Cairo University
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WEB BUILDING

Agenda

Jquery (Java Script Library):

1. Introduction
2. Syntax
3. Selectors
4. Event Methods
5. Effects
6. HTML DOM Manipulation

JQuery

Introduction

What is jQuery?

- jQuery is a fast, small, and feature-rich JavaScript library.

- The jQuery library contains the following features:
  - HTML/DOM manipulation
  - CSS manipulation
  - HTML event methods
  - Effects and animations
  - AJAX
  - Utilities

Why jQuery?

- There are lots of other JavaScript frameworks out there, but jQuery seems to be the most popular, and also the most extendable.

- Many of the biggest companies on the Web use jQuery, such as:
  - Google
  - Microsoft
  - IBM
  - Netflix

jQuery Install

- There are two versions of jQuery available for downloading:
  - **Production version** - this is for your live website because it has been minified and compressed
  - **Development version** - this is for testing and development (uncompressed and readable code)

- Both versions can be downloaded from jQuery.com

JQuery

Syntax

jQuery Syntax

- The jQuery syntax is tailor made for **selecting** HTML elements and performing some **action** on the element(s).

- Basic syntax is: ***$(selector).action( )***
  - A **$** sign to define/access jQuery
  - A **(*selector*)** to "query (or find)" HTML elements
  - A jQuery ***action*( )** to be performed on the selected element(s)

Examples on jQuery Syntax

Examples:

- **$(this).hide()** - hides the current element.
- **$("p").hide()** - hides all <p> elements.
- **$(".test").hide()** - hides all elements with class="test".
- **$("#test").hide()** - hides the element with id="test".

JQuery

Selectors

jQuery Selectors

- All selectors in jQuery start with the dollar sign and parentheses: **$( )**

1. The element Selector

   The jQuery element selector selects all elements based on the element name. Ex. **$("p")**

2. The #id Selector

   The jQuery #id selector uses the id attribute of an HTML tag to find the specific element. Ex. **$("#test")**

3. The .class Selector

   The jQuery class selector finds elements with a specific class. Ex. **$(".test")**

More Examples of jQuery Selectors

Syntax	Description
$("*")	Selects **all** elements
$(this)	Selects the **current** HTML element
$("p.intro")	Selects all <p> elements with class="intro"
$("p:first")	Selects the first <p> element
$("ul li:first")	Selects the first element of the first
$("ul li:first-child")	Selects the first element of every
$("[href]")	Selects all elements with an href **attribute**
$("a[target='_blank']")	Selects all <a> elements with a target attribute value equal to "_blank"
$("a[target!='_blank']")	Selects all <a> elements with a target attribute value NOT equal to "_blank"
$(":button")	Selects all <button> elements and <input> elements of type="button"
$("tr:even")	Selects all even <tr> elements
$("tr:odd")	Selects all odd <tr> elements

JQuery

Event Methods

jQuery Event Methods

- Here are some common JQuert events:

Mouse Events	Keyboard Events	Form Events	Document/ Window Events
click	keypress	submit	load
dblclick	keydown	change	resize
mouseenter	keyup	focus	scroll
mouseleave		blur	unload
mousedown			ready
mouseup			
hover			

jQuery Syntax For Event Methods

- To assign a click event to all paragraphs on a page, you can do this:

```
$("p").click(  );
```

- The next step is to define what should happen when the event fires. You must pass a function to the event:

```
$("p").click( function ( ) {
    // action goes here!!
    $(this).hide();
} );
```

Any other event method goes here

JQuery

Effects

Hide, Show, Toggle, Slide, Fade, and Animate.

1. Hide and Show

- With jQuery, you can hide and show HTML elements with the hide() and show() methods:

hide()	$(selector).hide(speed,callback);
show()	$(selector).show(speed,callback);
toggle()	$(selector).toggle(speed,callback);

- The optional **speed** parameter specifies the speed of the hiding/showing, and can take the following values: "**slow**", "**fast**", or **milliseconds**.
- The optional **callback** parameter is a function to be executed after the hide() or show() method completes.

1. Hide and Show

Callback

- JavaScript statements are executed line by line. However, with effects, **the next line of code can be run even though the effect is not finished.** This can create errors.
- To prevent this, you can create a callback function.
- A callback function is executed **after** the current effect is finished.

```
$("button").click( function ( ) {
        $("p").hide("slow", function ( ) {
                alert("The paragraph is now hidden");
        } ) ;
} ) ;
```

It will show the alert with each "p" element is being hidden

Callback

- Without using callback.. Observe when alert box is shown?

```
$("button").click( function ( ) {
        $("p").hide( 1000 );
        alert( "The paragraph is now hidden“ );
} ) ;
```

It will show the alert once, and usually the alert will be shown before the hiding.

