Instructor Notes:

Introduction to jQuery
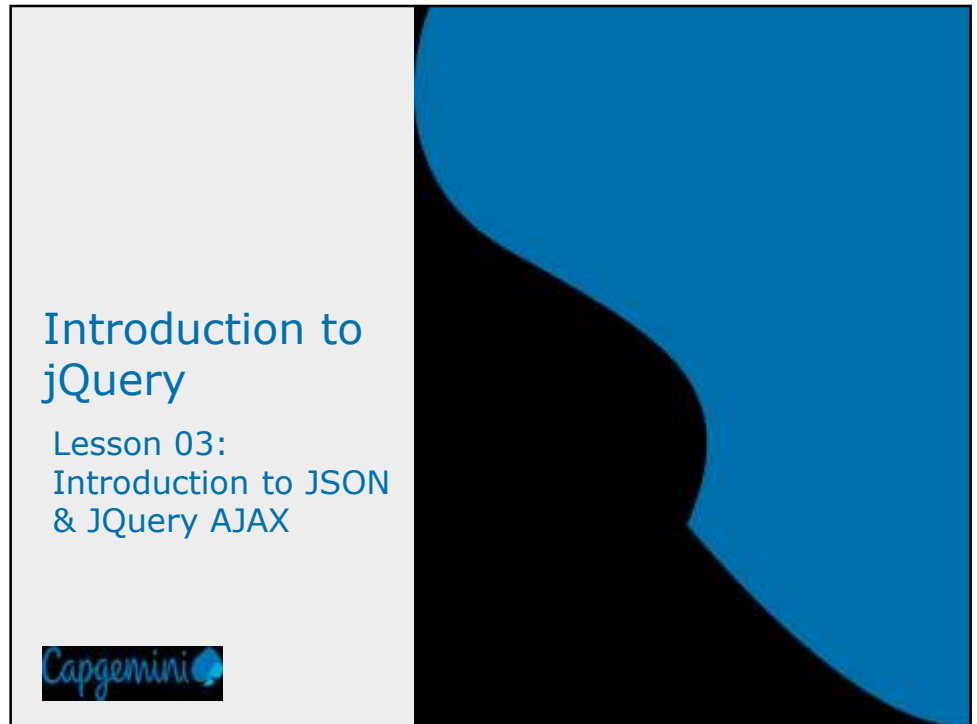
Lesson 03: Introduction to JSON & JQuery AJAX

Capgemini

Instructor Notes:

Explain the lesson
coverage

Lesson Objectives

➢ JSON Introduction
➢ JSON Types
➢ Working with JSON Object
➢ Using JSON in jQuery
➢ Introduction to AJAX
➢ Using JQuery AJAX

Instructor Notes:

Additional notes for instructor

JSON Introduction

➢ Java Script Object Notation

➢ JSON is a lightweight format for exchanging data between the client and server.

➢ JSON is a syntax for passing around objects that contain name/value pairs, arrays and other objects.

➢ It is often used in AJAX applications because of its simplicity and its format is based on JavaScript object literals.

➢ JSON is language independent and text based. It is easy to parse and generate.

➢ Supported by most of the languages.

AJAX application:

AJAX stands for **A**synchronous **Ja**vaScript and **X**ML. AJAX is a new technique for creating better, faster, and more interactive web applications with the help of XML, HTML, CSS, and Java Script.

Ajax uses XHTML for content, CSS for presentation, along with Document Object Model and JavaScript for dynamic content display.

Conventional web applications transmit information to and from the server using synchronous requests. It means you fill out a form, hit submit, and get directed to a new page with new information from the server.

With AJAX, when you hit submit, JavaScript will make a request to the server, interpret the results, and update the current screen. In the purest sense, the user would never know that anything was even transmitted to the server.

XML is commonly used as the format for receiving server data, although any format, including plain text, can be used.

AJAX is a web browser technology independent of web server software.

