

# Introduction to jQuery

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- The purpose of jQuery is to make it much easier to use JavaScript on your website.
- Prerequisite to jQuery:
  - HTML
  - CSS
  - JavaScript
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# What is jQuery?

- jQuery is a lightweight, "write less, do more", JavaScript library.
- jQuery takes a lot of common tasks that require many lines of JavaScript code to accomplish and wraps them into methods that you can call with a single line of code.
- jQuery also simplifies a lot of the complicated things from JavaScript, like Asynchronous JavaScript and XML(AJAX) calls and Document Object Model (DOM) manipulation.

# What is jQuery?

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

# EXTRA : Document Object Model(DOM)

- The DOM is a **programming interface for web documents**. It represents the structure of an HTML document as a **tree of objects**, allowing programs (usually JavaScript) to **access, modify, add, or delete** content dynamically.

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h1>Hello DOM!</h1>
```

```
<p>This is a paragraph.</p>
```

```
</body>
```

```
</html>
```



# EXTRA: Asynchronous JavaScript and XML(AJAX)

- It is a **web development technique** used to send and receive data **asynchronously** from a server **without refreshing the entire web page**.
- **Key Concepts:**
  - **Asynchronous:** AJAX allows parts of a web page to be updated **without reloading** the whole page.
  - **JavaScript:** AJAX is implemented using JavaScript.
  - **XML :** AJAX originally used XML for data exchange, but **JSON** is used more common today.

# What is jQuery?

- There are lots of other JavaScript libraries out there, but jQuery is probably the most popular, and also the most extendable.
- Many of the biggest companies on the Web use jQuery, such as:
  - Google
  - Microsoft
  - IBM
  - Netflix

# Setting up jQuery code environment

- There are several ways to start using jQuery on your web site. You can:
  - Download the jQuery library
  - Include jQuery from a Content Delivery Network (CDN).
- The jQuery library is a single JavaScript file, and you reference it with the **HTML <script> tag.**



# Extra: Content Delivery Network (CDN)

- A CDN is a **network of servers distributed globally** that delivers web content to users based on their **geographic location**, improving **speed, performance, and reliability**.
- **Benefits of Using a CDN:**
  - **Faster Load Times** – Especially for users far from the original server
  - **Reduced Bandwidth Costs** – Through caching and compression
  - **High Availability** – Redundancy across multiple servers
  - **DDoS Protection** – By distributing traffic and filtering malicious requests
  - **Scalability** – Easily handles sudden traffic spikes
- Popular CDN : Cloudflare, Akamai, Amazon CloudFront, Fastly and Google

# Linking to a jQuery file on a CDN

- By simply including CDN source file link.
- Coding Example

# 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 element(s)

# jQuery Syntax

- Examples:
- `$(this).hide()` - hides the current element.
- `$("p").hide()` - hides all `<p>` elements.
- `$(".test").hide()` - hides all elements with `class="test"`.

# jQuery Selectors

- jQuery selectors allow you to select and manipulate HTML element(s).
- jQuery selectors are used to “select” HTML elements based on their name, id, classes, types, attributes, values of attributes and much more.
- All selectors in jQuery start with the dollar sign and parentheses: \$().
- The jQuery **element selector** selects elements based on the element name. e.g. \$("p")

# jQuery Selectors

- The jQuery **#id selector** uses the id attribute of an HTML tag to find the specific element.
- To find an element with a specific id, write a hash character, followed by the id of the HTML element. e.g. `$("#test")`
- The jQuery **.class selector** finds elements with a specific class.
- To find elements with a specific class, write a period character, followed by the name of the class. Eg. `$(".test")`

# jQuery Selectors

Syntax	Description
<code>\$("*")</code>	Selects all elements
<code>\$(this)</code>	Selects the current HTML element
<code>\$("#p.intro")</code>	Selects all <code>&lt;p&gt;</code> elements with <code>class="intro"</code>
<code>\$("#p:first")</code>	Selects the first <code>&lt;p&gt;</code> element
<code>\$("#ul li:first")</code>	Selects the first <code>&lt;li&gt;</code> element of the first <code>&lt;ul&gt;</code>
<code>\$("#ul li:first-child")</code>	Selects the first <code>&lt;li&gt;</code> element of every <code>&lt;ul&gt;</code>
<code>\$("[href]")</code>	Selects all elements with an <code>href</code> attribute
<code>\$("#a[target='_blank']")</code>	Selects all <code>&lt;a&gt;</code> elements with a <code>target</code> attribute value equal to <code>"_blank"</code>
<code>\$("#a[target!='_blank']")</code>	Selects all <code>&lt;a&gt;</code> elements with a <code>target</code> attribute value NOT equal to <code>"_blank"</code>

# jQuery Filter

- The filter() method returns elements that match a certain criteria.
- This method lets you specify a criteria. Elements that do not match the criteria are removed from the selection, and those that match will be returned.
- This method is often used to narrow down the search for an element in a group of selected elements.
- Syntax : **`$(selector).filter(criteria,function(index))`**
- Coding Example



# jQuery Filter

Parameter	Description
<i>criteria</i>	<p>Optional. Specifies a selector expression, a jQuery object or one or more elements to be returned from a group of selected elements.</p> <p><b>Tip:</b> To specify multiple criteria, use comma.</p>
function( <i>index</i> )	<ul style="list-style-type: none"><li>•Optional. Specifies a function to run for each element in the set. If it returns true, the element is kept. Otherwise, the element is removed.</li><li>•<i>index</i> - The index position of the element in the set</li></ul>

# jQuery Events

- All the different visitors' actions that a web page can respond to are called events.
- An event represents the precise moment when something happens.
- Examples:
  - moving a mouse over an element
  - selecting a radio button
  - clicking on an element

# jQuery 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

# jQuery Events

- In jQuery, most DOM events have an equivalent jQuery method.
- Example -
- **`$(document).ready()`**
- The `$(document).ready()` method allows us to execute a function when the document is fully loaded. Th
- **`click()`**
- The `click()` method attaches an event handler function to an HTML element. The function is executed when the user clicks on the HTML element.

# jQuery Events

- Coding Example
- Some more events :
- **mouseenter()**: The mouseenter() method attaches an event handler function to an HTML element.
- **mouseleave()**: The mouseleave() method attaches an event handler function to an HTML element.
- Etc. **hover()**, **focus()**, **blur()**

# jQuery Effects and Animations

- Hide() and Show() methods:
  - With jQuery, you can hide and show HTML elements with the hide() and show() methods:
- Syntax:
  - `$(selector).hide(speed,callback);`  
`$(selector).show(speed,callback);`

# jQuery Effects and Animations

- Coding Example
- **jQuery toggle()**
  - You can also toggle between hiding and showing an element with the toggle() method.
- **jQuery Fading Methods**
  - With jQuery you can fade an element in and out of visibility.
- jQuery fade methods are :
  - fadeIn()
  - fadeOut()
  - fadeToggle()

# jQuery Effects and Animations

- fadeIn() : Coding Example
- fadeOut(): Coding Example
- fadeToggle(): Coding Example



# jQuery Effects and Animations

- **jQuery slideToggle() Method**
- The jQuery slideToggle() method toggles between the slideDown() and slideUp() methods.
- Coding Example

# jQuery Effects and Animations

- **jQuery animate() Method**

- The jQuery animate() method is used to create custom animations.

- **Syntax**

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

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

# jQuery Effects and Animations

- Coding Example(single and multiple)
- **jQuery stop() Method**
  - The jQuery stop() method is used to stop an animation or effect before it is finished.
  - Syntax :
  - `$(selector).stop(stopAll,goToEnd);`
  - Coding Example

# jQuery Effects, Animations and CSS

- One can write jQuery statements one at a time or may simply combine them using a technique called **chaining**, that allows us to run multiple jQuery commands, one after the other, on the same element(s).
- To chain an action, you simply append the action to the previous action.
- **Coding Example**

# **jQuery Practice Sheet**

Thank You