JavaScript and AJAX

Forms (2), Strings and Regular Expressions

Huw Davies
daviesah7@cardiff.ac.uk

JavaScript and AJAX

- Strings
  - Literally, a string a characters
  - Very commonly used
  - Object like everything else in JavaScript
  - JS provides a number of methods to manipulate strings

JavaScript and AJAX

- String Methods 1
  - Assume the variable myStr contains, “Hello World!”
  - myStr.toUpperCase()
    - Returns “HELLO WORLD!”
  - myStr.toLowerCase()
    - Returns “hello world!”
  - NOTE: does not alter the value of myStr
    - case-changer.html

JavaScript and AJAX

- String Methods 2
  - If myVar is a JavaScript variable, myVar.toString() returns the string representation of the variable's value
  - To get a sensible answer, the object in myVar must provide a toString() method
    - toString.html
  - Numbers all provide such a method:
    - myVar = 12.34;
    - myVarStr = myVar.toString(); // returns “12.34”

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- String methods 3
  - If myString is a string containing “Hello World!”
  - myString.length(); // returns 12
  - myString.charAt(4); // returns 'o'
  - myString.substring(4, 8); // returns 'o Wo'
  - strings3.html

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- String methods 4
  - If myStr is a string containing 'Goodbye cruel world'
  - myStr.replace('cruel', 'dear');
    - Returns 'Goodbye dear world'
    - strings4.html
    - Can use a regular expression...

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Jquery 1

- Replace document.getElementById('id') with $('#id')
- Get the value using: $('#id').val()
- Remove a class from an element using $('#id').removeClass('class-name')
- Add a class to an element using: $(#name).addClass('err')

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- JQuery 2
- Get all instances of a radio button group: $("input[name=rbtn-grp-name]")
- Check if a checkbox is checked using: $('#id').prop('checked'))
- JQuery also provides some effects such as sliding up and down and fading in

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- Exercise:
  - Convert a checked form to JQuery

http://learn.cf.ac.uk/staff/sempb2/lesson-04/checkformbasic.html.txt

JavaScript and AJAX

- Regular Expressions (regex)
  - Search for a pattern in a string
  - The pattern has the following elements:
    - Opening delimiter (usually '/')
    - Pattern (a string of characters to find)
    - Closing delimiter (same as the opening one)
    - Any “switches”

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- Pattern examples:
  - `/fred/` looks for 'fred' and matches 'Al***fred*** ll'
  - `/[Ff]red/` looks for Fred or fred
  - `/[^A-Zd-z]red/` matches 'red' preceded by any character other than a capital, or d to z e.g. cared
  - `/.red/` matches any character followed by red
  - `/fred | joe/` matches fred or joe
  - `/[Ff]red | [Jj]oe/` matches fred, Fred, Joe or joe

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- More pattern examples:
  - `/[0-9]*/` matches any number (including zero) of digits
  - `/[A-Z]+/` matches one or more capital letters
  - `/fred*x?/` matches 'fre' followed by any number of 'd's and 0 or 1 'x'
  - /[a-z]{3,5}[A-Z]{2}[0-9]{3,}/
    - {min,max} `min` to `max` times of
    - {min,} at least `min` times
    - {n} exactly `n` times

JavaScript and AJAX

- Multipliers
  - * + ? {min, max} are called multipliers
  - Regular expressions are 'greedy' with multipliers
    - They will return the longest matching substring

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- Special characters
  - ^ beginning of the line
  - $ end of the line
  - \s any white space
  - \S any not white space
  - \d any digit
  - \D any non-digit

JavaScript and AJAX

- More special characters
  - \w equivalent to `[a-zA-Z0-9_]`
  - \W equivalent to `[^a-zA-Z0-9_]`
  - \ is the 'escape character' in other circumstances
    - To search for a '\', use '\\'

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- Switches in regular expressions
  - 'i' means 'ignore case'
    - /fred/i matches 'fred', 'FRED', 'fREd', 'FrEd' and so on
  - 'g' means 'match globally' (return all instances)
    - /fred/g matches, in the string, 'fred, john, peter, alfred, ian' returns two matches
  - Switches can be used together:
    - /fred/ig

JavaScript and AJAX

- Using regular expressions
  - aStr.match(aRegExp);
    - If the 'g' switch is used, returns an array of matches or NULL if not matched
    - If the 'g' switch is not used, returns the first match, or NULL
  - aStr.search(aRegExp);
    - Returns the index of the first match or -1 if not found

JavaScript and AJAX

- Some other functions using regular expressions
  - str.split(regexp|substr, limit)
    - Splits a string into an array of substrings delimited by regex | substr up to a maximum of `limit` array items
  - str.replace(regexp|substr, newSubStr|function)
    - We met this on an earlier slide

JavaScript and AJAX

- Form Validation with JQuery and Regular Expressions
  - Start with the result of the previous exercise
  - Modify the checks to use regular expressions as described in the handout.