

jQuery Library

jQuery Library, Selectors, DOM Manipulation, Events, Plugins



SoftUni Team
Technical Trainers



Software University

<http://softuni.bg>

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sli.do

#JSCORE

What is jQuery?

- jQuery is a 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 tags

Why jQuery?

- Very popular
 - 83 547 613 live sites use jQuery (73.3% of all websites)
 - <http://trends.builtwith.com/javascript/jQuery>
- Easy to learn
- Large community
- Cross-browser support
- Official web site: <http://jquery.com>

Using jQuery from CDN

```
<script src="https://code.jquery.com/jquery-3.1.1.min.js" integrity="sha256-hVVnYaiADRTO2PzUGmuLJr8BLUSjGIZsDYGmIJLv2b8="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

Even if there is only one item

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

<http://learn.jquery.com/using-jquery-core/selecting-elements/>

Selected elements can be processed as a group

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


- DOM elements selection in jQuery is much like as in JavaScript

- All selector

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

- Class selector

```
$('.class') // Selects all elements by class  
name
```

- Element selector

```
$('section') // Selects all elements by tag  
name
```

- Id selector

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

- Multi-selector

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

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
```

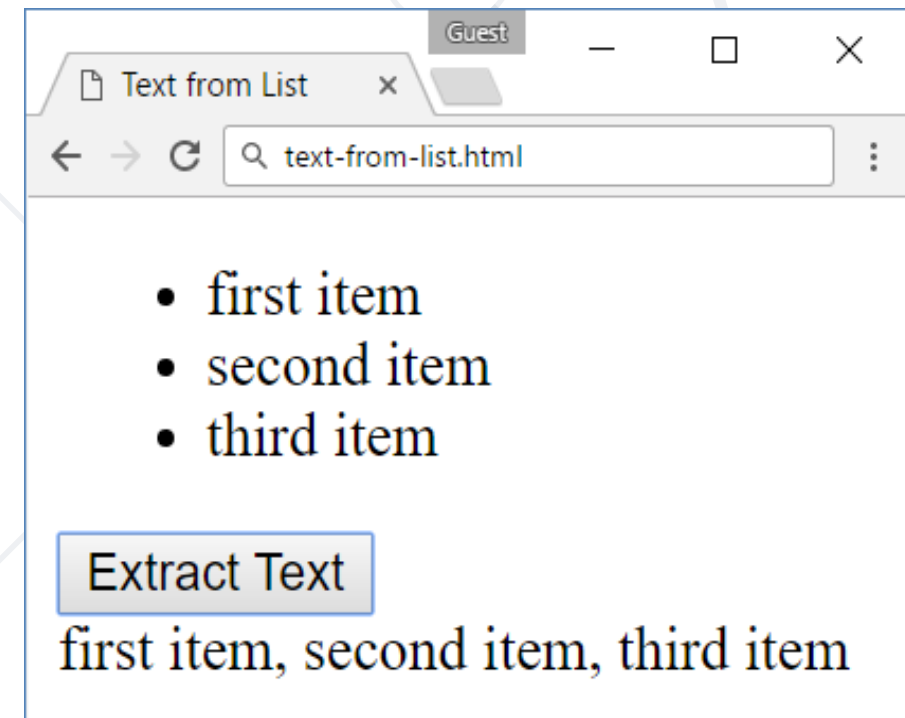
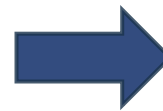
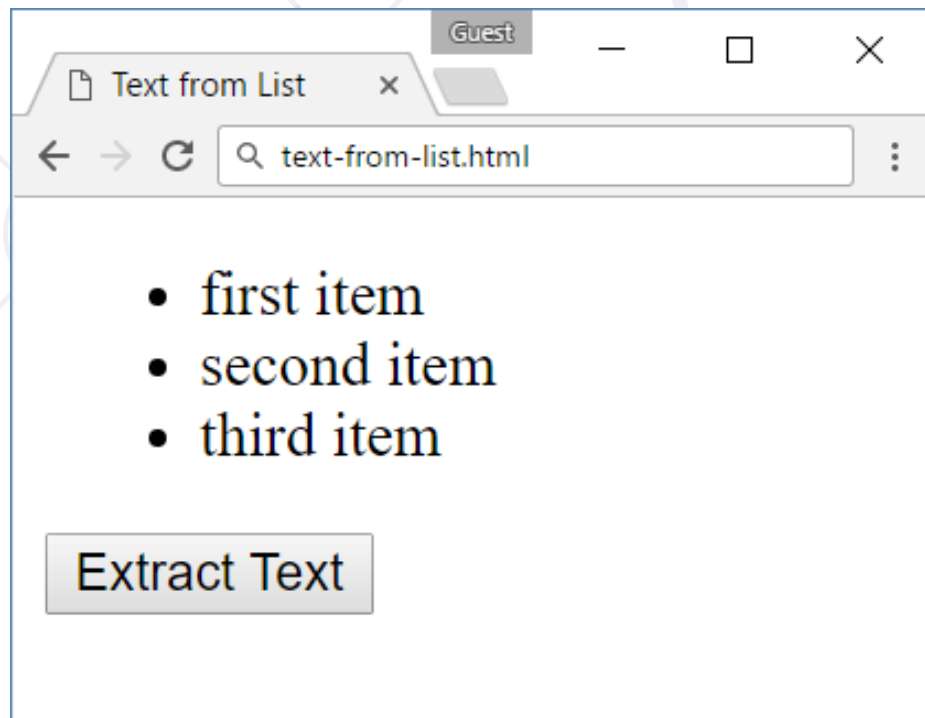
```
$('li:contains("Sofia")') // Selects <li> holding given text
```

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

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

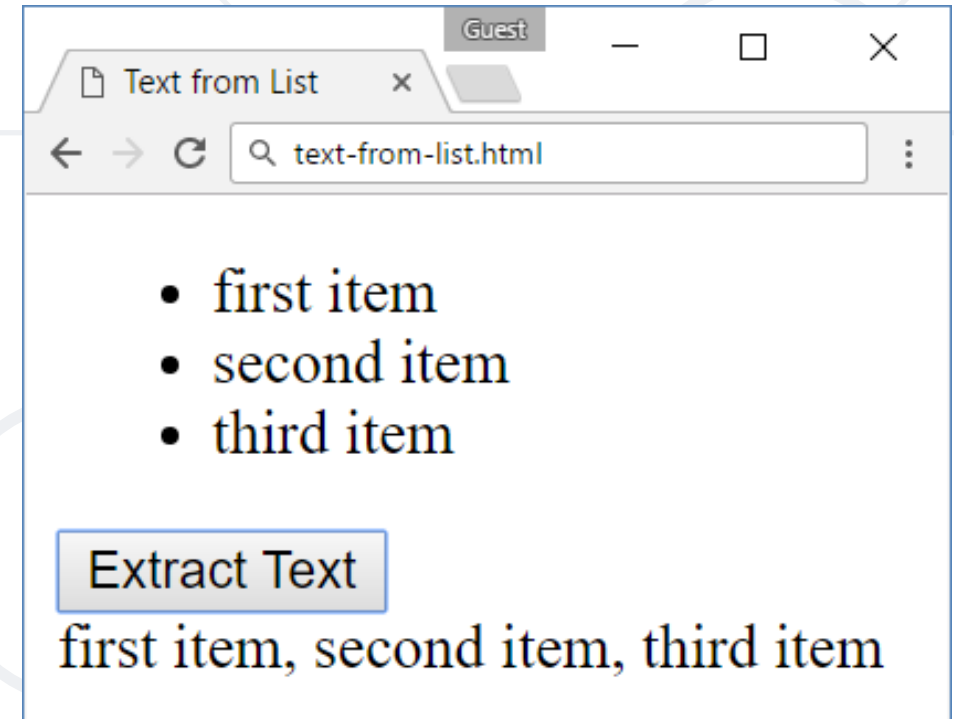
Problem: Text from List

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



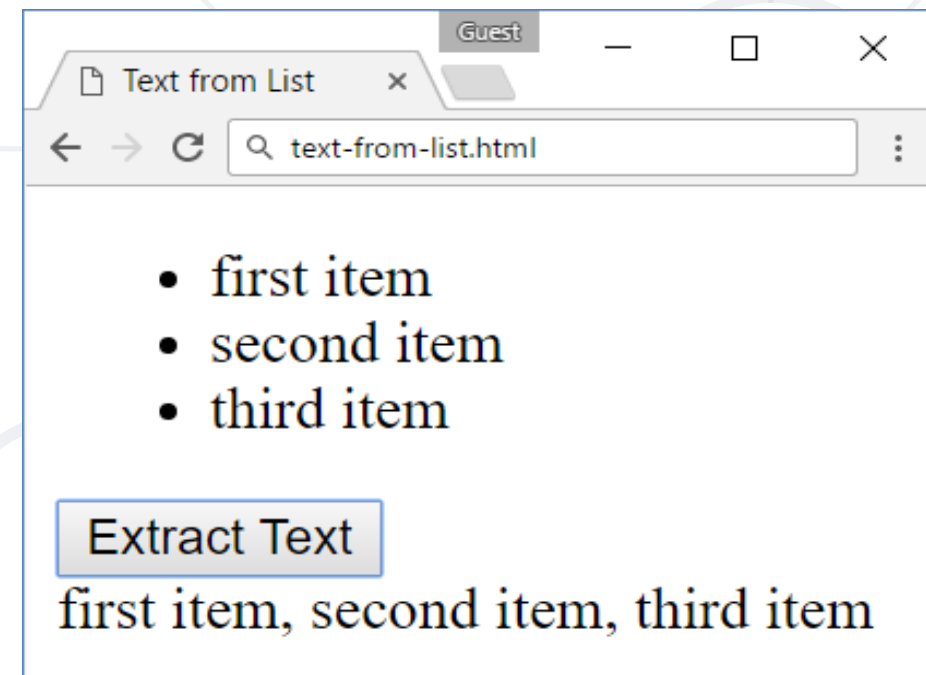
Problem: Text from List – HTML

```
<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>
```



