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]
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.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
- Simply 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