

IT452 Advanced Web and Internet Systems

Fall 2009

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>
```

Are we AJAX yet?

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 = douupdateDYN;

    // 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="douupdate(this)"> thing 1 </td>
      <td onclick="douupdate(this)"> thing 2 </td>
    </tr>
    <tr>
      <td onclick="douupdate(this)"> thing 3 </td>
      <td onclick="douupdate(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
}
```

Are we AJAX yet?

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
}
```

Are we AJAX yet?

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 this other way </p>