PROGRAM STUDI INFORMATIKA

SEMESTER GASAL 2023/2024

PEMROGRAMAN WEB I

3 SKS – MINGGU 9

BENISIUS ANU – ehba@ukrida.ac.id
WENDYANTO PANGGALO – panggalowendyanto@ukipaulus.ac.id

informatika.ukrida.ac.id
ukipaulus.ac.id/page/fakultas/3/informatika-dan-komputer

UKRIDA
Universitas Kristen Krida Wacana

SILABUS

PEMROGRAMAN WEB

- *JQuery introduction*
- *JQuery philosophy*
- *DOM elements*

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INTRODUCTION

JQUERY

- *JQuery is an open source JavaScript library that simplifies the interactions between an HTML document, or more precisely the Document Object Model (DOM), and JavaScript.*
- *Specifically, jQuery simplifies HTML document traversing and manipulation, browser event handling, DOM animations, Ajax interactions, and cross-browser JavaScript development.*

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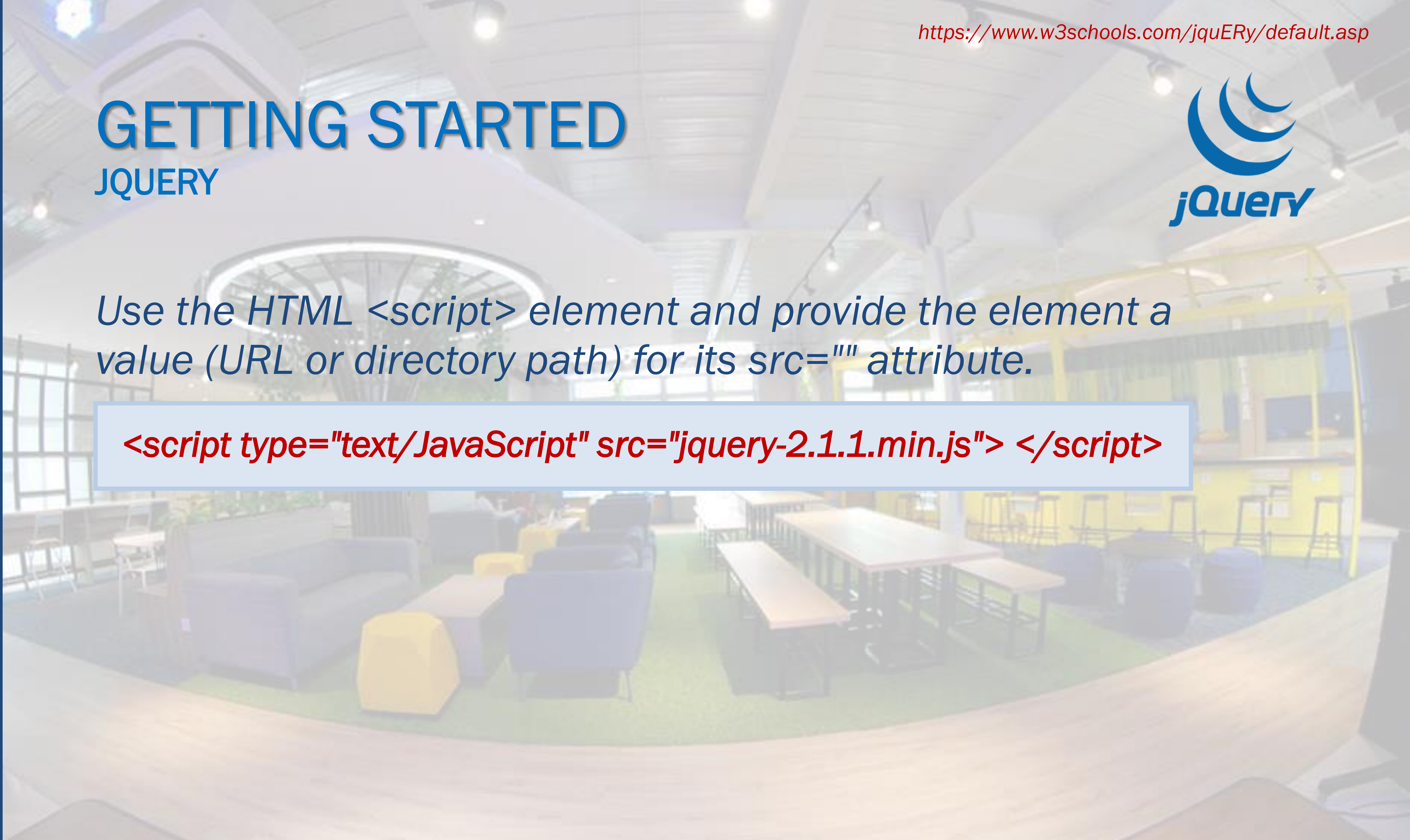
GETTING STARTED

JQUERY

There are currently two ways for embedding the jQuery library in a web page:

- *Use the Google-hosted content delivery network (CDN) to include a version of jQuery.*
- *Download jQuery from **jquery.com** and host it on your own server or local filesystem.*



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GETTING STARTED

JQUERY

Use the HTML <script> element and provide the element a value (URL or directory path) for its src="" attribute.

```
<script type="text/JavaScript" src="jquery-2.1.1.min.js"> </script>
```

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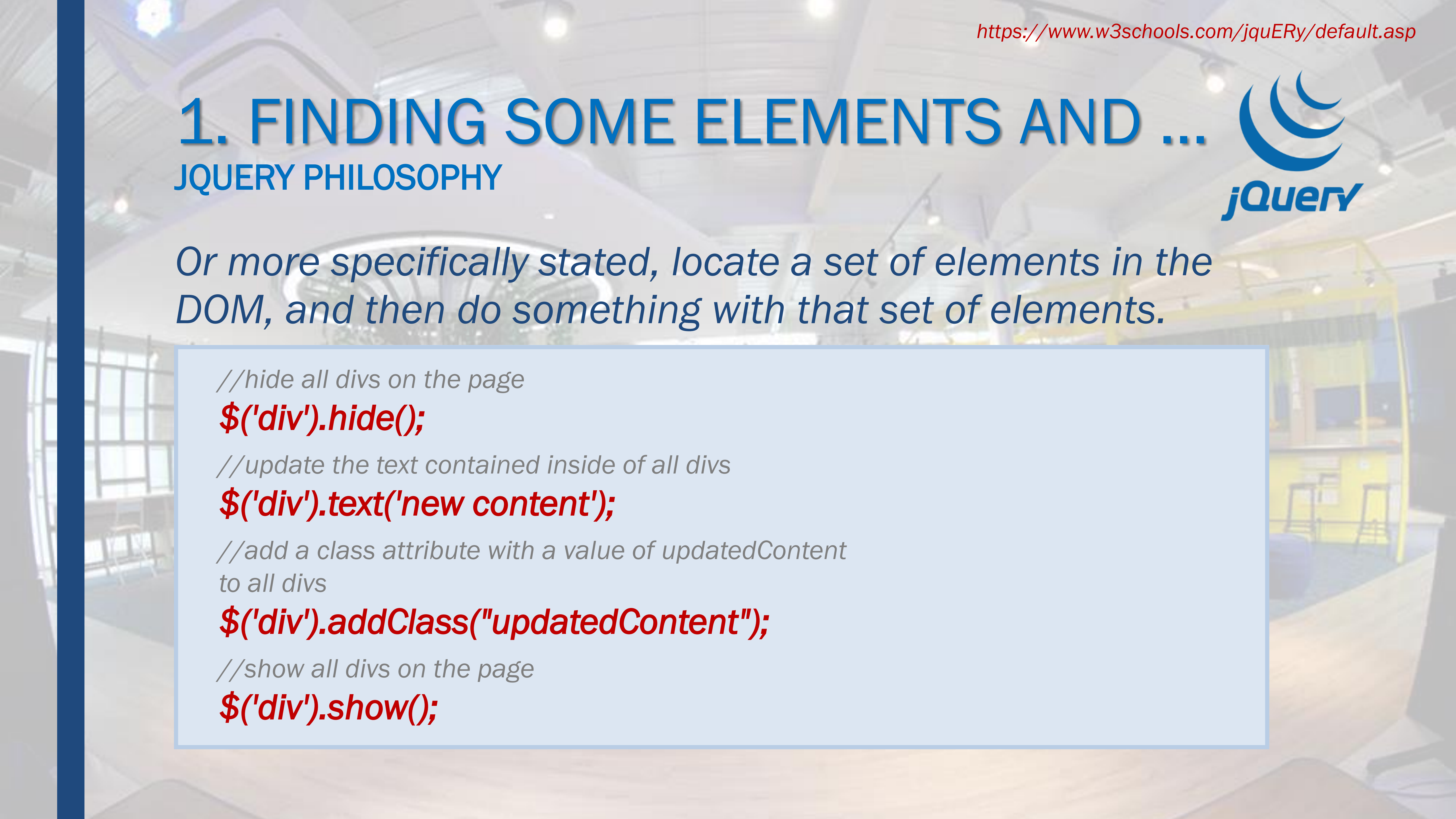
INTRODUCTION

JQUERY

*The jQuery philosophy is **"Write less, do more."***

This philosophy can be further broken down into three concepts:

1. *Finding some elements (via CSS selectors) and doing something with them (via jQuery methods).*
2. *Chaining multiple jQuery methods on a set of elements.*
3. *Using the jQuery wrapper and implicit iteration.*



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1. FINDING SOME ELEMENTS AND …

JQUERY PHILOSOPHY

Or more specifically stated, locate a set of elements in the DOM, and then do something with that set of elements.

```
//hide all divs on the page
$('div').hide();
//update the text contained inside of all divs
$('div').text('new content');
//add a class attribute with a value of updatedContent
to all divs
$('div').addClass("updatedContent");
//show all divs on the page
$('div').show();
```

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2. CHAINING

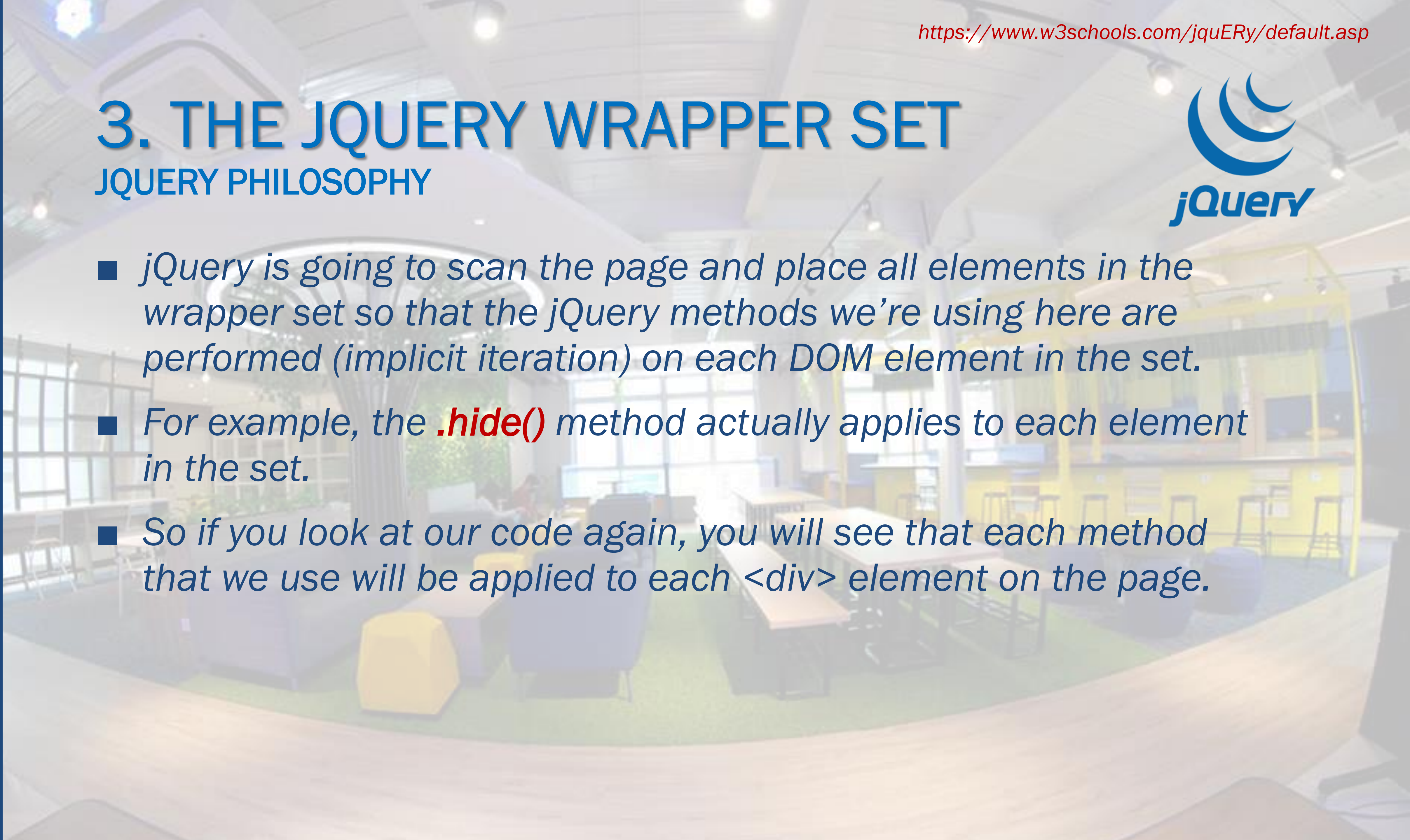
JQUERY PHILOSOPHY

jQuery is constructed in a manner that will allow jQuery methods to be chained. The code before, using chaining, can be changed from to this:

```
jQuery('div').hide().text('new content').addClass("updatedContent").show();
```

or, with indenting and line breaks, to this:

```
jQuery('div')
      .hide()
      .text('new content')
      .addClass("updatedContent")
      .show();
```



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3. THE JQUERY WRAPPER SET

JQUERY PHILOSOPHY

- *jQuery is going to scan the page and place all elements in the wrapper set so that the jQuery methods we're using here are performed (implicit iteration) on each DOM element in the set.*
- *For example, the **.hide()** method actually applies to each element in the set.*
- *So if you look at our code again, you will see that each method that we use will be applied to each <div> element on the page.*

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EXECUTING CODE AFTER THE DOM HAS LOADED BUT BEFORE COMPLETE PAGE LOAD

JQUERY

- *Modern JavaScript applications using unobtrusive JavaScript methodologies typically execute JavaScript code only after the DOM has been completely loaded.*
- *JQuery provides the* ***ready()*** *method, which is a custom event handler that is typically bound to the DOM's document object.*
- *The ready() method is passed a single parameter, a function, that contains the JavaScript code that should be executed once the DOM is ready to be traversed and manipulated.*

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EXECUTING CODE AFTER THE DOM HAS LOADED BUT BEFORE COMPLETE PAGE LOAD

JQUERY

```
<!DOCTYPE html>
<html>
    <head>
        <script type="text/JavaScript" src="jquery-2.1.1.min.js"></script>
        <script>
            $(document).ready(function(){
                alert(jQuery('p').text());
            });
        </script>
    </head>

    <body>
        <p>old content</p>
    </body>
</html>
```

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SELECTING DOM ELEMENTS USING SELECTORS AND THE JQUERY FUNCTION

JQUERY

- *jQuery provides two options when you need to select element(s) from the DOM. Both options require the use of the jQuery function:* ***jQuery()*** *or alias* ***$()****.*
- *The first option, which uses CSS selectors and custom selectors, is by far the most used and most eloquent solution.*
- *By passing the jQuery function a string containing a selector expression, the function will traverse the DOM and locate the DOM nodes defined by the expression.*

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SELECTING DOM ELEMENTS USING SELECTORS AND THE JQUERY FUNCTION

JQUERY

```
<body>
    <p>old content</p>
    <p>old content</p>
    <p>old content</p>
    <div>old content</div>

    <script>
        alert(‘Terdapat ' + $('p').length + ' elemen p dan ' + $('div').length + ‘elemen div');
        $('p,div').html('Selamat Pagi Dunia');
    </script>
</body>
```

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SELECTING DOM ELEMENTS WITHIN A SPECIFIED CONTEXT

JQUERY

- *The jQuery function when passed a CSS expression will also accept a second parameter that tells the jQuery function to which context it should search for the DOM elements based on the expression.*
- *The second parameter in this case can be a DOM reference, jQuery wrapper, or document.*

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```
<body>
        <form>
            <input name="" type="checkbox" /> <input name="" type="radio" />
            <input name="" type="text" /> <input name="" type="button" />
        </form>
        <form>
            <input name="" type="checkbox" /> <input name="" type="radio" />
            <input name="" type="text" /> <input name="" type="button" />
        </form>

        <input name="" type="checkbox" />  <input name="" type="radio" />
        <input name="" type="text" />  <input name="" type="button" />

        <script>
           alert('selected ' + $('input',$('form')).length + ' inputs');
           alert('selected' + $('input',$(‘form’)[0]).length + ' inputs');
           alert('selected' + $('input','body').length + ' inputs');
        </script>
</body>
```

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FILTERING A WRAPPER SET OF DOM ELEMENTS

JQUERY

- *The jQuery* ***filter()*** *method, used on a jQuery wrapper set of DOM elements, can exclude elements that do not match a specified expression(s).*
- *In short, the filter() method allows you to filter the current set of elements.*
- *This is an important distinction from the jQuery find method, which will reduce a wrapped set of DOM elements by finding (via a new selector expression) new elements, including child elements of the current wrapped set.*

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```
<body>
    <a href="#" class="external">link</a>
    <a href="#" class="external">link</a>
    <a href="#"></a>
    <a href="#" class="external">link</a>
    <a href="#" class="external">link</a>
    <a href="#"></a>
    <a href="#">link</a>
    <a href="#">link</a>
    <a href="#">link</a>
    <a href="#">link</a>

    <script>
        alert($('a').filter('.external').length + ' external links');
    </script>

</body>
```

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FILTERING A WRAPPER SET OF DOM ELEMENTS

JQUERY

- *It’s also possible to send the filter() method a function that can be used to filter the wrapped set.*
- *Our previous code example, which passes the filter() method a string expression, can be changed to use a function instead:*

```
alert(
    $('a')
        .filter(function(index){ return $(this).hasClass('external');})
        .length + ' external links'
    );
```

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FINDING DESCENDANT ELEMENTS WITHIN THE CURRENTLY SELECTED WRAPPER SET

JQUERY

- *Use the **find()** method to create a new wrapper set of elements based on the context of the current set and their descendants.*
- *For example, say that you have a web page that contains several paragraphs. Encapsulated inside of these paragraphs are words that are emphasized (italic).*
- *If you'd like to select only <em> elements contained within <p> elements, you could do so like this (see nextpage):*

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```
<body>
		<p>Ut ad videntur facilisis <em>elit</em> cum. Nibh insitam erat facit <em>saepius</em>
magna. Nam ex liber iriure et imperdiet. Et mirum eros
iis te habent. </p>
		<p>Claram claritatem eu amet dignissim magna. Dignissim quam elit facer eros illum. Et qui ex
esse <em>tincidunt</em> anteposuerit. Nulla nam odio ii
vulputate feugait.</p>
		<p>In quis <em>laoreet</em> te legunt euismod. Claritatem <em>consuetudium</em> wisi
sit velit facilisi.</p>

		<script>
		    alert('The three paragraphs in all contain ' + $('p').find('em').length +
			       ' italic words');
		</script>

</body>
```

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FINDING DESCENDANT ELEMENTS WITHIN THE CURRENTLY SELECTED WRAPPER SET

JQUERY

- *The jQuery .find() method can be used to create a new set of elements based on context of the current set of DOM elements and their children elements.*
- *People often confuse the use of the .filter() method and .find() method. The easiest way to remember the difference is to keep in mind that .find() will operate/select the children of the current set while .filter() will only operate on the current set of elements.*
- *In other words, if you want to change the current wrapper set by using it as a context to further select the children of the elements selected, use .find().*
- *If you only want to filter the current wrapped set and get a new subset of the current DOM elements in the set only, use .filter().*
- *To boil this down even more, find() returns children elements, while filter() only filters what is in the current wrapper set.*

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RETURNING TO THE PRIOR SELECTION BEFORE A DESTRUCTIVE CHANGE

JQUERY

- *A destructive jQuery method (e.g., filter() or find()) that was used on a set of elements needs to be removed so that the set prior to the use of the destructive method is returned to its previous state and can then be operated as if the destructive method had never been invoked.*
- *jQuery provides the **end()** method so that you can return to the previous set of DOM elements that were selected before using a destructive method.*

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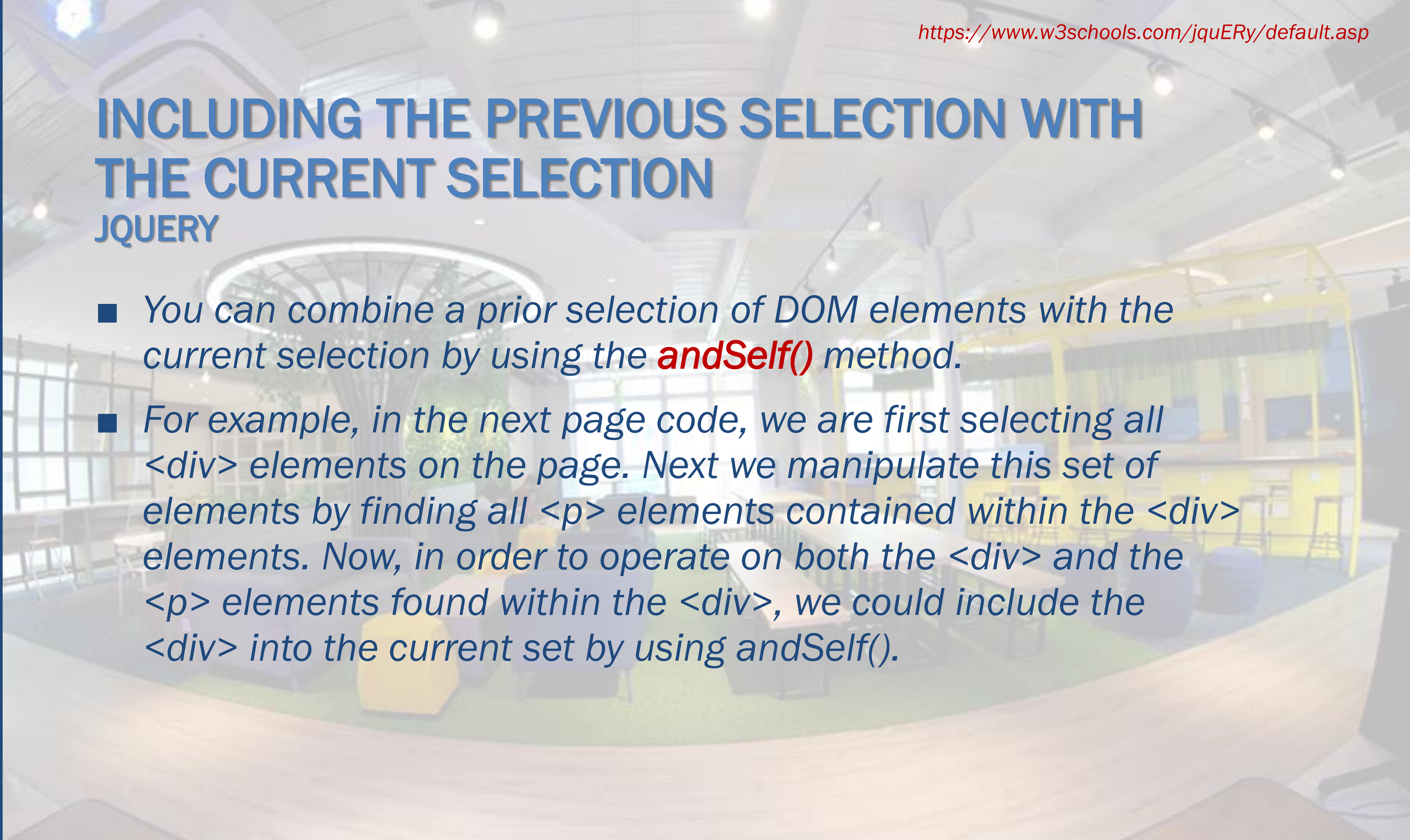
```
<body>
    <p>text</p>
    <p class="middle">Middle <span>text</span></p>
    <p>text</p>

    <script>
            alert($('p').filter('.middle').length);
            alert($('p').filter('.middle').end().length);
            alert($('p').filter('.middle').find('span').end().end().length);
    </script>
</body>
```



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INCLUDING THE PREVIOUS SELECTION WITH THE CURRENT SELECTION

JQUERY

- *You can combine a prior selection of DOM elements with the current selection by using the **andSelf()** method.*
- *For example, in the next page code, we are first selecting all <div> elements on the page. Next we manipulate this set of elements by finding all <p> elements contained within the <div> elements. Now, in order to operate on both the <div> and the <p> elements found within the <div>, we could include the <div> into the current set by using andSelf().*

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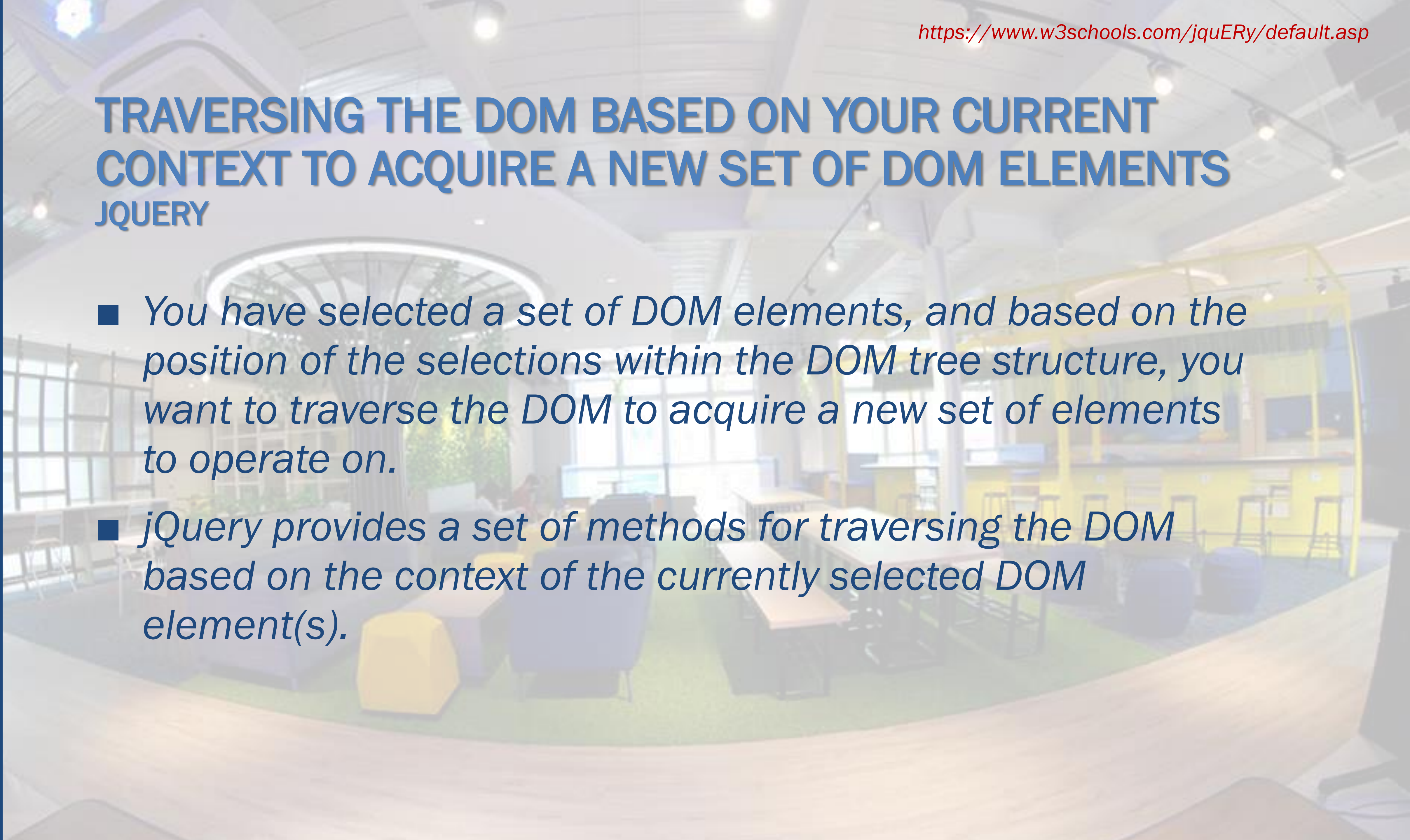
```
<body>
    <div>
            <p>Paragraph</p>
            <p>Paragraph</p>
    </div>

