paragraph = $('<p>Some text</p>');  
paragraph.appendTo(div);
```

```
$('div').remove();
```

# Problem: Countries Table

You are given a HTML table holding countries with their capital

- Implement **add** / **delete** / **move up** / **move down** actions for the table rows
- Initially add these countries:
  - Bulgaria / Sofia
  - Germany / Berlin
  - Russia / Moscow

Country	Capital	Action
<input type="text" value="Poland"/>	<input type="text" value="Warsaw"/>	[Create]
Bulgaria	Sofia	[Down] [Delete]
Germany	Berlin	[Up] [Down] [Delete]
Russia	Moscow	[Up] [Delete]

# Problem: Countries Table – HTML

```
<table id="countriesTable">
  <tr><th>Country</th><th>Capital</th><th>Action</th></tr>
  <tr><td><input type="text" id="newCountryText" /></td>
    <td><input type="text" id="newCapitalText" /></td>
    <td><a href="#" id="createLink">[Create]</a></td>
  </tr>
</table>
<script>$(() => initializeTable())</script>
```

# Solution: Countries Table – Initialize Table

```
function initializeTable() {  
    $("#createLink").on('click', createCountry);  
    addCountryToTable("Bulgaria", "Sofia");  
    addCountryToTable("Germany", "Berlin");  
    addCountryToTable("Russia", "Moscow");  
    fixRowLinks();  
  
    // Functions addCountryToTable(country, capital),  
    createCountry(), moveRowUp(), moveRowDown(), deleteRow(),  
    fixRowLinks() come here ...  
}
```

# Solution: Countries Table – Create Country

```
function createCountry() {  
  let country = $('#newCountryText').val();  
  let capital = $('#newCapitalText').val();  
  addCountryToTable(country, capital, true);  
  $('#newCountryText').val('');  
  $('#newCapitalText').val('');  
  fixRowLinks();  
}
```

# Solution: Countries Table – Add Country Row

```
function addCountryToTable(country, capital) {  
  let row = $('<tr>')  
    .append($("<td>").text(country))  
    .append($("<td>").text(capital))  
    .append($("<td>")  
      .append($("<a href='#>[Up]</a>").on('click', moveRowUp))  
      .append($("<a href='#>[Down]</a>").on('click', moveRowDown))  
      .append($("<a href='#>[Delete]</a>").on('click', deleteRow)));  
  row.css('display', 'none');  
  $("#countriesTable").append(row);  
  row.fadeIn();  
}
```



# Solution: Countries Table – Row Up

```
function moveRowUp() {  
  let row = $(this).parent().parent();  
  row.fadeOut(function() {  
    row.insertBefore(row.prev());  
    row.fadeIn();  
    fixRowLinks();  
  });  
}
```

# Solution: Countries Table – Row Down

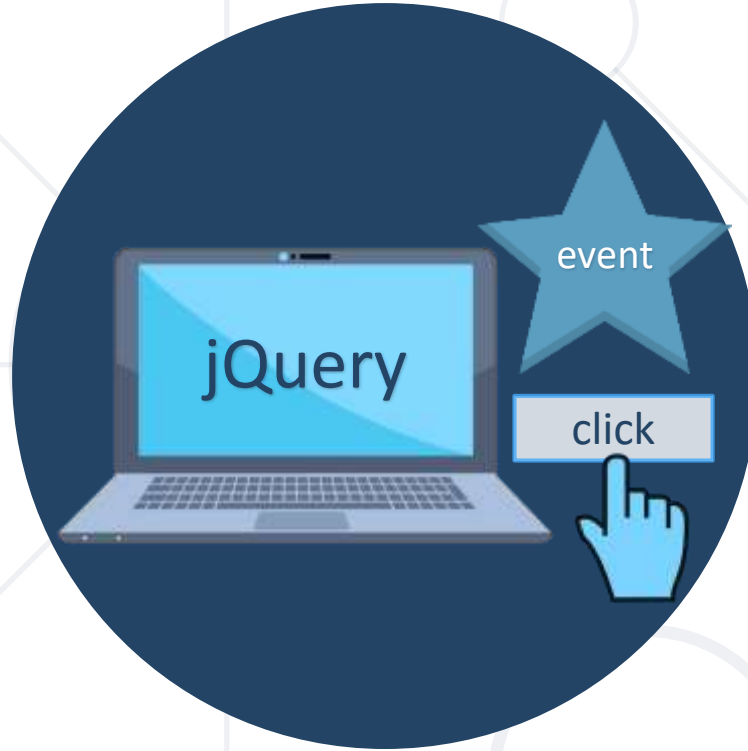
```
function moveRowDown() {  
  let row = $(this).parent().parent();  
  row.fadeOut(function() {  
    row.insertAfter(row.next());  
    row.fadeIn();  
    fixRowLinks();  
  });  
}
```

# Solution: Countries Table – Delete Row