Solution: Text from List

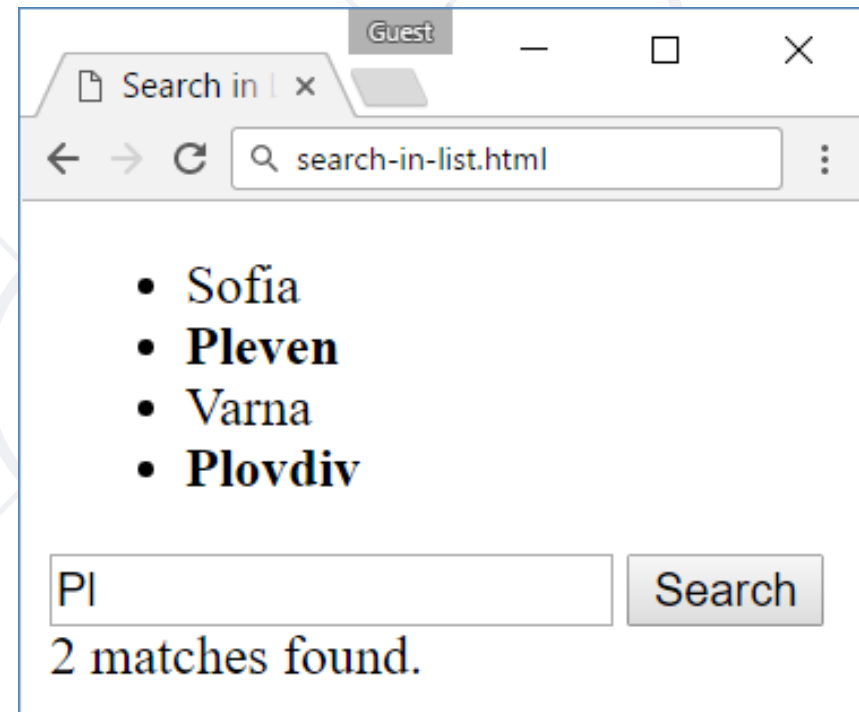
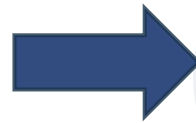
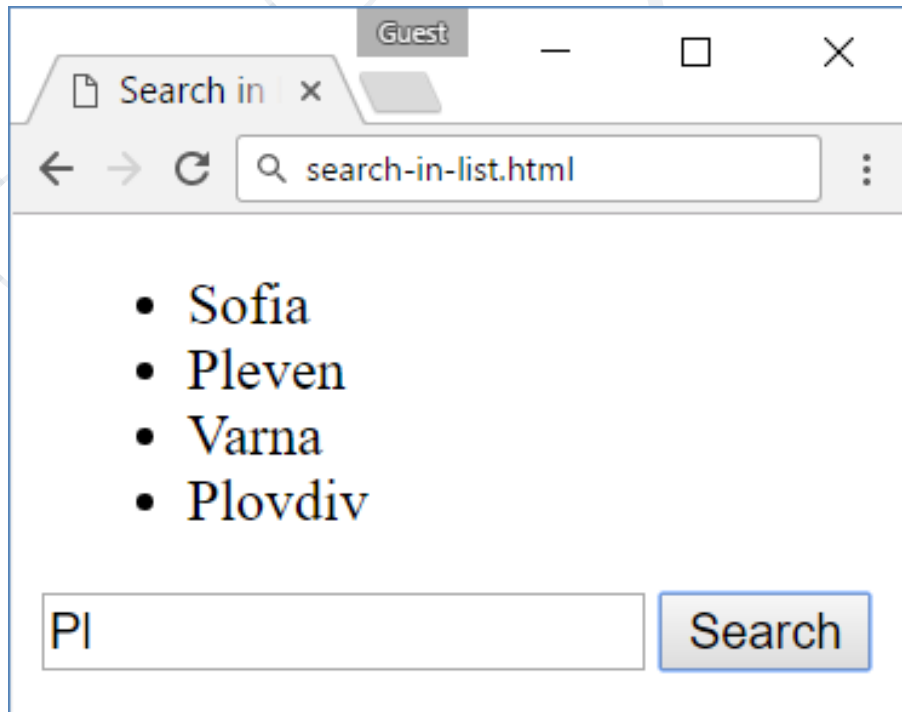
```
function extractText() {  
  let items = $("ul#items li")  
    .toArray()  
    .map(li => li.textContent)  
    .join(", ");  
