

Computer Science 571 2nd Exam
Prof. Horowitz

Thursday, April 29, 2010, 9:30am – 10:45am

Name:

Student ID Number:

- 1. This is a closed book exam.**
- 2. Please answer all questions on the test**
- 3. Place all answers below and hand in the entire test**

JavaScript Questions

Below is the contents of a JavaScript file with several JavaScript functions. After the file are some questions that are based upon the JavaScript below

```
(
function()
{
    modify_music_links();

    function dom_setStyle( elt, str )
    {    elt.setAttribute( "style", str );
    }

    function dom_getElements( node, elt )
    {    var list = node.getElementsByTagName( elt );
        return (list.length) ? list : node.getElementsByTagNameNS( "*", elt );
    }

    function modify_music_links()
    {    page_links = document.links;
        for( var i = 0; i < page_links.length; i++ )
        {    var page_link = page_links[ i ];
            var url = page_link.href;
            var re = new RegExp("javascript:.*?((\\'|\\") (http.*?).*(\\'|\\"))");
            if( url.match( re ) )
            {    var m = re.exec( url );
                if( m.length == 5 )
                {    url = m[1].substring( 1, m[1].length - 1 );
                }
            }
            var x;
            var slignore = false;
            var classes = page_link.className.split(" ");
            for( x = 0; x < classes.length; x++ )
                if( classes[ x ] == "slignore" )
                    slignore = true;
        }
    }
}
```

```

        if( !signore &&
            (url.match(/^http:/) ||
             url.match(/^https:/)) &&
            ( url.match(/\mp3(\?|$)/i) ||
              url.match(/\aac(\?|$)/i) ||
              url.match(/\midi(\?|$)/i) ) )
        {
            var surl = "http://www.mp3tunes.com/sideload/?partner=5001282001&url=" +
            encodeURIComponent(url);
            box = document.createElement( "span" );
            slink = document.createElement( "a" );
            slink.href = surl;
            slink.className = "signore";
            slink.setAttribute("onClick", "window.open('" + surl +
            "','sideload','width=460,height=320,status=0,toolbar=0,location=0,menubar=0,d
            irectories=0,resizable=0,scrollbars=0'); return false;");
            img = document.createElement("img");
            img.src = "http://sideload/content/btn_sideload.gif";
            img.setAttribute("title","Click to sideload");
            slink.appendChild(img);
            box.appendChild(slink);

            page_link.parentNode.insertBefore(box, page_link);
            box.parentNode.removeChild(page_link);

            olink = document.createElement( "a" );
            olink.innerHTML = page_link.innerHTML;
            olink.href = page_link.href;
            olink.className = "signore";
            box.parentNode.insertBefore(olink, box);

            page_links = document.links;
            i = 0;
        }
    }
}
}
})();

```

JavaScript Questions [30 pts]

1. [5 pts] what does the line
`page_links = document.links;`
do?

2. [5 pts] what does the line
`var url = page_link.href;`
do?

3. [5 pts] What does the line

```
var re = new RegExp("javascript:.*?((\\'|\\") (http.*?).*'(\\'|\\"))");  
do?
```

4. [5 pts] What do the lines

```
(url.match(/^http:/) ||  
 url.match(/^https:/)) &&  
( url.match(/\.mp3(\?|$)/i) ||  
  url.match(/\.aac(\?|$)/i) ||  
  url.match(/\.midi(\?|$)/i) ) )
```

do?

5. [5 pts] what does the JavaScript function

```
encodeURIComponent()
```

do?

