

Computer Science 571 Exam #1
Prof. Papa
Tuesday, February 20, 2018, 6:00pm – 7:20pm

Name: _____ **Student Id Number:** _____

1. This is a closed book exam.
2. Please answer all questions.
3. Place all answers on the exam and return the entire exam.

JSON QUESTIONS [20 PTS]

Consider the following `<script>` tag which includes a 'src' attribute referring to a Google spreadsheet.

```
<script  
    src="http://spreadsheets.google.com/feeds/list/o03712292828507838454.2635427448373779250/od6/public/basic?alt=json-in-script&callback=listTasks">
```

```
</script>
```

```
<div id="agenda"></div>
```

the URL in the above script will return the following JSON result:

```
listTasks ({ "version": "1.0", "encoding": "UTF-8", "feed": {  
  "entry": [{  
    {  
      "title": { "type": "text", "$t": "Hello World!" },  
      "content": { "type": "text", "$t": "Status: Start" } },  
    {  
      "title": { "type": "text", "$t": "Goodbye World!" },  
      "content": { "type": "text", "$t": "Status: Finish" }  
    }  
  ] }  
});
```

Complete the program that will output the following in the `<DIV>` section:

```
<ul>  
  <li> Hello World! (Status: Start) </li>  
  <li> Goodbye World! (Status: Finish) </li>  
</ul>
```

Each missing line is listed as **XXXXXXd**.

```

function listTasks(root) {
var feed = XXXXXXX1; _____
var entries = feed.entry || [];
var html = [''];
html.push('<ul>');
for (var i = 0; i < feed.entry.length; ++i) {
    var entry = XXXXXXX2; _____
    var title = XXXXXXX3; _____
    var content = XXXXXXX4; _____
    html.push('<li> ', title, ' (' , content, ') </li>');
}
html.push('</ul>');
document.XXXXXXX5 = html.join("");

```

PHP QUESTIONS [20 PTS]

Below are two screenshots of a web page, an initial screenshot, and then another screenshot after some fields have been filled in and the Submit button is clicked. Below is the PHP code that was used. Some lines have missing code, shown as **XXXXXXXd**. Provide the missing code.

PHP Form Validation Example

*** required field.**

Name: *

E-mail: *

Website:

Comment:

Gender: ☐ Female ☐ Male *

Your Input:

PHP Form Validation Example

*** required field.**

Name: * Name is required

E-mail: *

Website:

Comment:

Gender: ☐ Female ☒ Male *

Your Input:

papa@usc.edu

male

```

<!DOCTYPE HTML>
<html>
<head>
<style>
.error {color: #FF0000;}
</style>
</head>
<body>

<?php
// define variables and set to empty values
$nameErr = $emailErr = $genderErr = $websiteErr = "";
$name = $email = $gender = $comment = $website = "";

if ($_SERVER["REQUEST_METHOD"] == "POST") {
    if (empty($_POST["name"])) {
        $nameErr = XXXXXXXXX1;

        _____
    } else {
        $name = test_input($_POST["name"]);
        // check if name only contains letters (upper and lowercase) and
        whitespace
        if (!preg_match("XXXXXXXXX2", $name)) {

            _____
            $nameErr = "Only letters and white space allowed";
        }
    }

    if (empty($_POST["email"])) {
        $emailErr = "Email is required";
    } else {
        $email = test_input($_POST["email"]);
        // check if e-mail address is well-formed
        if (!filter_var($email, FILTER_VALIDATE_EMAIL)) {
            $emailErr = "Invalid email format";
        }
    }

    if (empty($_POST["website"])) {
        $website = "";
    } else {
        $website = test_input($_POST["website"]);
        if (!preg_match("/\b(?:(:?https?|ftp):\\/\|www\\.)([-a-z0-9+&#\/%?~_!:,.;]*[-a-z0-9+&#\/%?~_])/i", $website)) {
            $websiteErr = XXXXXXXXX3;

            _____
        }
    }

    if (empty($_POST["comment"])) {
        $comment = "";
    } else {
        $comment = test_input($_POST["comment"]);