```
function deleteRow() {  
  let row = $(this).parent().parent();  
  row.fadeOut(function() {  
    row.remove();  
    fixRowLinks();  
  });  
}
```

# Solution: Countries Table – Fix Row Links

```
function fixRowLinks() {  
    // Show all links in the table  
    $('#countriesTable a').css('display', 'inline');  
  
    // Hide [Up] link in first table data row  
    let tableRows = $('#countriesTable tr');  
    $(tableRows[2]).find("a:contains('Up')")  
        .css('display', 'none');  
  
    // Hide the [Down] link in the last table row  
    $(tableRows[tableRows.length - 1]).find("a:contains('Down')")  
        .css('display', 'none');  
}
```



# Handling Events

## jQuery Events

- Attaching events on certain elements

```
$('#a.button').on('click', buttonClicked);  
function buttonClicked() {  
    $('#.selected').removeClass('selected');  
    $(this).addClass('selected');  
    // "this" is the event source (the hyperlink clicked)  
}
```

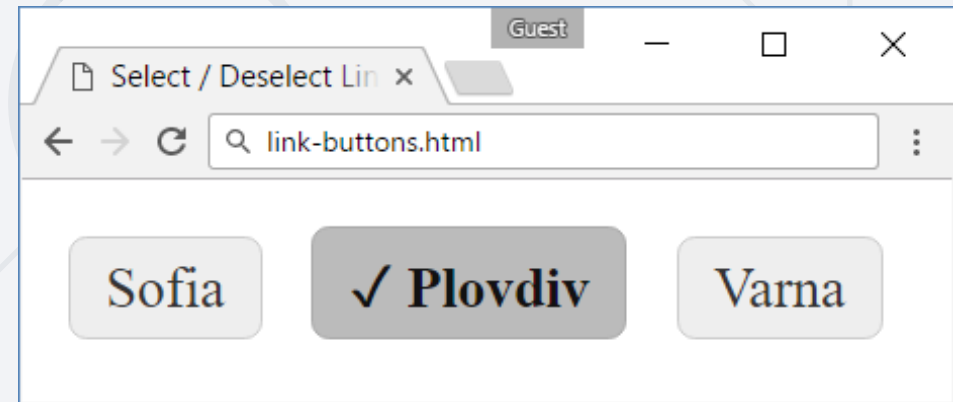
- Removing event handler from certain elements

```
$('#a.button').off('click', buttonClicked);
```

# Problem: Link Buttons – HTML

## link-buttons.html

```
<head>
  <link rel="stylesheet" href="link-buttons.css" />
  <script src="jquery-3.1.1.min.js"></script>
  <script src="link-buttons.js"></script>
</head>
<body onload="attachEvents()">
  <a class="button">Sofia</a>
  <a class="button">Plovdiv</a>
  <a class="button">Varna</a>
</body>
```



# Problem: Link Buttons – CSS

## link-buttons.css

```
a.button {  
  border: 1px solid #CCC;  
  background: #EEE;  
  padding: 5px 10px;  
  border-radius: 5px;  
  color: #333;  
  text-decoration: none;  
  display: inline-block;  
  margin: 5px;  
}
```

```
a.button.selected {  
  color: #111;  
  font-weight: bold;  
  border: 1px solid #AAA;  
  background: #BBB;  
}  
a.button.selected::before {  
  content: "\2713\20\20";  
}  
a:hover {cursor: pointer;}
```



# Solution: Link Buttons – JavaScript

link-buttons.js

```
function attachEvents() {  
    $('a.button').on('click', buttonClicked);  
    function buttonClicked() {  
        $('.selected').removeClass('selected');  
        $(this).addClass('selected');  
        // "this" is the event source (the hyperlink clicked)  
    }  
}
```

Check your solution here: <https://judge.softuni.bg/Contests/1547>

- Handling events on multiple elements
  - Add a handler on the parent element