2. Fading

- JQuery has the following fade methods:

fadeIn()	$(selector).fadeIn(speed,callback);
fadeOut()	$(selector).fadeOut(speed,callback);

To make an element fade in" appear" or fade out "disappear" of visibility.

```
$("button").click( function ( ) {
        $("#div1").fadeOut( );
        $("#div2").fadeOut( "slow" );
        $("#div1").fadeIn( 3000 ); //speed. The higher number, the slower
} ) ;
```

Example (Fading)


```
<html> <head>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.min.js">
    </script>
<script>
        $(document).ready ( function ( ) {
                $("#b1").click ( function ( ) {
                        $("p").fadeOut( );
                 } ) ;
                $("#b2").click ( function ( ) {
                        $("p").fadeIn( );
                } ) ;
        } ) ;
</script>  </head>
```

Example cont.


```
<body>
        <p> A paragraph to be faded! </p>
        <button type="button" id="b1"> Fade Out the paragraph!
        </button>
        <button type="button" id="b2"> Fade In the paragraph!
        </button>
</body>
</html>
```

3. Sliding

- The jQuery slide methods slides elements up and down.

slideDown()	$(selector).slideDown(speed,callback);
slideUp()	$(selector).slideUp(speed,callback);
slideToggle()	toggles between the slideDown() and the slideUp() methods

4. Animation

- The jQuery animate() method lets you create custom animations.

```
$(selector).animate( {params} , speed , callback );
```

- The required **params** parameter defines the CSS properties to be animated.

```
$("button").click ( function ( ) {
        $("div").animate ( {
                left:'250px',
                opacity:'0.5',
                height:'150px',
                width:'150px'
        } ) ;
} ) ;
```

4. Animation

Using Pre-defined Values

- You can even specify a property's animation value as "**show**", "**hide**", or "**toggle**":

```
$("button").click ( function ( ) {
        $("div").animate ( {
                height:'toggle'
        } ) ;
} ) ;
```

4. Animation

Uses Queue Functionality

- If you write multiple animate() calls after each other, jQuery creates an "internal" queue with these method calls. Then it runs the animate calls ONE by ONE.

```
$("button").click( function ( ) {
        var div = $("div");
        div.animate( {height:'300px',opacity:'0.4'} , "slow" );
        div.animate( {width:'300px',opacity:'0.8'} , "slow" );
        div.animate( {height:'100px',opacity:'0.4'} ,"slow" );
        div.animate( {width:'100px',opacity:'0.8'} , "slow" );
} ) ;
```

4. Animation

Using Relative Values

- It is also possible to define **relative values** (the value is then relative to the element's current value). This is done by putting += or -= in front of the value:

```
$("button").click ( function ( ) {
        $("div").animate ( {
              left:'250px',
              height:'+=150px',
              width:'+=150px'
        } ) ;
} ) ;
```

5. Stop Animations

- The jQuery **stop( )** method is used to stop an animation or effect before it is finished

```
$(selector).stop( stopAll , goToEnd );
```

- The optional **stopAll** parameter specifies whether also the animation queue should be cleared or not (Default is **false**)
- The optional **goToEnd** parameter specifies whether or not to complete the current animation immediately. Default is **false.**

6. Chaining

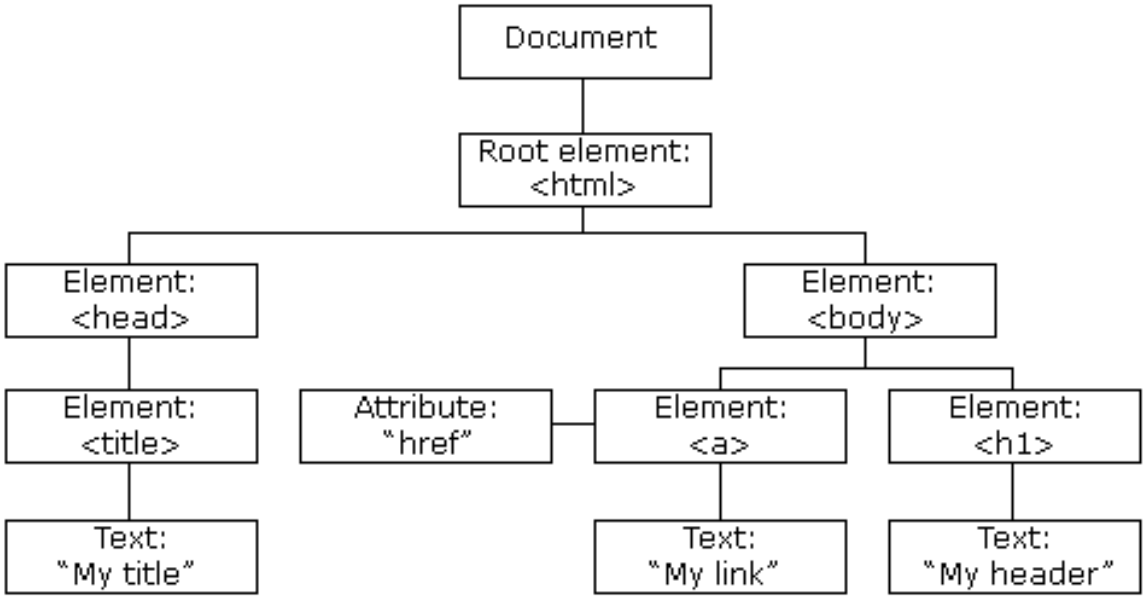
- Until now we have been writing jQuery statements one at a time (one after the other).
- However, there is a technique called **chaining**, that allows us to run **multiple jQuery commands**, one after the other, **on the same element(s).**
- **Tip:** This way, browsers do not have to find the same element(s) more than once.

```
$("#p1").css("color","red").slideUp(2000).slideDown(2000);
```

JQuery
HTML DOM Manipulation

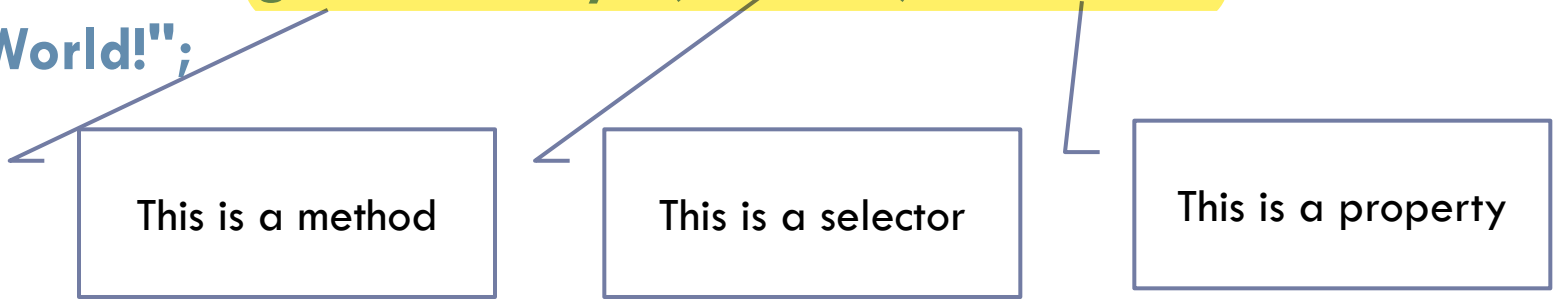
The HTML DOM (Document Object Model)

- DOM is an interface that allows to access and update the content, structure, and style of a document dynamically.



The HTML DOM (Document Object Model)

- All HTML elements are defined as objects that have properties and methods.
  - A property is a value that you can get or set (like changing the content of an HTML element).
  - A method is an action you can do (like add or deleting an HTML element).
- **document.getElementById("demo").innerHTML = "Hello World!";**



jQuery HTML DOM Manipulation

- JQuery comes with a bunch of DOM related methods that make it easy to access and manipulate elements and attributes.

- For example,
  1. Set and Get Content
  2. Add Elements
  3. Remove Elements/Content
  4. Set and Get CSS Classes

1. Set and Get Content

text( )	Sets or returns the **text content** of selected elements
html( )	Sets or returns **the content of selected elements (including HTML markup)**
val( )	Sets or returns **the value of form fields**
attr()	Sets or returns the attribute values

Example on Set Content


```
<html> <head>
<script src="http://ajax.googleapis.com/ajax/libs/jquery/1.10.2/jquery.min.js">
    </script>
<script>
        $(document).ready( function ( ) {
            $("#btn1").click( function ( ) {
                $("#test1").text( "Hello world! " );
            } ) ;
        } ) ;
</script>
</head> <body>
    <p id="test1"> This is a paragraph. </p>
    <button id="btn1"> Set Text </button>
</body> </html>
```