  $("#result").text(items);  
}
```



Check your solution here: <https://judge.softuni.bg/Contests/329>

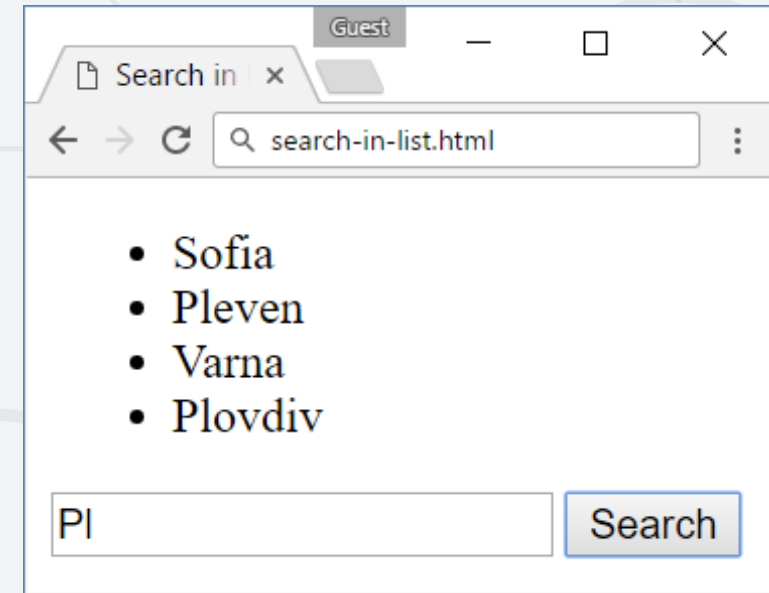
Problem: Search in List

- 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

```
<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>
```



