



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

- Live() function delegates single or multiple event handlers
- Another way of event delegation performs in jQuery
- Promote the use of DOM
- The die() method is used to remove associated event handler
- Syntax:

```
$(selector).live(event,data,function);
```

- On() method takes care of all event delegation task as well as live() method tasks



jQuery AJAX

- Update parts of Webpage by exchanging data between server and client
- Without reloading or refreshing Webpage
- Examples – Gmail and YouTube
- AJAX code without jQuery is complex
- jQuery provides AJAX methods to develop Web applications
- 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 is over
- Line by line execution in JavaScript, lead to errors
- Syntax:

```
$(selector).hide(speed,callback);
```

- Effects are – hide, fade, or slide
- 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()
Functional ity	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. For example: <code>\$('#selector').load('url', 'data');</code>	Does not follow a selector while coding. Instead, it invokes a callback function to insert the data from the server. For example: <code>\$.get('url', 'data', function (response) { \$('#selector').html(response); });</code>



jQuery \$.post() Function

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

```
$.post(URL,data,callback);
```

- Three parameters – URL, data, and callback function



\$.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)

- Library offers autocomplete() function
- Syntax:

`$(selector, context).autocomplete (opt);`

- More than one option can be included
- Syntax:

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

- Different options are:

appendTo

source

delay

minLength

Autofocus

disabled

position



Widgets (1-2)

- An object associated with a HTML element to handle many aspects
- Aspects are:



- Widget is the visual section of jQuery user interface
- Come from jQuery UI and used for interactive designing of Webpages
- 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 (1-3)

- 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.



Summary (2-3)

- 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.
- 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.



Summary (3-3)

- 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.