```

```

    }

    if ( XXXXXXXXXX4 ) {

        _____
        $genderErr = "Gender is required";
    } else {
        $gender = XXXXXXXXXX5;
        _____
    }
}

function test_input($data) {
    $data = trim($data);
    $data = stripslashes($data);
    $data = htmlspecialchars($data);
    return $data;
}
?>

<h2>PHP Form Validation Example</h2>
<p><span class="error">* required field.</span></p>
<form method="post" action="<?php echo
htmlspecialchars($_SERVER["XXXXXXXXXX6"]);?>">

    Name: <input type="text" name="name" value="<?php echo $name;?>">
    <span class="error">* <?php echo $nameErr; ?></span>
    <br><br>
    E-mail: <input type="text" name="email" value="<?php echo
$email;?>">
    <span class="error">* <?php echo $emailErr;?></span>
    <br><br>
    Website: <input type="text" name="XXXXXXXXXX7" value="<?php echo
$website;?>">

    _____
    <span class="error"><?php echo $websiteErr;?></span>
    <br><br>
    Comment: <textarea name="comment" rows="5" cols="40"><?php
XXXXXXXXXX8; ?></textarea>

    _____
    <br><br>
    Gender:
    <input type="radio" name="gender" <?php if (XXXXXXXXXX9
    &&$gender=="female") echo "checked";?>

    _____
    value="female">Female
    <input type="radio" name="gender" <?php if (XXXXXXXXXX10
    && $gender=="male") echo "checked";?>

    _____
    value="male">Male
    <span class="error">* <?php echo $genderErr;?></span>
    <br><br>

```

```

        <input type="submit" name="submit" value="Submit">
    </form>

    <?php
    echo "<h2>Your Input:</h2>";
    echo $name;
    echo "<br>";
    echo $email;
    echo "<br>";
    echo $website;
    echo "<br>";
    echo $comment;
    echo "<br>";
    echo $gender;
    ?>

</body>
</html>

```

HTTP QUESTIONS [20 PTS]

Below is the web page www.bloomberg.com. Following that is part of the exchange of messages between the browser and the server, obtained by running HTTP Live Headers. Answer the questions that follow. Each question is worth 2 points.

The screenshot shows the Bloomberg website homepage. At the top, there's a navigation bar with links to Bloomberg.com, Businessweek.com, Bloomberg TV, and Premium. Below this is a 'MARKET SNAPSHOT' section with a line chart for the Nikkei index and a table of market data for U.S., Europe, and Asia. The table includes indices like Nikkei, Hang Seng, S&P/ASX 200, Gold, Oil (Brent), and Japan 10 YR, along with their current values and percentage changes. A search bar is located on the right side of the page. Below the market snapshot, there's a section titled 'INTRODUCING OUR CREATE YOUR OWN MENUS.' featuring a Hyatt Gold Passport advertisement. The main content area is divided into 'Top Headlines' and 'Top Videos'. The 'Top Headlines' section includes articles such as 'Asian Stocks Drop as Investors Weigh U.S. Debt Limit', 'U.S. Default Seen as Catastrophe Dwarfing Lehman's Fall', 'HTC Chairwoman Says 4th Quarter Will Be 'Biggest Challenge'', 'Caviar Off the Menu for Indian Officials as Junk Rating Looms', 'Airbus Wins First Order From Japan Air in Blow to Boeing', 'Kissel Appeals Second H.K. Conviction for Husband's Murder', and 'CLP Billionaire's Wind Farms Plan Bond Debut'. The 'Top Videos' section features a video player for 'Miley Cyrus: From Disney to Twerking Millionaire' and other video thumbnails. At the bottom, there's a section for 'Tepco's Claim Radiation Leaks Confined to Coast Called 'Silly'' with a sub-headline 'Tepco Finds New Leak at Fukushima Plant' and a link to 'Tepco Finds New Foe in Rainfall'.

(1) http://bloomberg.com/

GET / HTTP/1.1
Host: bloomberg.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.9; rv:21.0)
Gecko/20100101 Firefox/21.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
DNT: 1
Connection: keep-alive

HTTP/1.1 301 Moved Permanently
Date: Mon, 07 Oct 2013 04:26:05 GMT
Server: Apache
Location: http://www.bloomberg.com/
Content-Type: text/html; charset=iso-8859-1
Vary: Accept-Encoding
Content-Encoding: gzip
Content-Length: 193
Keep-Alive: timeout=5, max=500
Connection: Keep-Alive

(2) http://www.bloomberg.com/

GET / HTTP/1.1
Host: www.bloomberg.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.9; rv:21.0)
Gecko/20100101 Firefox/21.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
DNT: 1
Connection: keep-alive

HTTP/1.1 200 OK
Status: 200 OK
Content-Type: text/html; charset=utf-8
X-Runtime: 9
Etag: "427fcf8f86c48aee41969a854ac93363"
Vary: Accept-Encoding
Content-Encoding: gzip
Content-Length: 38719
Cache-Control: private, max-age=51
Date: Mon, 07 Oct 2013 04:26:06 GMT
Connection: keep-alive

(3) http://cdn.gottraffic.net/v/20131004_173359/stylesheets/main-min-v3_1.css

GET /v/20131004_173359/stylesheets/main-min-v3_1.css HTTP/1.1
Host: cdn.gottraffic.net
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.9; rv:21.0)
Gecko/20100101 Firefox/21.0
Accept: text/css,*/*;q=0.1
Accept-Language: en-US,en;q=0.5

Accept-Encoding: gzip, deflate
DNT: 1
Connection: keep-alive

HTTP/1.1 200 OK
Server: Sun-Java-System-Web-Server/7.0
Vary: Accept-Encoding
Expires: Sat, 04 Oct 2014 22:03:51 GMT
Cache-Control: public,max-age=31536000
Content-Type: text/css
Last-Modified: Fri, 04 Oct 2013 22:01:42 GMT
Etag: W/"3346d-524f3ac6"
Content-Encoding: gzip
Content-Length: 38110
Date: Mon, 07 Oct 2013 04:26:06 GMT
Connection: keep-alive

(4) http://www.bloomberg.com/rapi/js_config.js

GET /rapi/js_config.js HTTP/1.1
Host: www.bloomberg.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.9; rv:21.0)
Gecko/20100101 Firefox/21.0
Accept: */*
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
DNT: 1
Connection: keep-alive

HTTP/1.1 200 OK
Status: 200 OK
X-Runtime: 24
Content-Type: text/javascript; charset=utf-8
Etag: "c74967659d54746bf8b22eb67163134b"
Vary: Accept-Encoding
Content-Encoding: gzip
Content-Length: 1439
Cache-Control: private, max-age=16
Date: Mon, 07 Oct 2013 04:26:06 GMT
Connection: keep-alive

(5) http://www.bloomberg.com/favicon.ico

GET /favicon.ico HTTP/1.1
Host: www.bloomberg.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.9; rv:21.0)
Gecko/20100101 Firefox/21.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
DNT: 1
Connection: keep-alive

HTTP/1.1 200 OK
Server: Sun-Java-System-Web-Server/7.0
Vary: Accept-Encoding
Content-Type: image/x-icon

1&utmcc=__utma%3D30057196.1607550793.1381119969.1381119969.1381119969.1
%3B%2B__utmz%3D30057196.1381119969.1.1.utmcsr%3D(direct)%7Cutmccn%3D(di
rect)%7Cutmcmd%3D(none)%3B&utm=QAAAAAAAAAAAAAAAAAQ~ HTTP/1.1
Host: www.google-analytics.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.9; rv:21.0)
Gecko/20100101 Firefox/21.0
Accept: image/png,image/*;q=0.8,*/*;q=0.5
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
DNT: 1
Connection: keep-alive

HTTP/1.1 200 OK
Pragma: no-cache
Expires: Wed, 19 Apr 2000 11:43:00 GMT
Last-Modified: Wed, 21 Jan 2004 19:51:30 GMT
X-Content-Type-Options: nosniff
Content-Type: image/gif
Date: Thu, 26 Sep 2013 23:07:09 GMT
Server: Golfe2
Content-Length: 35
Cache-Control: private, no-cache, no-cache=Set-Cookie, proxy-revalidate
Age: 883139
Alternate-Protocol: 80:quic

