

IT452 Advanced Web and Internet Systems

Set 3: AJAX Basics

What can AJAX do?

ajax1_1 – Inserting a row (1/2)

```
// Inserts "this is a new row" as a new row in the table
function handleQuery() {
    var elems = [ "this", "is", "a", "new", "row" ];
    insertRow(elems);
    return false; // false prevents form from actually submitting
}
```

...

```
<form method="get" action="" onsubmit="return handleQuery()">
    <p>User name:
        <input name="query_str" type="text" />
        <input name="query_act" type="submit" value="Query" />
    </p>
</form>
```

ajax1_1 – Inserting a row (2/2)

```
// Inserts a new row into the table, and makes a cell for each
// item in the array 'elems'
function insertRow(elems) {
    // First, make the new row
    var newTR = document.createElement("tr");

    // Now add a child <td> for each item in array
    for (var i =0; i < elems.length; i++) {
        // Create the <td>
        newTD = document.createElement("td");
        newTD.innerHTML = elems[i];
        newTD.onclick = doupdateDYN;

        // Add it to the row
        newTR.appendChild(newTD);
    }

    // Finally, add the row to the table
    var theTable = document.getElementById("mytablebody");
    theTable.appendChild(newTR);
}
```

A Gotcha – Browser differences

```
<table border="1">
  <tbody id="mytablebody">
    <tr>
      <td onclick="doupdate(this)"> thing 1 </td>
      <td onclick="doupdate(this)"> thing 2 </td>
    </tr>
    <tr>
      <td onclick="doupdate(this)"> thing 3 </td>
      <td onclick="doupdate(this)"> thing 4 </td>
    </tr>
  </tbody>
</table>
```

ajax1_2 – synchronous data from server

```
// Make synchronous call to server to get data for a new row
function handleQuery() {
    xhr = window.ActiveXObject
        ? new ActiveXObject("Microsoft.XMLHTTP")
        : new XMLHttpRequest();

    // Get data from server
    xhr.open("GET", "dummy_data1.csv", false);
    xhr.send(null); // GET, so no "data" part

    // Deal with results
    if (xhr.status != 200) {
        alert("Error contacting server! Status: "+xhr.status);
    }
    else {
        // Get comma-separated data and make into an array
        var data = xhr.responseText;
        var elems = data.split(",")

        // Make new row with this data
        insertRow(elems);
    }
    return false; // false prevents the form from actually submitting
}
```

ajax1_3 – asynchronous data from server

```
// Make a-synchronous call to server to get data for a new row
function handleQuery() {
    xhr = window.ActiveXObject
        ? new ActiveXObject("Microsoft.XMLHTTP")
        : new XMLHttpRequest();

    // Start getting data from server
    xhr.open("GET", "dummy_data1.csv", true);
    xhr.onreadystatechange = handleResponse;
    xhr.send(null); // GET, so no "data" part

    return false; // false prevents the form from actually submitting
}

// Parse a text response and use to insert new row into table
function handleResponse() {
    if (xhr.readyState != 4) // not finished yet
        return;

    // Deal with results
    if (xhr.status != 200)
        alert("Error with results! Status code: "+xhr.status);
    else {
        // Get comma-separated data and make into an array
        var data = xhr.responseText;
        var elems = data.split(",")

        // Make new row with this data
        insertRow(elems);
    }
}
```

Are we AJAX yet?

Problems?

Sample XML Response

```
<person>
  <fname>Jill</fname>
  <lname>Mid</lname>
  <address>2037 Bancroft</address>
  <major>IT</major>
</person>
```

ajax1_4 – with XML, xhrActive (1/2)

```
// Make a-synchronous call to server to get data for a new row
function handleQuery() {
    if (xhrActive) {
        alert("Still busy, be patient!");
        return false; // ignore if busy already
    }

    xhr = window.ActiveXObject
        ? new ActiveXObject("Microsoft.XMLHTTP")
        : new XMLHttpRequest();

    // Start getting data from server
    xhr.open("GET", "dummy_data3.xml", true);
    xhr.onreadystatechange = handleResponse;
    xhr.send(null); // GET, so no "data" part

    xhrActive = true;
    return false; // false prevents the form from actually submitting
}
```

ajax1_4 – with XML, xhrActive (2/2)

```
// Parse an XML response and use to insert new row into table
function handleResponse() {
    if (xhr.readyState != 4) // not finished yet
        return;

    // Deal with results
    if (xhr.status != 200) {
        alert("Error with results! Status code: "+xhr.status);
    }
    else {
        // Use DOM to get data from the XML response
        var root = xhr.responseXML.documentElement; // Returns DOM root element
        var nodes = root.childNodes

        // Get each child and add it to an array
        var elems = []; // empty starting array
        for (var i=0; i<nodes.length; i++) {
            // alert(nodes[i].nodeName); // useful for seeing what the nodes are

            if (nodes[i].nodeType == 1){ // type 1 is an ELEMENT
                var oneElem = nodes[i].childNodes[0].nodeValue;
                elems[elems.length] = oneElem; // add to array
            }
        }

        // Make new row with this data
        insertRow(elems);

        xhrActive = false;
    }
}
```

ajax1_5 – without forms

```
<h1> Do we have to use forms? </h1>
```

```
<p onclick="handleQuery()">Another way to execute a  
query</p>
```

```
<p> Or try <b><span onclick="handleQuery()"> this  
other way </span> </b> </p>
```