Exercise 4 – Mensch-Maschine-Interaktion 2

Interaction Tracking With JavaScript
URLs of further resources and source code for this exercise are available from http://murx.medien.ifi.lmu.de/~richard/mmi2/form.

A comprehensive introduction to JavaScript programming provided by Yahoo! JavaScript Architect Douglas Crockford can be found as a video at http://developer.yahoo.com/yui/theater (second column).

1 JavaScript (Ecmascript)
Acquaint yourself with the basic facts about the following features of JavaScript:
- Syntax and semantics: Functions, global/local variables, automatic type conversion etc.
- Embedding JavaScript code in HTML documents (using <script> or attribute values)
- Traversing the HTML DOM (document object model) tree
- Changing values in the document tree
- User-generated events: onfocus, onmouseover etc.
- Useful debugging techniques: Changing the status bar text, creating popup messages
- Usage of the Mozilla/Firefox DOM inspector and JavaScript console or the Firefox extension Firebug (http://www.getfirebug.com/) for debugging

2 Tracking Interactions in HTML Forms
(Per-person homework, 1 week)

To evaluate the usability of a complex web form, it can be of interest to collect information about how people fill in the forms. In particular, it is interesting

- in what order form fields are filled in
- how much time is spent on a particular input field
- whether the contents of an already filled-in field are changed later
- whether copy & paste is used

Task: Without changing its appearance, extend a form and add the capability to track user interaction. It should be tracked when a form element is changed, when the mouse is placed on a particular element and when text is selected in a text field. The information should be stored and transmitted along with the “normal”, user-entered data when the form is submitted. This technique can be used to perform a usability test without additional infrastructure at the client side. However, it is important to inform the the users that they are tracked. A similar approach may be used to monitor regular usage and provide help depending on the users’ actions. Download the sample form (http://www.medien.ifi.lmu.de/lehre/ss07/mmi2/sample_form.html) and add interaction tracking code to all fields.
The **action attribute of the <form> element** has the following URL:
http://murx.medien.ifi.lmu.de/~richard/mmi2/http-get-post

This script will output a list of all values submitted by the form.

**Submission:**
- Solutions must include the modified HTML code for the form and a short description of how the code works.
- Your JavaScript code must work with Firefox (and should work with Internet Explorer).
- All important aspects of the JavaScript/HTML must be commented.
- Submission is by email to arnd.vitzthum@ifi.lmu.de. Please use an HTML attachment named exercise4nachname_vorname.html and send the description in the main body of the mail.
- Deadlines for email submission: Tuesday, June 12, 2007, 9 a.m. (members of groups 1-5), Thursday, June 14, 9 a.m. (members of groups 6 and 7) and Friday, June 15, 9 a.m. (members of groups 8-10).

**Example:** (Complete document available as http://murx.medien.ifi.lmu.de/~richard/mmi2/form)

```javascript
<script type="text/javascript">
    function datestamp() {
        var now = new Date(); // "var" => is local variable
        return now.getFullYear() + "-" + (now.getMonth()+1) + "-" + now.getDate() + "," + now.getHours() + ":" + now.getMinutes() + ":" + now.getSeconds();
    }
    logVal = ""; // Initialised when page loads. Contains entire log of actions

    // Called from the form elements below to log things with a timestamp
    function writeLog(domObject, text) {
        objectId = domObject.getAttribute("id");
        logLine = datestamp() + " " + objectId + " " + text;
        window.status = logLine; // Display logLine in status bar
        logVal = logVal + logLine + ";\n"; // Add logLine to interaction log
    }
    // -->
</script>

<form name="mmiform" method="post" action="http://murx.medien.ifi.lmu.de/~richard/mmi2/http-get-post"
    onsubmit="document.mmiform.log.value = logVal">
</form>
```

LMU München  
LFE Medieninformatik