```
function onListItemClick() {  
    $('.selected').removeClass('selected');  
    $(this).addClass('selected');  
}  
  
$('ul').on('click', 'li', onListItemClick);
```

# Problem: Selectable Towns

- An HTML page listing towns
  - Clicking on a town should **select / deselect** it
  - A button shows all selected towns



```
<ul id="items"><li>Sofia</li><li>Varna</li>...</ul>  
<button id="showTownsButton">Show Towns</button>  
<div id="selectedTowns"></div>  
<script>$(( )=>attachEvents())</script>
```

# Solution: Selectable Towns – Click Towns

```
function attachEvents() {  
    $('#items').on('click', 'li', function() {  
        let li = $(this);  
        if (li.attr('data-selected')) {  
            li.removeAttr('data-selected');  
            li.css('background', '');  
        } else {  
            li.attr('data-selected', 'true');  
            li.css('background', '#DDD');  
        }  
    });  
});
```

Attach attribute  
'data-selected' = 'true'  
to each selected <li>

# Solution: Selectable Towns – Show Towns

```
$('#showTownsButton').on('click', function() {  
    let selLi = $('#items li[data-selected=true]');  
    let towns = selLi.toArray()  
        .map(li => li.textContent).join(', ');  
    $('#selectedTowns')  
        .text("Selected towns: " + towns);  
});  
}
```

Check your solution here: <https://judge.softuni.bg/Contests/1547>



**jQuery Plugins**

- jQuery has many ready-to-use plugins

- Plugins for UI

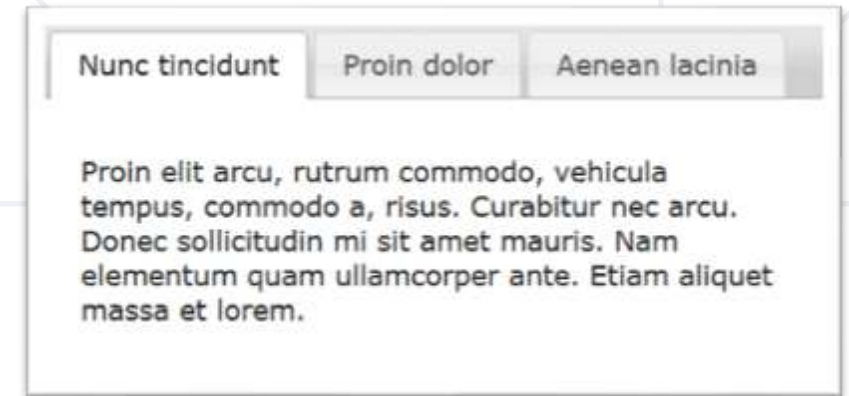
- Tabs - <https://jqueryui.com/tabs/>

```
$('#tabs-holder').tabs();
```

- Arrangeable elements (with drag and drop)

- <https://jqueryui.com/sortable/#display-grid>

```
$('#grid').sortable();
```

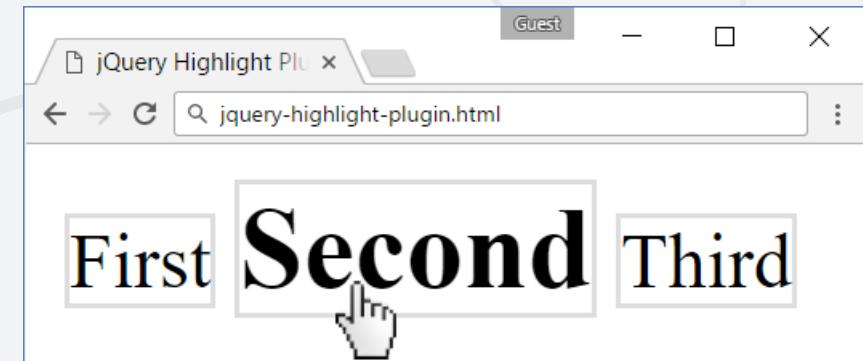


```
(function($) {  
    $.fn.highlight = function(className) {  
        $(this).on("mouseover", function() {  
            $(this).addClass(className);  
        });  
        $(this).on("mouseout", function() {  
            $(this).removeClass(className);  
        });  
    }  
})(jQuery));  
$(".item").highlight('big');
```



# Using the Highlight jQuery Plugin