    <script>
            $('div')
                .find('p').andSelf().css('border','1px solid #993300');
    </script>

</body>
```



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TRAVERSING THE DOM BASED ON YOUR CURRENT CONTEXT TO ACQUIRE A NEW SET OF DOM ELEMENTS

JQUERY

- *You have selected a set of DOM elements, and based on the position of the selections within the DOM tree structure, you want to traverse the DOM to acquire a new set of elements to operate on.*
- *jQuery provides a set of methods for traversing the DOM based on the context of the currently selected DOM element(s).*

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```
<body>
    <div>
        <ul>
            <li><a href="#">link</a></li>
            <li><a href="#">link</a></li>
            <li><a href="#">link</a></li>
            <li><a href="#">link</a></li>
        </ul>
    </div>
    <script>
            $('li:eq(1)').next()                     //selects the third <li>
            $('li:eq(1)').prev()                     //selects the first <li>
            $('li:eq(1)').parent()                   //selects the <ul>
            $('li:eq(1)').parent().children()        //selects all <li>s
            $('li:eq(1)').nextAll()          //selects all the <li>s after the second <li>
            $('li:eq(1)').prevAll()          //selects all the <li>s before the second <li>
    </script>
</body>
```

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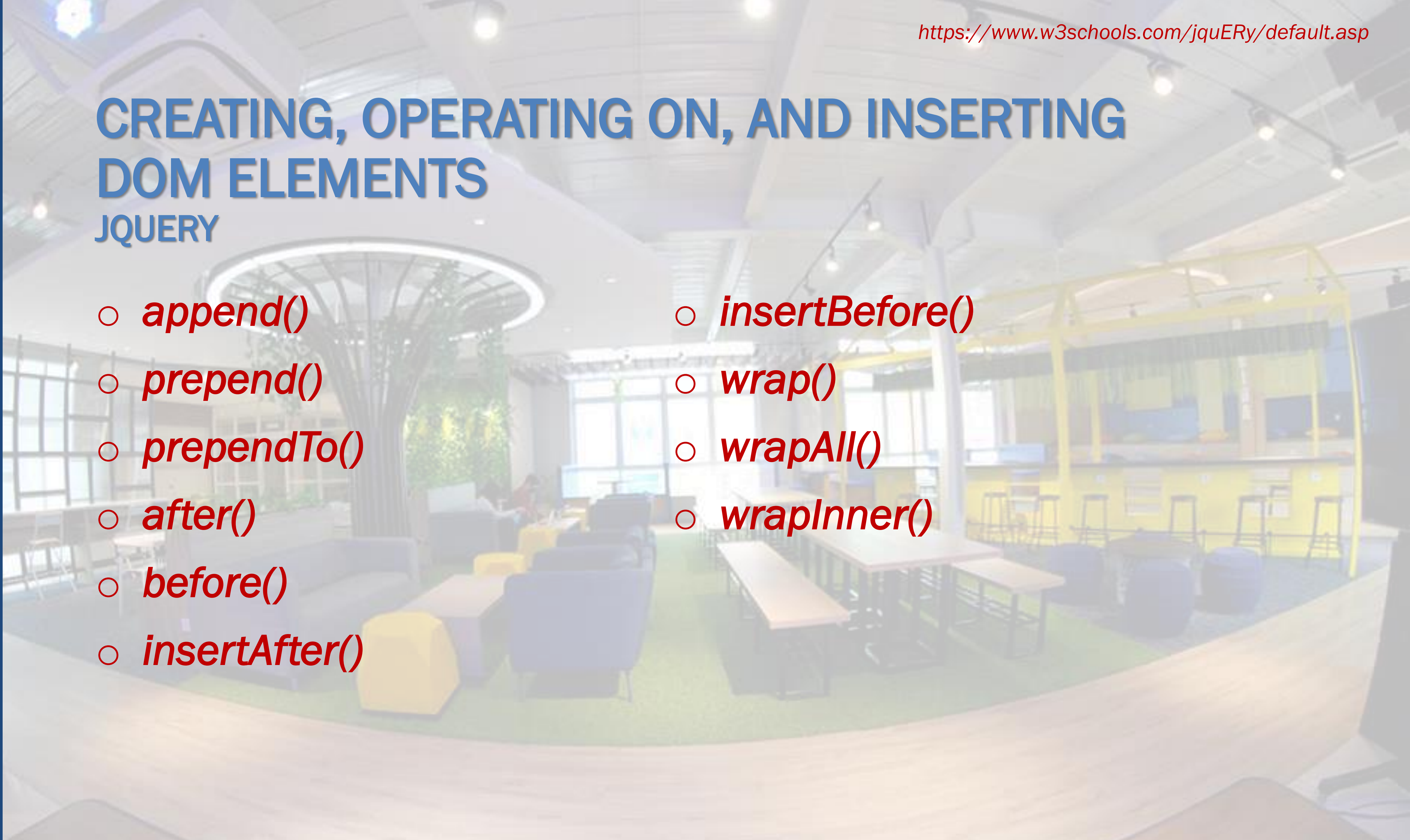
CREATING, OPERATING ON, AND INSERTING DOM ELEMENTS

JQUERY



- *append()*
- *prepend()*
- *prependTo()*
- *after()*
- *before()*
- *insertAfter()*
- *insertBefore()*
- *wrap()*
- *wrapAll()*
- *wrapInner()*

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REMOVING DOM ELEMENTS

JQUERY

- *The* ***remove()*** *method can be used to remove a selected set of elements and their children elements from the DOM.*
- *When using the jQuery remove() method, you need to keep two things in mind:*
  - *While the elements selected are removed from the DOM using remove(), they have not been removed from the jQuery wrapper set. That means in theory you could continue operating on them and even add them back into the DOM if desired.*
  - *This method will not only remove the elements from the DOM, but it will also remove all event handlers and internally cached data that the elements removed might have contained.*

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REPLACING DOM ELEMENTS

JQUERY

*Using the **replaceWith()** method, we can select a set of DOM elements for replacement.*

```
<body>
    <ul>
      <li class='remove'>name</li>
      <li>name</li>
      <li class='remove'>name</li>
      <li>name</li>
    </ul>

      <script>
            $('li.remove').replaceWith('<li>removed</li>');
      </script>
</body>
```

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REPLACING DOM ELEMENTS

JQUERY

- *JQuery provides an inverse to this method called* ***replaceAll()*** *that does the same task with the parameters reversed.*
- *For example, we could rewrite the jQuery code found in our recipe code like so:*

```
$('<li>removed</li>').replaceAll('li.remove');
```

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CLONING DOM ELEMENTS

JQUERY

- *JQuery provides the **clone()** method for copying DOM elements. Its usage is straightforward.*
- *Simply select the DOM elements using the jQuery function, and then call the clone() method on the selected set of element(s).*
- *The result is a copy of the DOM structure being returned for chaining instead of the originally selected DOM elements.*

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```
<body>
        <ul>
            <li class='remove'>name</li>
            <li>name</li>
            <li class='remove'>name</li>
            <li class='remove'>name</li>
            <li>name</li>
            <li class='remove'>name</li>
            <li>name</li>
            <li class='remove'>name</li>
    </ul>

    <script>
            $('ul').clone().appendTo('body');
    </script>
</body>
```

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GETTING, SETTING AND REMOVING DOM ELEMENT ATTRIBUTES

JQUERY

- *JQuery provides the* ***attr()*** *method for getting and setting attribute values.*

```
<body>
    <a href="">UKRIDA</a>

    <script>
        // alerts the jQuery home page URL
        alert(
            $('a').attr('href','http://www.ukrida.ac.id').attr('href')
        );
    </script>
</body>
```

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GETTING, SETTING AND REMOVING DOM ELEMENT ATTRIBUTES

JQUERY

- *With the ability to add attributes to elements also comes the ability to remove attributes and their values.*
- *The* **removeAttr()** *method can be used to remove attributes from HTML elements. To use this method, simply pass it a string value of the attribute you'd like to remove (e.g.,* **$('a')removeAttr('title')***).*

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GETTING, SETTING AND REMOVING DOM ELEMENT ATTRIBUTES

JQUERY

- *In addition to the attr() method, jQuery provides a very specific set of methods for working with the HTML element class attribute. Since the class attribute can contain several values (e.g., class="class1 class2 class3"), these unique attribute methods are used to manage these values.*
- *These jQuery methods are as follows:*
  - ***addClass()**, updates the class attribute value with a new class/value including any classes that were already set*
  - ***hasClass()**, checks the value of the class attribute for a specific class*
  - ***removeClass()**, removes a unique class from the class attribute while keeping any values already set*
  - ***toggleClass()**, Adds the specified class if it is not present; removes the specified class if it is present*

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GETTING AND SETTING HTML CONTENT

JQUERY

- *JQuery provides the **html()** method for getting and setting chunks (or DOM structures) of HTML elements.*

```
<body>
    <p></p>

    <script type="text/JavaScript">
        $('p').html('<strong>Hello World</strong>, I am a <em>&lt;p&gt;</em> element.');
        alert(jQuery('p').html());
    </script>
</body>
```

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GETTING AND SETTING TEXT CONTENT

JQUERY

- *JQuery provides the* ***text()*** *method for getting and setting the text content of elements.*

```
<body>
    <p></p>

    <script type="text/JavaScript">
            $('p').text('Hello World, I am a <p> element.');
            alert($('p').text());
    </script>
</body>
```

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GETTING AND SETTING TEXT CONTENT

JQUERY

- *It's important to remember that the text() method is not unlike html() except that the text() method will escape HTML (replace < and > with their HTML entities).*
- *This means that if you place tags inside of the text string passed to the text() method, it will convert these tags to their HTML entities (&lt; and &gt;).*