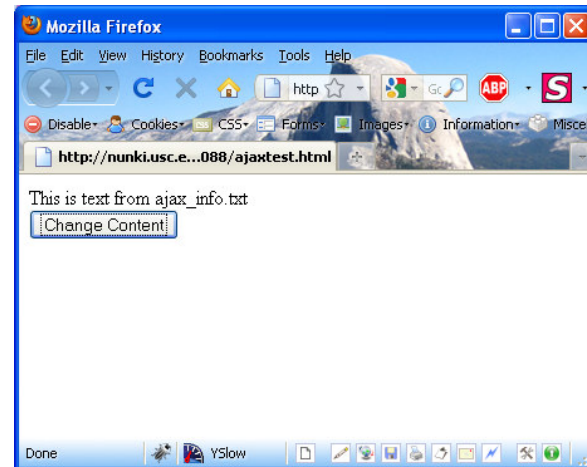
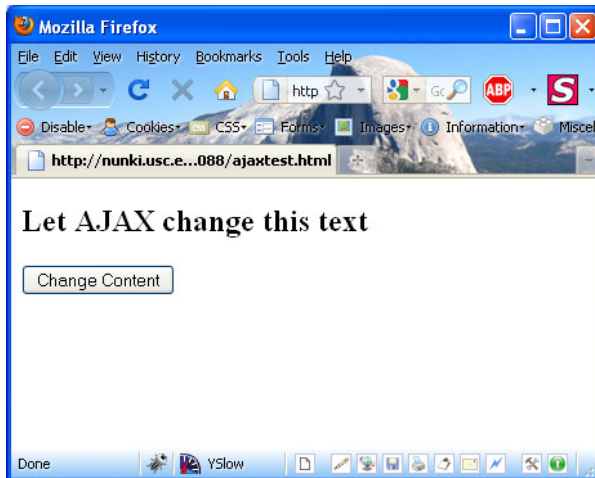
6. [5 pts] What HTML is created by the following Javascript lines

```
box = document.createElement( "span" );  
slink = document.createElement( "a" );  
slink.href = surl;  
slink.className = "slnignore";  
slink.setAttribute("onClick", "window.open('" + surl +  
"', 'sideload', 'width=460,height=320,status=0,toolbar=0,location=0,menubar=0,d  
irectories=0,resizable=0,scrollbars=0'); return false;");  
img = document.createElement("img");  
img.src = "http://sideload/content/btn_sideload.gif";  
img.setAttribute("title", "Click to sideload");  
slink.appendChild(img);  
box.appendChild(slink);
```

do?

JavaScript and AJAX Questions [35 pts]

Below are two screenshots of web pages. The first screen shows an initial page, and the second screen shows the result after the button is clicked. After the screenshots you will find a template for the code that produced the result. Fill in the missing lines.



```
<html>
<head>
<script type="text/javascript">
function loadXMLDoc()
{
if (window.XMLHttpRequest)
    { // code for IE7+, Firefox, Chrome, Opera, Safari
    xmlhttp=new [7 5pts]XXXXXXXXXXXXXXXXXXXX;
    }
else
    { // code for IE6, IE5
    xmlhttp=new [8 5pts]XXXXXXXXXXXXXXXXXXXX
    }
xmlhttp.[9 5pts]XXXXXXXXXXXXXXXXXXXX
    {
        if ([10 5pts]XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX)
        {
            document.getElementById("myDiv").innerHTML=[11 5pts]XXXXXXXXXXXXXXXXXXXX;
        }
    }
xmlhttp.open([12 5pts]XXXXXXXXXXXXXXXXXXXXXXXXXXXX);
xmlhttp.send();
}
</script>
</head>
<body>
<div id="myDiv"><h2>Let AJAX change this text</h2></div>
<button type="button" onclick="[13 5pts]XXXXXXXXXXXXXXXX">Change
Content</button>
</body>
</html>
```

Web Performance Questions [10 pts]

[14 5 pts] The lecture on High Performance Web Sites listed 14 rules for improving the speed of a website. Mention 4.

- a.
- b.
- c.
- d.

[15 5 pts] The 14 rules above are incorporated in a Firefox add-on that was demonstrated in class. What is the name of the Add-on?

PERL QUESTIONS [25 PTS]

16. [5 pts] What does the Perl script below do:

```
$_='HTML <I>munging</I> time is here <I>again</I> ! What <EM>fun</EM> !';  
while (/<(.*?)>(.*?)<\/\1>/g) {  
    print "Found  $1 which has $2 inside\n";  
}
```

17. [5 pts] Now revise the above script so it returns the number of matches.

18. [10pts] If the program below works correctly show its output, or if not indicate what the problem is?

```
@dates=(
'01/22/95', '5/15/87', '8-13-96', '5.27.78', '6/16/1993' );

foreach (@dates) {
    print;
    s#(\d\d)/(\d\d)#$2/$1#;
    print " $_\n";
}
```

19. [5 pts] What does the program below do?

```
@countries=('NL,The
Netherlands', 'BE,Belgium', 'DE,Germany', 'MC,Monaco', 'ES,Spain');

print "Enter the country code:";
chop ($find=<STDIN>);

foreach (@countries) {
    ($code,$name)=split /,/;
    if ($find=~/$code/i) {
        print "$name has the code $code\n";
    }
}
```