Computer Science 571 2nd Exam
Prof. Papa
Tuesday, December 3, 2015, 6:00pm – 7:20pm

Name: **Student ID Number:**

1. **This is a closed book exam.**
2. **Please answer all questions on the test**
3. **IMPORTANT Note: For each multiple-choice question, please choose all correct answers –OR- "All of the above". There is no partial credit for a partial answer.**

JavaScript/JSONP Questions [20 pts]

Consider the following <script> tag which includes a src attribute referring to a Google spreadsheet (using Google Drive):

```
<script
src="http://spreadsheets.google.com/feeds/list/o03712292828507838454.2635427
448373779250/od6/public/basic?alt=json-in-script&callback=listTasks">
</script>
```

Google Drive (aka Docs) will return the following JSONP:

```
listTasks(
{
    "version":"1.0",
    "encoding":"UTF-8",
    "feed":{
        "xmlns":"http://www.w3.org/2005/Atom",
        "xmlns$openSearch":"http://a9.com/-/spec/opensearchrss/1.0/",
        "xmlns$gsx":"http://schemas.google.com/spreadsheets/2006/extended",
        "id":{
        "$t":"https://spreadsheets.google.com/feeds/list/o03712292828507838454
.2635427448373779250/od6/public/basic"},
        "updated":{   "$t":"2006-12-05T10:35:42.800Z"},
        "category":[
            {
                "scheme":"http://schemas.google.com/spreadsheets/2006",
                "term":"http://schemas.google.com/spreadsheets/2006#list"
            }
        ],
        "title":{
            "type":"text",
            "$t":"Sheet1"
        },
        "link":[
            {
                "rel":"alternate",
                "type":"text/html",
        "href":"https://spreadsheets.google.com/pub?key\u003do0371229282850783
8454.2635427448373779250"},
```

```
        {
            "rel":"http://schemas.google.com/g/2005#feed",
            "type":"application/atom+xml",
        "href":"https://spreadsheets.google.com/feeds/list/o037122928285078384
54.2635427448373779250/od6/public/basic"
        },
        {
            "rel":"self",
            "type":"application/atom+xml",
        "href":"https://spreadsheets.google.com/feeds/list/o037122928285078384
54.2635427448373779250/od6/public/basic?alt\u003djson-in-script"
        }
    ],
    "author":[
        {
            "name":{
                "$t":"pamela.fox"
            },
            "email":{
                "$t":"pamela.fox@gmail.com"
            }
        }
    ],
    "openSearch$totalResults":{
        "$t":"2"
    },
    "openSearch$startIndex":{
        "$t":"1"
    },
    "entry":[
        {
            "id":{
            "$t":"https://spreadsheets.google.com/feeds/list/o03712292828507
838454.2635427448373779250/od6/public/basic/cokwr"
            },
            "updated":{
                "$t":"2006-12-05T10:35:42.800Z"
            },
            "category":[
                {
                    "scheme":"http://schemas.google.com/spreadsheets/2006",
                    "term":"http://schemas.google.com/spreadsheets/2006#list"
                }
            ],
            "title":{
                "type":"text",
                "$t":"My super great JSONP example"
            },
            "content":{
                "type":"text",
                "$t":"status: Done"
            },
            "link":[
                {
                    "rel":"self",
                    "type":"application/atom+xml",
```

```
        "href":"https://spreadsheets.google.com/feeds/list/o037122928285078384
      54.2635427448373779250/od6/public/basic/cokwr"
                }
            ]
        },
        {
            "id":{
            "$t":"https://spreadsheets.google.com/feeds/list/o03712292828507
      838454.2635427448373779250/od6/public/basic/cpzh4"
            },
            "updated":{
                "$t":"2006-12-05T10:35:42.800Z"
            },
            "category":[
                {
                    "scheme":"http://schemas.google.com/spreadsheets/2006",
                    "term":"http://schemas.google.com/spreadsheets/2006#list"
                }
            ],
            "title":{
                "type":"text",
                "$t":"Do JSON project for class"
            },
            "content":{
                "type":"text",
                "$t":"status: NotStarted"
            },
            "link":[
                {
                    "rel":"self",
                    "type":"application/atom+xml",
                "href":"https://spreadsheets.google.com/feeds/list/o037122928285
        07838454.2635427448373779250/od6/public/basic/cpzh4"}]}] }});
```

In your JavaScript, you have the following code:

```javascript
function listTasks(root) {
var feed = root.feed;
var html = [''];
html.push('<ul>');
for (var i = 0; i < feed.entry.length; ++i) {
var entry = feed.entry[i];
var title = entry.title.$t;
var content = entry.content.$t;
html.push('<li>', title, ' (', content, ')  </li>');
var u = entry.updated.$t;
html.push('<li> ', u, ' </li>');
}
html.push('</ul>');
document.getElementById("agenda").innerHTML =
html.join("");
}
```

Q1: What is the "output" produced by such a function?

A1: (partial credit will be provided)

Web Security Questions [10 pts]

Each question is worth 2 points.

Q1: What are common ways that websites get infected?

A1:
[ ] SQL Injection attacks
[ ] XSP Scripting attacks
[ ] Search Engine result redirection
[ ] Using social networking sites to infect users
[ ] Attacks on back end virtual hosting companies
[ ] ALL OF THE ABOVE

Q2: Give one example of "weak" password recovery validation

A2:

Q3: What is a JSON array vulnerable to?

A3:

Q4: Name two techniques used to bypass the same-origin policy.

A4:

Q5: What used to be the problem of Domain Keys Identified Mail (DKIM) as implemented by Google Mail?

A5:

HTML5 Questions [10 pts]

Each question is worth 2 points.

Q1: In a <canvas> element what is the purpose of the "id" attribute?

A1:

Q2: Which of the following are <u>new</u> elements in HTML5?

[ ] article
[ ] aside
[ ] applet
[ ] header
[ ] column
[ ] nav
[ ] ALL OF THE ABOVE

Q3: Which of the following are <u>removed</u> elements in HTML5?

A3:
[ ] center
[ ] font
[ ] footer
[ ] applet
[ ] time
[ ] frameset
[ ] ALL OF THE ABOVE

Q4: Name <u>three</u> new elements requested by newspaper publishers?

A4:

Q5: What is the required attribute of the <video> element in HTML5, when the video is in a single format?

A5:

Web Performance Questions [10 pts]

Each question is worth 2 points.

Q1: What Rule is this code an example of?

```
uF(this.L,this.Q,new G(b[a].x,b[a].y));var
c,d,e,f=$L(this,a),g=aM(this,a);e=b=c=d=0;
```

A1:

Q2: Why are CSS Expressions to be avoided?

A2:

Q3: Why using a large number of hostnames in a web page is not good for performance?

A3:

Q4: When is the use of eTags not recommended?

A4:

Q5: What is the interaction between favicon.ico and cookies and how do you optimize it?

A5:

JSON Questions [10 pts]

All questions are worth 2 points.

Q1: What is the MIME type for JSON?

A1:

Q2: Consider the following script:

```
<script type="text/javascript">
eval("x=10;y=20;document.write(x*y)");
document.write("<br />");
document.write(eval("2+2"));
document.write("<br />");
var x=10;
document.write(eval(x+17));
document.write("<br />"); </script>
```

What is the output that gets produced?

A2:

Q3: What is a JSON "object"?

A3:

Q4: When should you use arrays when modeling your data in JSON?

A4:

Q5: What is the following code?

```
// Constructor -- pass a REST request URL to the constructor
function JSONscriptRequest(fullUrl) {
// REST request path
this.fullUrl = fullUrl;
// Keep IE from caching requests
this.noCacheIE = '&noCacheIE=' + (new Date()).getTime();
// Get the DOM location to put the script tag
this.headLoc = document.getElementsByTagName("head").item(0);
// Generate a unique script tag id
this.scriptId = 'JscriptId' +
JSONscriptRequest.scriptCounter++;  }
// Static script ID counter
JSONscriptRequest.scriptCounter = 1;
// buildScriptTag method
JSONscriptRequest.prototype.buildScriptTag = function () {
// Create the script tag
this.scriptObj = document.createElement("script");
// Add script object attributes
this.scriptObj.setAttribute("type", "text/javascript");
this.scriptObj.setAttribute("charset", "utf-8");
this.scriptObj.setAttribute("src", this.fullUrl +
this.noCacheIE);
this.scriptObj.setAttribute("id", this.scriptId); }
// removeScriptTag method
JSONscriptRequest.prototype.removeScriptTag = function () {
// Destroy the script tag
this.headLoc.removeChild(this.scriptObj); }
// addScriptTag method
JSONscriptRequest.prototype.addScriptTag = function () {
// Create the script tag
this.headLoc.appendChild(this.scriptObj); }
```

A5:

AJAX Questions [10 pts]

All questions are worth 2 points

Q1: Of the URLs below, which have the same origin?

```
a. http://www.ajaxbook.com
b. http://www.ajaxbook.com:8443
c. https://www.ajaxbook.com
d. http://ajaxbook.com
e. http://www.ajaxbook.com:80
```

A1:

Q2: Which of the following are common characteristics of AJAX applications?
A2:

    [ ] They allow for smooth, continuous interaction
    [ ] May provide "Live" content
    [ ] May have visual effects
    [ ] May include animations and dynamic icons
    [ ] May include Google Map widgets
    [ ] May include custom selectors and buttons
    [ ] May use drag-and-drop
    [ ] May implement double-click
    [ ] ALL OF THE ABOVE

Q3: What is returned by the getAllResponseHeaders() method of the XMLHttpRequest() object?

A3:

Q4: What are two very common values of the "status" property of the XMLHttpRequest() object?

A4:

Q5: What is a common way to work around the cross-domain restriction of XMLHttpRequest()?

A5:

Cookies and Privacy Questions [10 pts]

Q1: Complete the PHP code to set a cookie with name "username2" and value "Barney rubble", and expiring in an hour:

```
<?php


_____

?>
<a href="viewcookie.php">Click here to view the cookie</a><br/><br/>
```

Q2: Complete the PHP code to view the value of a cookie named "username2". Ensure that the cookie exists.

```
<?php
if( _____ ) {

        echo "The new cookie <b>username2</b> contains the value " .


}   _____
```

JQuery Questions [10 pts]

Q1: (2 points) What is the JQuery code that corresponds to the following?

```
var myButton = document.getElementById("myButton");
```

A1:

Q2: (2 points) What are three examples of JQuery "basic" selectors?

A2:

Q3: [This question is worth 6 points] Consider the following example without JQuery:

```
hex=255; // Initial color value.
function fadetext() {
 if(hex>0) { //If color is not black yet
     hex -= 11; // increase color darkness

document.getElementById("sample").style.color="rgb("+hex+","+hex+","+hex+")"
;
     setTimeout("fadetext()",20);    }
  else   hex=255; //reset hex value
}
```

A3: Rewrite it using JQuery. Assume fadeText is the id of the button.

```
$(function() { // when document is ready
        // set a onClick handler on fadeText
        _____

            // fadeOut the sample for 125 ms, delay, then fadeIn for 125 ms

        _____
        });
});
```

Lynda.com & Guest Questions [10 pts]

Each question is worth 1 point.

Q1: Cookies can be stolen in two major ways. Mention <u>two</u> of them.

A1:

Q2: How can you avoid having cookies stolen using document.cookie? Mention <u>one</u> avoidance methodology.

A2:

Q3: Why session hijacking is worse than cookie theft?

A3:

Q4: In what kind of design would you use the following meta tag?

<meta name="viewport" content="width=device-width">

A4:

Q5: What is screen density?

A5:

Q6: What is a reference pixel?

A6:

Q7: How can you make issues with scaling factors of images go away? Name <u>one</u> such methodology.

A7:

Q8: When would you use the "uncompressed" version go jQuery?

A8:

Q9: If you were using jQuery for 1 (one) single thing, what would you use and why?

A9:

Q10: What is the major difference between "waterfall" and "scrum" development?

A10: