

TRAINER PREPARATION GUIDE 4.4: ACCESS DATA ACCESS BY USING JAVASCRIPT

Lesson Objective 4.4:

Access data access by using JavaScript.

Required materials to teach this lesson:

1. Microsoft® Expression® Studio 4 (preferred) or Notepad++. Notepad++ provides real-time feedback for writing JavaScript. Download: <http://www.notepadplusplus.org/> (Internet Explorer® 9 or later).
2. 98-375-ENU-4.4-LP
3. 98-375-ENU-4.4-IC
4. 98-375-ENU-4.4-ICKey
5. 98-375-ENU-4.4-PC
6. 98-375-ENU-4.4-Resources

Preparation tasks

Technical preparation activities:

1. Either extract the Resources file associated with this activity or copy the code below into an empty HTML page.

```
<!DOCTYPE HTML>
<HTML>
<head>
<title>Using JSON</title>
</head>
<body>
<h2>Creating JSON objects using JavaScript and an array of employees</h2>
<p>
Name: <span id="jname"></span><br />
Age: <span id="jage"></span><br />
Address: <span id="jstreet"></span><br />
Phone: <span id="jphone"></span><br />
</p>
<input type="button" value="Next Employee" onclick="nextEmployee()">
<script type="text/javascript">
var count = 0;
function nextEmployee()
{
var JSONObject = { "employees":[
{ "name":"Max Johnson", "street":"West 16th Street", "age":33,
"phone":"555 1234567"},
{ "name": "Jane Smith", "street": " 123 Main Street", "age":45,
"phone":"555 1212344"},
{ "name": "Cy Young", "street": " Apt B, 44 East Street", "age":25,
"phone":"555 7654321"} ]
}
document.getElementById("jname").innerHTML=JSONObject.employees[count].name
document.getElementById("jage").innerHTML=JSONObject.employees[count].age
```

```
document.getElementById("jstreet").innerHTML=JSONObject.employees[count].street
document.getElementById("jphone").innerHTML=JSONObject.employees[count].phone
if(count<2)

    count++;
else
    count=0;
}
</script>

</body>
</html>
```

3. **Vocabulary:**

AJAX: Asynchronous JavaScript and XML (eXtensible Markup Language).

array: in programming, a list of data values, all of the same type, any element of which can be referenced by an expression consisting of the array name followed by an indexing expression. Arrays are fundamental data structures, which, in turn, are a fundamental of computer programming.

Binary Large Object (blob): represents a chunk of data.

parse: to break input into smaller segments so that a program can act upon the information or data.

4. **Additional readings and resources:**

MSDN®:

IndexedDB: [http://msdn.microsoft.com/en-us/library/hh673548\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/hh673548(v=vs.85).aspx)

File API: [http://msdn.microsoft.com/en-us/library/hh673542\(v=VS.85\).aspx](http://msdn.microsoft.com/en-us/library/hh673542(v=VS.85).aspx)

Other resources (books, e-reference):

JSON Tutorial: <http://www.w3schools.com/json/default.asp>

HTML5 Rocks and File API: <http://www.html5rocks.com/en/tutorials/file/filesystem/>

Note: Support for HTML5 and CSS3 is changing and developing quickly. The list of resources is current as of January 2012. Check resources for current and up-to-date information at the time of classroom use.

Instructor computer setup:

1. A workstation with Expression Web 4 (with Service Pack 2) or Notepad ++ (preferred).

Instructional preparation activities:

1. Review the instructor suggestions in the notes view of Microsoft PowerPoint® presentation 98-375-ENU-4.4-LP.
2. Make copies of student documents available as needed.
3. Complete the instructions for the demonstration before class.

Lesson sequence (50 minutes)

Activating prior knowledge/lesson staging (5 minutes):

Instruct students to answer each question in the "Guiding questions" section of the In-class Activity document or in their personal class notes.

Guiding questions:

1. **Considering that HTTP is a stateless protocol, how is JavaScript used to dynamically send and receive data?** JavaScript communicates through the Internet to the server to send and receive data. Currently, it uses AJAX to complete this task, but HTML5 introduces many new options, including JSON for transmitting, receiving, and parsing objects.
2. **What is a JSON object and how is it used?** JSON stands for JavaScript Object Notation, and it is used to store and exchange text information. It is similar to XML, but faster and easier to parse.
3. **How are indexed databases created and used with JavaScript?** An indexed database is an object database that uses key-value data management to create, save, and retrieve information. It uses transactional databases to store keys and their corresponding values. The developer can use the key to navigate and sort the records. These databases can be stored on the client side, providing direct access by JavaScript.

Lesson activity (35 minutes):

1. Teacher instruction
 - a. Use the PowerPoint presentation 98-375-ENU-4.4-LP to review access data access by using JavaScript.
 - b. An In-class Activity document is available for use as needed.

Lesson review (10 minutes):

1. Lead students in a discussion of the guiding questions.
2. During and after the discussion, have students list any questions they have or any topics with which they would like more assistance.
3. Have students work in pairs to answer the additional questions written by students. Answer any questions that cannot be answered by students, or collect them for follow-up later.
4. Provide the Post-class Activity document for additional review.