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/329>



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>
```

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

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

```
<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>
```

Creating / Removing Elements

```
let div = $('

');  
div.text('I am a new div.');


```

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

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

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

```
let paragraph = $('

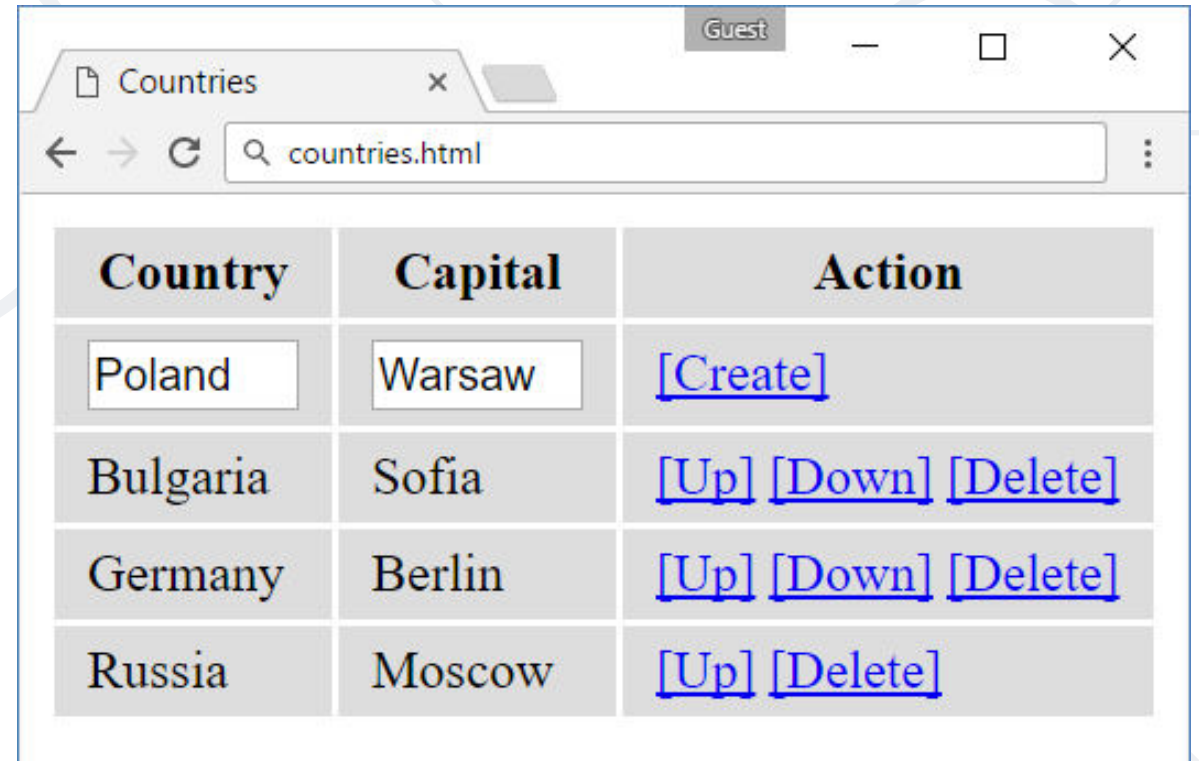
paragraph.appendTo(div);


```

```
$('#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
Poland	Warsaw	[Create]
Bulgaria	Sofia	[Up] [Down] [Delete]
Germany	Berlin	[Up] [Down] [Delete]
Russia	Moscow	[Up] [Delete]