A user can continue to use the application while the client program requests information from the server in the background.

Intuitive and natural user interaction. Clicking is not required, mouse movement is a sufficient event trigger.

Instructor Notes:

Additional notes for instructor

3.2. JSON Types

JSON Types

➢ Number : integer, real or floating point

➢ String : double-quoted Unicode with backslashes

➢ Boolean : true and false

➢ Array : ordered sequence of comma-separated values enclosed in square brackets

➢ Object : collection of comma-separated "key":value pairs enclosed in curly braces

➢ null

Instructor Notes:

Additional notes for instructor

JSON Object Notation

➢ A JSON object is an unordered set of name/value pairs
  - A JSON object begins with { (left brace) and ends with } (right brace)
  - Each name is followed by : (colon) and the name/value pairs are separated by , (comma) and enclosed with in quotes.

➢ var jsonObject = {"Name":"Karthik", "Company":"Capgemini"}

➢ It is very easy to parse JSON. In JavaScript, the parsing process is immediate: All we have to do is pass the JSON string to the JavaScript eval() function
  - var parsedJson = eval(jsonObject);

Instructor Notes:

Additional notes for
instructor

3.4. Using JSON in jQuery

Using JSON in jQuery

➢ A JSON object can be passed as input into jQuery Methods, so that we can avoid method chaining.

➢ We can parse a JSON string in jQuery using the following syntax

```
var obj = jQuery.parseJSON(jsonString);
```

Instructor Notes:

Additional notes for instructor

Using JSON in jQuery

Instructor Notes:

Additional notes for instructor

Demo

```
$(document).ready(function()
{
    var jsonString =       '{"company":"Capgemini"}';
    //Parsing a JSON string.
    var obj = jQuery.parseJSON(jsonString);
    alert('Company : '+obj.company );
});
```

Add the notes here.

Instructor Notes:

Additional notes for instructor

What is AJAX

➢ Traditional Web Application rely on synchronous method calls to process data.

➢ Entire web page is posted to the server each time data is submitted

➢ Above causes performance delays.

- We can overcome above problem by using AJAX.

- AJAX allows web applications to call methods asynchronously.

- Instead of posting entire page only required data is posted.

- This improves overall performance of the Web Application.

* Let's see what is AJAX.

*Traditional web applications rely on synchronous method calls to process data.

*The entire web page is posted to the server each time data is submitted through the page.

* It causing performance delays.

*This problem can be overcome by using AJAX.

AJAX is Asynchronous JavaScript and XML. It enables to interact with the server in the background without reloading the page.

*AJAX allows web applications to call methods asynchronously.

* Instead of posting the entire page to the web server, only the required data is posted.

* This improves the overall performance of the web applications.

Instructor Notes:

Additional notes for instructor

How AJAX Works

➢ AJAX communicates with the web server using XMLHttpRequest object. The following diagram illustrates how AJAX communicates between Client and Server?

AJAX communicates with the web server using **XML Http Request** object. The above diagram illustrates how AJAX communicates between Client and Server.%3.

Instructor Notes:

Additional notes for instructor

JQuery AJAX Methods

➢ JQuery Provides several methods for AJAX functionality

- Some of the Methods of JQuery with AJAX

Method	Usage
Load() Method	$(selector).load(URL,data,callback);
Get() Method	$.get(URL,callback);
Post() Method	$.post(URL,data,callback);

---

* AJAX is Asynchronous JavaScript and XML. It enables to interact with the server in the background without reloading the page.

* JQuery provides several methods for AJAX functionality. Using JQuery AJAX methods we can request text, HTML or JASON data from server. Even we can fetch contents from external resource.

Lets see few AJAX methods.

*JQuery load method loads the data from server and puts it in the selected element.URL parameter specifies the URL you wish to call. Data is optional parameter. It is Data which you want to send to the server along with request. Third parameter, callback is optional. It is the name of the function that gets executed after load completes.

