Functions, Widgets, Plugins in jQuery

SESSION 4

Objectives

At the end of this session, you will be able to:

➢ Describe various types of functions in jQuery

➢ Explain use of AJAX in jQuery

➢ Elucidate the callback concept in jQuery

➢ Describe implementation and use of various controls such as widgets and datatables in jQuery

Built-in Methods in jQuery 1-4

- jQuery framework contains different skills of JS
- The built-in jQuery methods are:

charAt()

- Fetches the character at the mentioned index

Concat()

- Returns a new string by combining two strings

indexOf()

- Fetches the index inside the requesting string object of the initial occurrence of the mentioned value
- If nothing is found, it returns -1

Built-in Methods in jQuery   2-4

length()

- Returns the number of characters in a string

forEach()

- Invokes a function for each array element

push()

- Appends single or multiple elements at the end of an array and fetches its modified length

Built-in Methods in jQuery   3-4

pop()

- Removes and returns the last array element

subStr()

- Extracts the string characters starting at the mentioned index location until the specified index length

reverse()

- Changes the order of array elements by making the first one last and the last one first

Built-in Methods in jQuery   4-4

sort()

- Arranges the array elements in an ascending or descending order

toLowerCase()

- Converts a string value into lower case

toUpperCase()

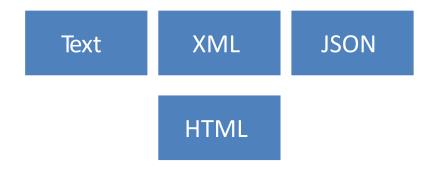- Converts a string value into upper case

tostring()

- Converts a given value into a string

live() Function in jQuery

- The **live()** method :
  - delegates single or multiple event handlers for all elements that match with the selector

  - is a another way to perform event delegation in jQuery

  - promotes the use of DOM

  - Syntax: **$(selector).live(event,data,function);**

- The **die()** method is used to remove associated event handler

- **on()** method takes care of all event delegation task as well as live() method tasks, **off()** replaces die()

jQuery AJAX

- AJAX allows update parts of Webpage by exchanging data between server and client without reloading or refreshing Webpage

- Examples – Gmail and YouTube

- jQuery provides AJAX methods to develop Web applications easily

- Request data from server via GET and POST

- Data request in four formats:

Text	XML	JSON

HTML

AJAX jQuery load() Method

- Easy and robust method

- Loads the requested data from Web server and inserts into element

- Syntax:

> **$(selector).load(URL,data,callback);**

Callbacks

- Runs once when current jQuery effect such as hide, fade, slide... is over

- Line by line execution in JavaScript, lead to errors

- Syntax: **$(selector).hide(speed,callback);**

- In **load()**, optional callback parameter can be callback function

- Syntax: **$(selector).load(URL,data,function(response,status,XHR));**

jQuery $.get() Method   1-2

- Gets data of a resource from a Web server via GET request

- Syntax:

  $.get(URL,callback);

- Takes two parameters: URL and callback function

- Callback function contains data and status of the request

jQuery $.get() Method 2-2

Point of Distinction	Load()	$.get()
Function	Loads only HTML data.	Loads any type of data, such as JSON and script.
Type of HTTP Request	Sends a GET or POST request. If data parameter is specified, POST is used. Otherwise, GET is used.	Sends a GET request always.
Selector Usage	Follows a selector for inserting the retrieved content into the element that matches with the selector	Does not follow a selector while coding. Instead, it invokes a callback function to insert data from the server.

For example	$('selector').load('url', 'data'};	$.get('url', 'data', function (response){
		        $('selector').html(response);
		}

jQuery $.post() Function

- Changes the data of a resource on a Web server via POST request

- Syntax:

$.post(URL, data, callback);
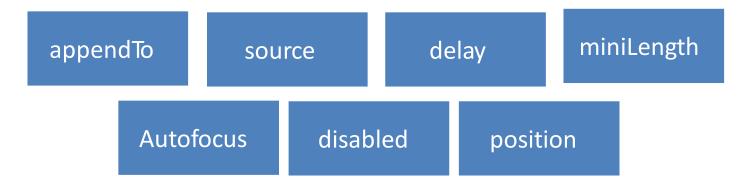
$.get() and $.post() Functions

Point of Distinction	$.get()	$.post()
Functionality	Obtaining of data from a Web server although it can send data.	Changing of data on a Web server although it can send data.
Caching	Is capable of caching the requested data and returning it.	Does not cache data.
Method of Sending Data	Appends data to the URL as a query string.	Includes the data in the message body.
Limitation on Data to Be Sent	Puts a limit on the amount of data to be sent because of the limit on the length of the data passed to an URL..	Has no such limitation.