```
<style>
  .item { border: 1px solid #DDD }
  .big { font-size: 1.5em; font-weight: bold; }
</style>
<span class="item">First</span>
<span class="item">Second</span>
<span class="item">Third</span>
<script>$(".item").highlight('big');
</script>
```





# **Live Exercises in Class (Lab)**

## **Practice: Using jQuery**

- jQuery is very powerful on DOM manipulation
  - Very popular library, run over 66 179 046 sites
- Select + edit DOM elements:

```
$('#p.red').css('background', 'blue');
```

- Create elements:

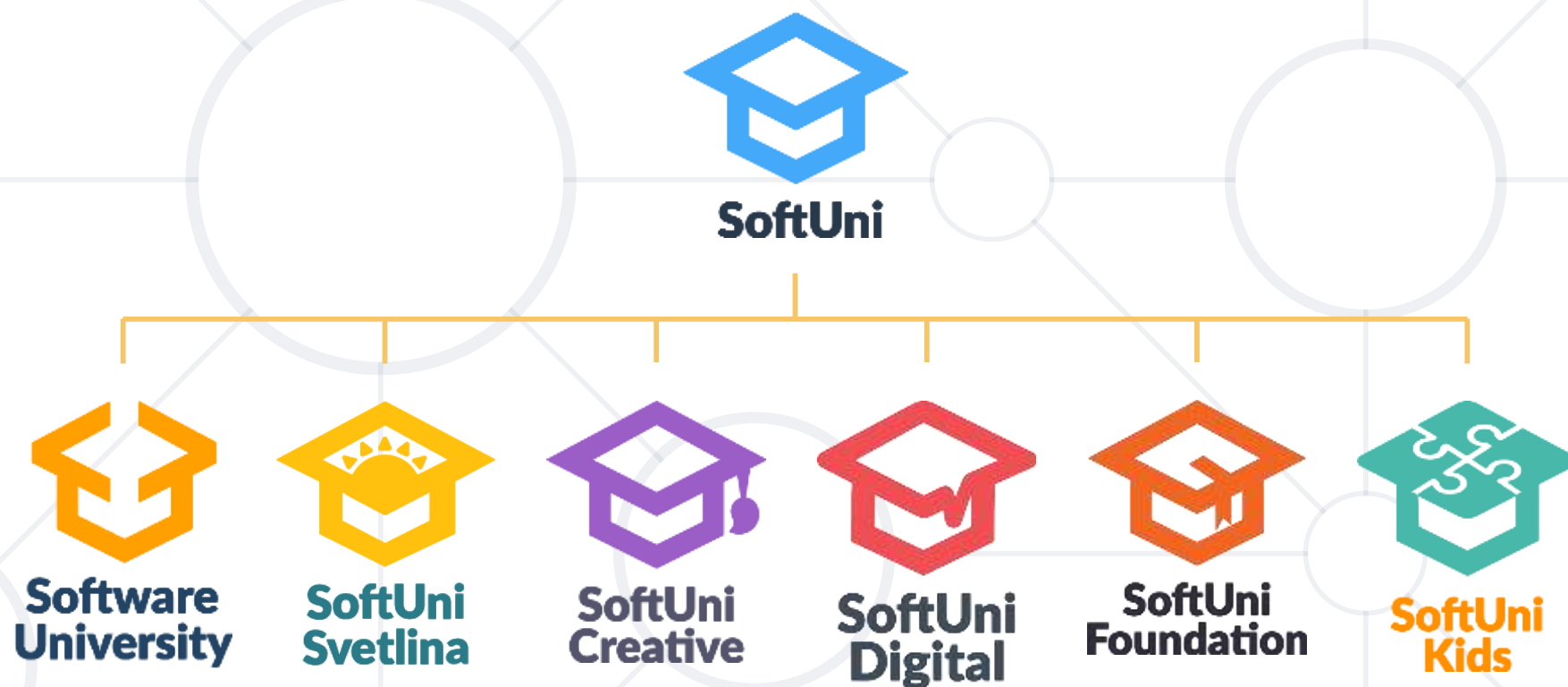
```
$('<h1>Hello</h1>').appendTo('body');
```

- Handle events:

```
$('#items').click(function() { ... });
```



# Questions?



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  - <http://softuni.foundation/>
- Software University @ Facebook
  - [facebook.com/SoftwareUniversity](https://facebook.com/SoftwareUniversity)
- Software University Forums
  - [forum.softuni.bg](http://forum.softuni.bg)





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