*Second is the Get method. It requests data from server with HTTP GET request.

*Third is the POST method. Using this method we can post data to the server.%2.

Instructor Notes:

Additional notes for instructor

3.6. Using JQuery AJAX

JQuery AJAX Methods

➢ jquery.Ajax() method

- • It is low level method Used by all other Ajax methods in JQuery.
- • Using this method we can give Call to GET,POST,PUT,DELETE methods
- • Syntax: $.ajax({name:value, name:value, ... })

```
$.ajax({
    url: '/Home/GetProducts',
    contentType: 'application/html; charset=utf-8',
    type: 'GET',
    dataType: 'html'
})
```

Mention URL here.i.e ControllerName/ActionName

Type specifies the method which we are calling. That is , Get,Put etc.

DataType is The type of data expected from the server.

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Instructor Notes:

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3.6. Using JQuery AJAX

JQuery AJAX Methods

➤ Example of Jquery.Ajax() method

```
<p>Click the button to Get Products with an Ajax call</p>
<input id="btnAjax" name="btnAjax" type="button" value="Get Products" />
<div id="products" style="background-color:lightskyblue"></div>

@section Scripts {
    <script>
        $('#btnAjax').click(function () {

            $.ajax({
                url: "/Home/GetProducts",

                contentType: 'application/html; charset=utf-8',

                type: 'GET',

                dataType: 'html'

            })
            .success(function (result) {
                $('#products').html(result);
            })
            .error(function (xhr, status) {
                alert(xhr.error);
            });
        });
    </script>
}
```

On clicking button "btnAjax" ,it will call below java script.

Call "GetProducts" action of Home Controller

If call is successful, we will get Result returned by Controller's Action.
In this example we are appending that result to "Products" Div.

Instructor Notes:

Additional notes for instructor

3.6. Using JQuery AJAX

JQuery AJAX Methods

➢ $.getJSON() method

- The getJSON() method is used to get JSON data using an AJAX HTTP GET request.
- Syntax   `jQuery.getJSON( url [, data ] [, success ] )`
- url: A string containing the URL to which the request is sent.
- data: A plain object or string that is sent to the server with the request.
- Success: A callback function that is executed if the request succeeds.

Instructor Notes:

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3.6. Using JQuery AJAX

JQuery AJAX Methods

➢ Example of $.getJSON()

```
<p>Click the button to Get Products with an Ajax call</p>
<input id="btnAjax" name="btnAjax" type="button" value="Get Products" />
<div id="products" style="background-color:lightskyblue"></div>

@section Scripts {
    <script>
        $('#btnAjax').click(function () {
            $.getJSON("/Home/GetProducts", null, function (data) {
                alert(data);
                var div = $('#products');
                div.html("<br/> " + "Products received from server: " + "<br/>");
                $.each(data, function (i, item) {
                    printProducts(div, item);
                });

            });

        });
        function printProducts(div, item) {
            alert(item);
            div.append("<br/>" + "Name: " + item.Name + ", Description: " + item.Description);

        }
    </script>
}
```

Give call to
"GetProducts"
method of Home
Controller

If request
succeeds,"PrintProduct
s" function will get
called.

Summary

- ➢ JSON is a lightweight format for exchanging data between the client and server.
- ➢ JSON objects are typed
- ➢ JSON is language independent and text based. It is easy to parse and generate
- ➢ It is often used in AJAX applications because of its simplicity
- ➢ AJAX allows web applications to call methods asynchronously & supports partial page rendering.
- ➢ JQuery Provides several methods (get, post, load, ajax) for AJAX functionality

Add the notes here.

Instructor Notes:

Answers for the Review
Question 1: B
Question 2: C

Review Question

➢ Question 1 : JSON is language dependent?
- A. True
- B. False

➢ Question 2 : _____ is not a valid JSON type
- A. Boolean
- B. String
- C. Date
- D. Array

Add the notes here.