Autocomplete Function 1-2

- Offers a list of suggestions to select a value instead of typing it

- Functions similar to a drop-down list

- Filters the options matching as the user types into a control

- jQuery UI stands for jQuery user interface

- A robust open-source JS library based on jQuery framework

- Provide a collection of jQuery plugins

- Download jQuery UI files from Website or use a CDN to refer the files

Autocomplete Function 2-2

- jQuery UI Library offers autocomplete() function

- Syntax: **$ (selector, context).autocomplete (opt);**

- More than one option can be included

- Syntax: **$(selector, context).autocomplete({op1: val1, op2: val2..... });**

- Different options are:

appendTo	source	delay	miniLength

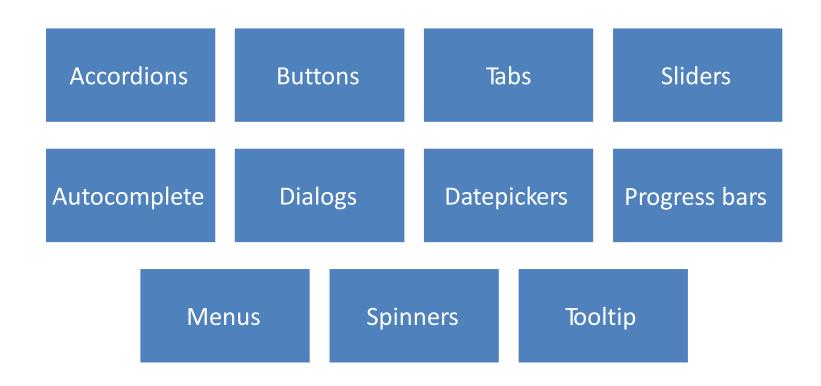| Autofocus	disabled	position

Widgets   1-2

- An object associated with a HTML element to handle many aspects such as:

    - Lifespan

    - Interaction

    - State

    - Inheritance

- Widget is the visual section of jQuery user interface, comes from jQuery UI and used for interactive designing of Webpages

- They are special plugins which used to apply functionality to associated elements

Widgets 2-2

- jQuery widgets are:

Accordions	Buttons	Tabs	Sliders
Autocomplete	Dialogs	Datepickers	Progress bars
Menus	Spinners	Tooltip	

Tooltip Widget

- Facilitates customization and provides fresh themes
- Allows to display other content apart from title attribute
- Customization of alignment of tooltip
- Used to indicate a warning or error

- Syntax:

  $(selector, context).tooltip(opt);

  $(selector, context).tooltip({opt1: val1, opt2: val2..... });

- Parameters of tooltip():

Content	Item	disabled	hide
Show	Track	Position	tooltipClass

Dialog Widget

- Floating window having title and a body with content
- Moveable and resizable window
- Dynamic window to display scrollbar
- jQuery offers dialog() method

- Syntax:
  $(selector, context).dialog(opt);

  $(selector, context).dialog({opt1: val1, opt2: val2..... });

- Parameters of dialog() method:

Title	autoOpen	closeOnEscape	Buttons
Draggable	Resizable	Modal	position

Datatable Plugin

- An intuitive jQuery plugin that adds additional functionality to <table> element

- Dynamic table including *pagination*, *sorting*, and *searching* functionalities

- Quick data access and user friendly interaction

- Syntax: **$(selector).dataTable();**

- Include two additional files: *DataTables* JS files and DataTables CSS files

- Either download files from Website or refer to CDN

Summary 1/2

- Built-in functions are methods that allow manipulating data values such as dates, numbers, and strings.

- The live() method delegates event handlers to existing and future elements that match with the selector.

- The jQuery AJAX methods allow requesting data from a distant Web server via LOAD, GET, and POST in different formats and load the same into the desired HTML element.

- A callback function runs once the current jQuery effect is over.

- The $.get() method asks data of a resource from a Web server through a GET request.

- The $.post() method asks data of a resource from a Web server through a POST request.

Summary 2/2

- The jQuery UI library offers the autocomplete() method to implement the autocomplete plugin.

- A widget refers to an object associated with an element on a Webpage for handling the lifespan, interaction, state, and inheritance and other aspects with other JS objects or widgets.

- The jQuery UI widgets are special plugins that simplify the task of applying functionality to their associated elements and offering some capabilities lacking in standard jQuery plugins.

- The Datatable jQuery plugin makes a plain HTML table dynamic by easily including the pagination, sorting, and searching utilities in it.