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):

```html
```

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

```json
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":{
         "$t":"https://spreadsheets.google.com/feeds/list/o03712292828507838454.26354274483779250/od6/public/basic",
         "updated":{  "$t":"2006-12-05T10:35:42.800Z"},
         "category":[
            {
               "term":"http://schemas.google.com/spreadsheets/2006#list"
            }
         ],
         "title":{
            "type":"text",
            "$t":"Sheet1"
         },
         "link":[
            {
               "rel":"alternate",
               "type":"text/html",
               "href":"https://spreadsheets.google.com/pub?key\u003do03712292828507838454.2635427448373779250"
            }
         ]
   }
}```
{"rel":"http://schemas.google.com/g/2005#feed","type":"application/atom+xml","href":"https://spreadsheets.google.com/feeds/list/o03712292828507838454.2635427448373779250/od6/public/basic","author":[{"name":{"$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/o03712292828507838454.2635427448373779250/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","$t":"status: Done"},"link":[{"rel":"self","type":"application/atom+xml"}]},"entry":[]}
function listTasks(root) {
    var feed = root.feed;
    var html = ['
        <ul>
            for (var i = 0; i < feed.entry.length; ++i) {
                var entry = feed.entry[i];
                var title = entry.title.$t;
                var content = entry.content.$t;
                html.push('<li>', title, ' (', content, ')</li>');
                var u = entry.updated.$t;
                html.push('<li>', u, '</li>');
            }
        </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 new elements in HTML5?

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

Q3: Which of the following are removed elements in HTML5?

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

Q4: Name three 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?

```javascript
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:

```html
<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?

```javascript
// 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?

c. https://www.ajaxbook.com
d. http://ajaxbook.com

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
<?php

// Code goes here

?>
<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 ".
} else {
    _____________________________
}
```

 JQuery Questions [10 pts]

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

```javascript
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:

```javascript
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.

```javascript
$(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 two of them.

A1:

Q2: How can you avoid having cookies stolen using document.cookie? Mention one 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?

```html
<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 one such methodology.

A7:
Q8: When would you use the “uncompressed” version of 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: