Lecture-5

- Javascript
 - Cookies
 - Closure
 - Miscellaneous Topics
- Brief introduction to XML
- Introduction to AJAX

Cookies

- Small amount of information a web server stores on a browser computer.
- Cookie structure -- <name, value> pairs
- Typically used to
 - Remember login and password
 - User preferences
 - Web sites visited
- Location where cookies are stored -
 - Different for each browser.
- Cookies have an expiration time
- Cookies can be removed

Cookies ... contd.

- Cookies <name, value> pairs store
 - Name of the cookie
 - Server name and path
 - If the path is "/", cookie is valid in the entire domain
 - Expiry date
- Each web server
 - Can read its OWN cookies when the web page is load
 - NOT cookies of some other web server
 - Can load multiple (less than 20) cookies on each browser.

Closure

- Closure A scope/function in which local variables are valid.
- Closures are created when
 - A function is defined in another function.
- Closure is like keeping local variables AFTER the function returns.
- To understand closures better, run the program and see what happens.
 - Useful information: <function>.toString() shows the code.
 - See the code and understand what a function is trygin to do

```
function sayHello2(name)
{
    var text = 'Hello ' + name; // local variable
    var sayAlert = function() { alert(text); }
    return sayAlert;
  }
var say2 = sayHello2("Jane");
say2();
```

Closure here:

- Function "alert (text)" is created inside another function, "sayHello2(..)"
- Function "say2()" can access local variable "text" defined in "sayHello2()"

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XML - EXtended Markup Language

- XML is a markup language, like HTML
- Designed to carry data
 - Not to display data
- XML tags are NOT predefined.
 - Unlike HTML
 - You must define your own tags
- Self-descriptive
- Represented in plain text.

A simple example

<note>
 <to>Tove</to>
 <from>Jani</from>
 <heading>Reminder</heading>
 <body>Let's meet tomorrow!</body>
</note>
Note:
1. User defined tags.

2. Self descriptive

AJAX - <u>A</u>synchronous <u>J</u>ava <u>A</u>nd <u>X</u>ML

- Made popular by Google (with Google Suggest).
- NOT a new programming language
 - A new way to use existing standards.
- Based on JavaScript and HTTP requests.
- With AJAX, JavaScript communicates
 - Directly with the (web) server
 - using XMLHttpRequest object
 - To retrieve data as needed
 - Using Javascript events (e.g., keyPressed)
 - WITHOUT refreshing the page.

How does AJAX work



Source: SUN's JAVA web page

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AJAX ... contd.

- Note: Data is typically stored in XML format
- XMLHttpRequest
 - The basic data structure interfacing the client with server.
 - Sends a request to a server (e.g., Google suggest server) on any events
 - Like "onKeyup(..)" when the user types any character search key.
 - Receives data from the server
 - Updates the required fields with data received from server.