Problem: Countries Table – HTML

```
<style>
  td, th { background: #DDD; padding: 5px 10px }
  input[type='text'] { width: 60px }
  a { margin-left: 5px }
</style>
<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

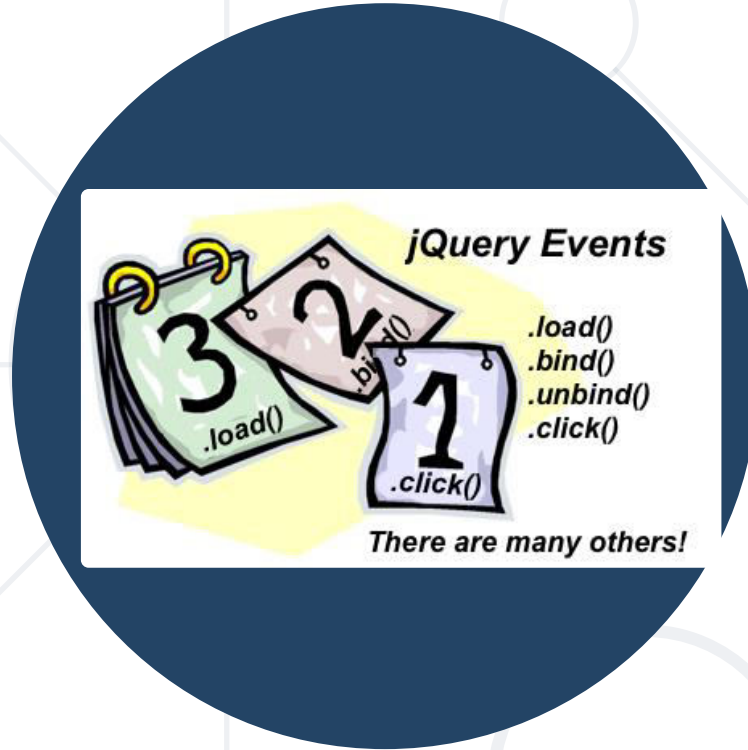
```
function moveRowDown() {  
  let row = $(this).parent().parent();  
  row.fadeOut(function() {  
    row.insertAfter(row.next());  
    row.fadeIn();  
    fixRowLinks();  
  });  
}
```

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 with Ease

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)  
}
```

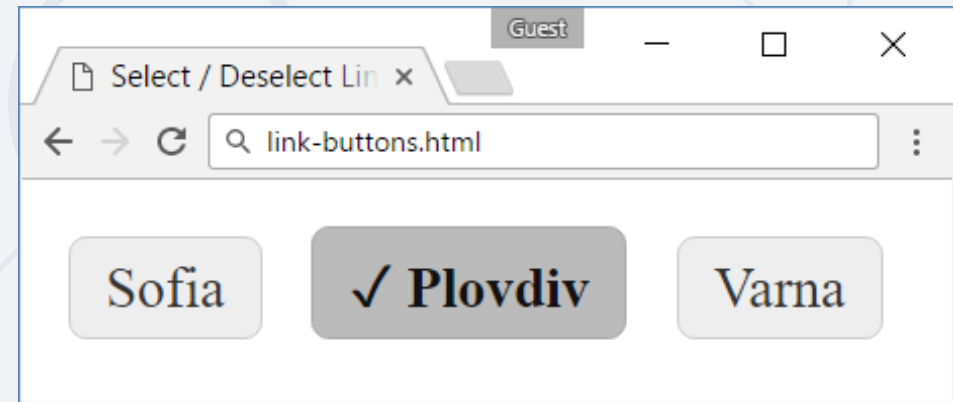
- Removing event handler from certain elements

```
$('#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)  
    }  
}
```

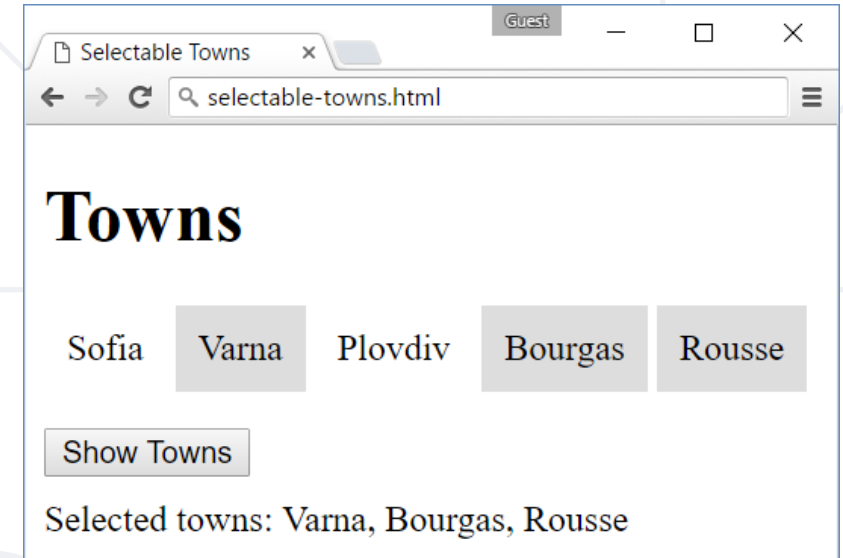
Check your solution here: <https://judge.softuni.bg/Contests/329>

- 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



```
<style>li { display: inline-block }</style>
<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

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/329>



jQuery Plugins

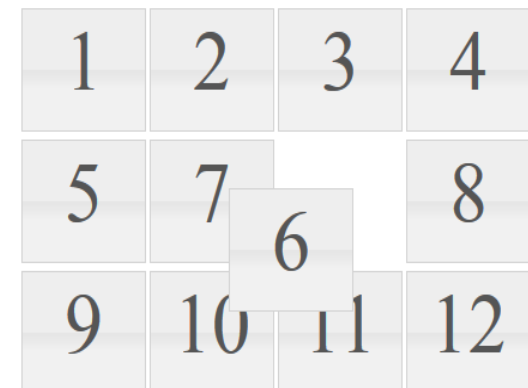
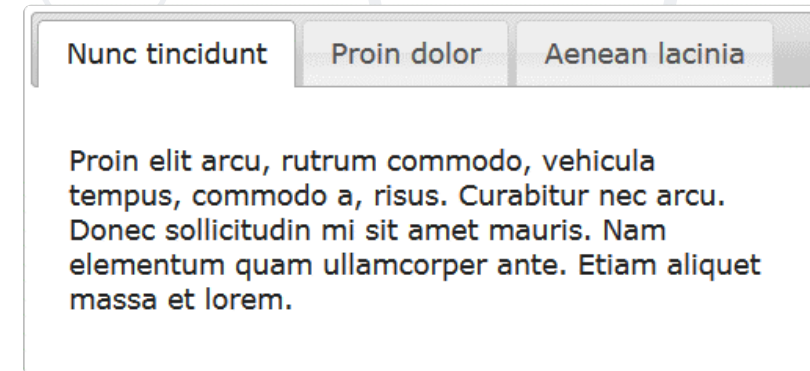
- jQuery has many ready-to-use plugins
 - E.g. the jQueryUI library for UI controls
- Plugins for UI

- Tabs – <https://jqueryui.com/tabs/>

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

- Arrangeable elements (with drag and drop)
 - <https://jqueryui.com/sortable/#display-grid>

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

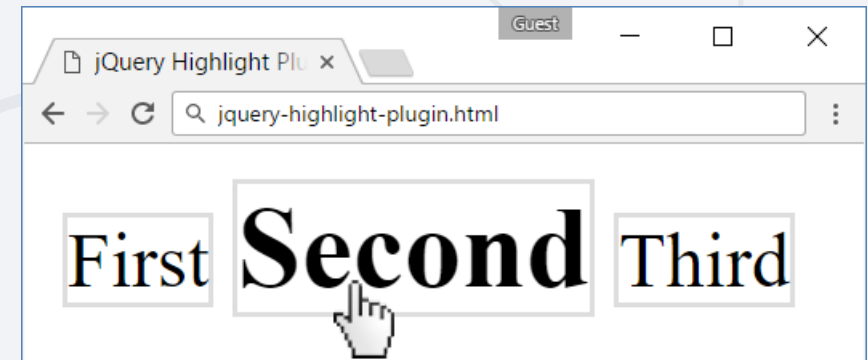


```
(function($) {  
    $.fn.highlight = function(className) {  
        $(this).on("mouseover", function() {  
            $(this).addClass(className);  
        });  
        $(this).on("mouseout", function() {  
            $(this).removeClass(className);  
        });  
    }  
})(jQuery));
```

```
$(".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 on 83 547 613 sites
- Select + edit DOM elements:

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

- Create elements:

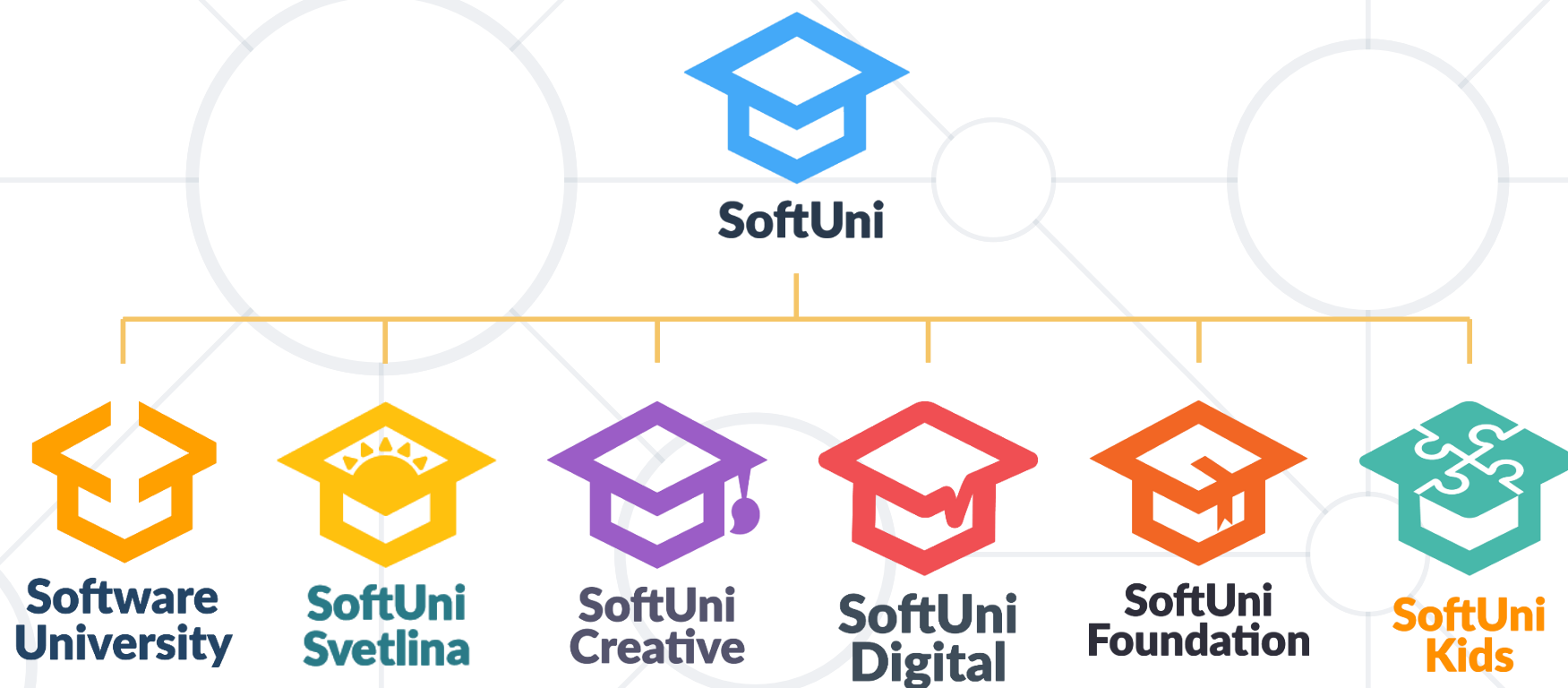
```
$('#<h1>Hello</h1>').appendTo('body');
```

- Handle events:

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



Questions?



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XSsoftware



SBTech



telenor



SoftwareGroup
doing it right

NETPEAK



SmartIT



Postbank

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