Example on Get Content


```
<html> <head>
<script src=http://ajax.googleapis.com/ajax/libs/jquery/1.10.2/jquery.min.js>
    </script>
<script>
        $(document).ready( function ( ) {
                $("#btn1").click( function ( ) {
                        alert("Text: " + $("#test1").text( ) );
                } ) ;
        } ) ;
</script>
</head> <body>
        <p id="test1"> This is some text in a paragraph. </p>
        <button id="btn1"> Show Text </button>
</body></html>
```

2. Add Elements

- With jQuery, it is easy to add new elements/content.

append()	Inserts elements/content **at the end of** the selected elements
prepend()	Inserts elements/content **at the beginning of** the selected elements

2. Add Elements


```
function appendText()
{
        var txt1 = "<p>Text.</p>"; // Create element with HTML
        var txt2 = $("<p></p>").text( "Text." ); // Create with jQuery
        var txt3 = document.createElement ( "p" );// Create with DOM
        txt3.innerHTML = "Text.";

        $("p").append( txt1 , txt2 , txt3 ); // Append the new elements
}
```

3. Remove Elements/Content

- To remove elements and content, there are mainly two jQuery methods:

remove()	Removes the selected element **(and its child elements)**
empty()	**Removes the child elements** from the selected element

3. Remove Elements/Content


```
<html>
<head>
<script src="http://ajax.googleapis.com/ajax/libs/jquery/1.10.2/jquery.min.js">
</script>
<script>
        $(document).ready( function ( ) {
                $("button").click ( function ( ) {
                        $("#div1").remove();
                } ) ;
        } ) ;
</script>
</head>
```

3. Remove Elements/Content


```
<body>
    <div id="div1" >
        This is some text in the div.
        <p> This is a paragraph in the div. </p>
    </div>
    <br>
    <button> Remove div element </button>
</body>
</html>
```

3. Remove Elements/Content

- The jQuery **remove( )** method also accepts one parameter, which allows you to filter the elements to be removed.

- Example

```
$("p").remove(".class1");
```

4. Get and Set CSS Classes

- With jQuery, it is easy to manipulate the CSS of elements.

addClass()	Adds one or more classes to the selected elements
removeClass()	Removes one or more classes from the selected elements
toggleClass()	Toggles between adding/removing classes from the selected elements
css()	Sets or returns the style attribute `css("propertyname");`

4. Get and Set CSS Classes


```
.important
{
    font-weight : bold;
    font-size : xx-large;
}
```

```
$("button").click( function ( ) {
        $("h1,h2,p").addClass( "important" );
} ) ;
```

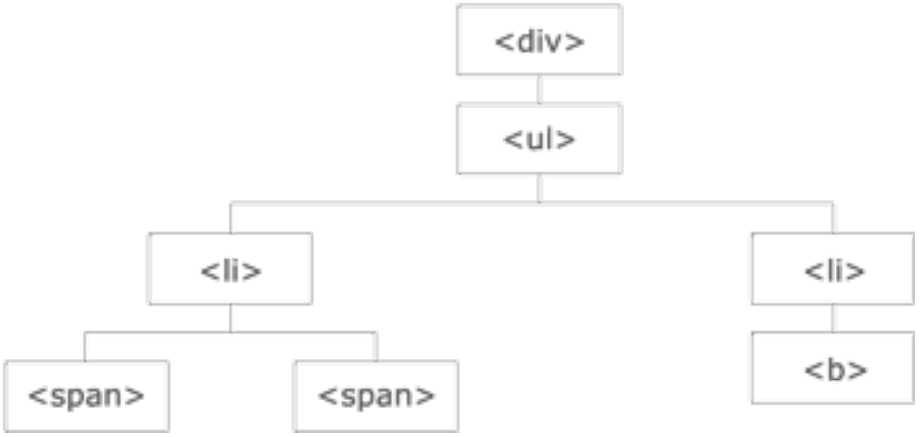
jQuery Traversing

- With jQuery traversing, you can easily **move up (ancestors), down (descendants)** and **sideways (siblings)** in the family tree, starting from the selected (current) element.

- This movement is called **traversing** - or **moving through - the DOM.**

jQuery Traversing

- DOM represents parent ,child and siblings relationships.
- Using the DOM model, we can traverse (reach any relative) using the following methods:



Traversing the DOM Tree

- **parent ( )**

  It returns the direct parent element of the selected element.

- **children ( )**

  It returns all direct children of the selected element "one level down only"

  next ( )

  It returns the next sibling element of the selected element.

- **first ( )**

  It returns the first element of the specified elements.

- **Example:**

```
$(document).ready( function ( ) {
        $("div").children();
} ) ;
```