JavaScript and Form Enhancement

CS 4640
Programming Languages for Web Applications

[Robert W. Sebesta, "Programming the World Wide Web
Jon Duckett, Interactive Frontend Web Development]

JavaScript and Form

Forms allow us to collect information from users. JavaScript helps us get the appropriate information from them.

Examples of form enhancement with JavaScript:

- Customizing web pages
- Making web pages more dynamic
- Change type of form input
- Validating forms
- Manipulating cookies
- Interacting with frames
- Calling Java programs

Techniques for Updating HTML Content

document.write( )

Advantage

- Simple way to add content that was not in the original source code to the page

Disadvantages

- Work only when the page initially loads
- If it is used after the page is loaded, it can
  - Overwrite the whole page
  - Not add the content to the page
  - Create a new page

Rarely used by programmers

Techniques for Updating HTML Content

element.textContent

Advantage

- Simple way to add content that was not in the original source code to the page
- Potentially prevent cross-site scripting attack
- Not parse the HTML DOM and thus tend to yield faster rendering

Disadvantages

- Remove all children elements of the target element

Techniques for Updating HTML Content

element.innerHTML

Advantage

- Easy way to get/update the entire content of an element (including markup) as a string
- Less code and faster (execution time) than DOM manipulation when adding many new elements to a page
- Simple way to remove all of the content from one element (by assigning it an empty string)

Disadvantages

- Can pose security risk (thus, should not be used to add content that come from a user)
- Difficult to isolate single elements to update within a large DOM fragment
- Event handlers may not work properly

Techniques for Updating HTML Content

DOM Manipulation

Advantage

- Easy way to change one element from a DOM fragment where there are many siblings
- Does not affect event handlers
- Easily allow a script to add elements incrementally

Disadvantages

- Slower (execution time) than innerHTML when making many changes to the content of a page
- More code to achieve the same thing compared with innerHTML

JavaScript Tips

- Build your script one piece at a time
- Store to files and load with HTML files
- Do not change variable types
- Do not use same names for global and local variables
- Remember, JavaScript is case sensitive
- Debugger
  - Firefox Javascript debugger – Venkman
  - Another Firefox debugger – Firebug

Advantages and Disadvantages

- Advantages :
  - Can modify HTML on the client
  - Fairly easy to write simple functions

- Disadvantages :
  - Weak typing
  - Poor development tools
  - Many scalability problems (maintenance, reliability, readability, security, efficiency, portability, …)

Summary

Two common purposes of JavaScript uses:

- Build HTML dynamically when page is loaded
- Monitor user events and take action

- Learning HTML syntax is not hard
- Learning JS syntax is not hard
- Designing good dynamic web pages is VERY hard