(8) <http://www.google.com/pagead/drt/ui>

GET /pagead/drt/ui HTTP/1.1
Host: www.google.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.9; rv:21.0)
Gecko/20100101 Firefox/21.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
DNT: 1
Connection: keep-alive

HTTP/1.1 302 Found
Location:
<https://accounts.google.com/ServiceLogin?service=doritos&passive=true&go=true>
Cache-Control: private
X-Frame-Options: ALLOWALL
Content-Type: text/html; charset=UTF-8
X-Content-Type-Options: nosniff
Date: Mon, 07 Oct 2013 04:26:09 GMT
Server: safe
Content-Length: 407
X-XSS-Protection: 1; mode=block
Alternate-Protocol: 80:quic

(9) TRANSACTION OMITTED INTENTIONALLY

Q1: What would be the GET request following transaction #8?

A1:

Q2: How big is the HTML of the Bloomberg's home page?

A2:

Q3: How many redirects are listed and what are those transactions?

A3:

Q4: Why are transactions (3) and (4) responding with an ETag?

A4:

Q5: Of the servers listed, which are compressing their responses?

A5:

Q6: What content is Google Analytics responding with?

A6:

Q7: Why is the content returned by transaction (6) not compressed?

A7:

Q8: What is the purpose of transaction (5)?

A8:

Q9: What content distribution network (CDN) is Bloomberg using?

A9:

Q10: What character sets are used in these transactions?

A10:

CSS QUESTIONS [10 PTS]

Below are lines extracted from the CSS sheet of espn.com. For each line answer the question. Each question is worth 2 points.

Q1: What does this declaration do?

```
.logo-nba-large {  
    background-image:  
url(http://a4.espncdn.com/prod/assets/teamlogos/nba/logo-nba-  
teams-large-vert.png);  
    background-position: -100px 0;  
    background-repeat: no-repeat  
}
```

A1:

Q2: Give an HTML example usage of the declaration below:

```
body.page2 #header h1.phrase {  
    position: absolute;  
    top: 36px;  
    left: 189px;  
    font: 12px Helvetica, Arial, sans-serif;  
    color: #fee399;  
    padding: 2px;  
    padding-right: 10px;  
    width: 470px  
}
```

A2:

Q3: Give an HTML example usage of the declaration below:

```
#header div.insider-logo a {  
    display: block;  
    height: 25px;  
    position: relative !important  
}
```

A3:

Q4: Give an HTML example usage of the declaration below:

```
.article p {  
    margin-bottom: 10px;  
    line-height: 17px;  
    color: #333  
}
```

A4:

Q5: Write the CSS to create a “class” named “photo-enlarge” that applies only to the “BODY” element and a generic “id” name “header”, in such a way that when an “anchor” is inside an element with id=header, which in an HTML file with BODY with class=photo-enlarge, the following settings are modified as such:

```
float: right;  
color: #FFF;  
font-size: 10px;  
font-family: Verdana, Arial, Helvetica, sans-serif;  
padding-right: 14px;  
margin: 8px 10px
```

A5:

WEB SERVER/HTTP QUESTIONS [20 PTS]

Suppose you are a small startup company in the United States selling imported tennis balls from Indonesia. Your company is called IndoTennis and you have 3 employees. You intend to sell the imported tennis balls to any and all customers who visit your website and wish to purchase them. Unfortunately, your company has little money to spare and you can only afford one computer to host your website. You have no budget for software and OS purchase. **Provide short answers to each question below.**

Q1. What operating system will the computer likely run?

A1.

Q2. What web server will the computer likely run?

A2.

Q3. How do you get a static IP address to associate to your website?

A3.

Q4. How do you sign up for a domain name, say www.indotennis.com?

A4.

Q5. In the configuration file of your web server, name two critical features that may have to be modified in order to host the website.

A5.

Q6. What features of your web server will you need to configure in order to process secure transactions of purchases of tennis balls?

A6.

Q7. How would you arrange to have your content developers use a separate web server to develop new web pages without affecting the existing website?

A7. L
SEP

Q8. How will you keep track of how many people visit your website?

A8.

Q9. Who creates an ETag, a web browser or a web server?

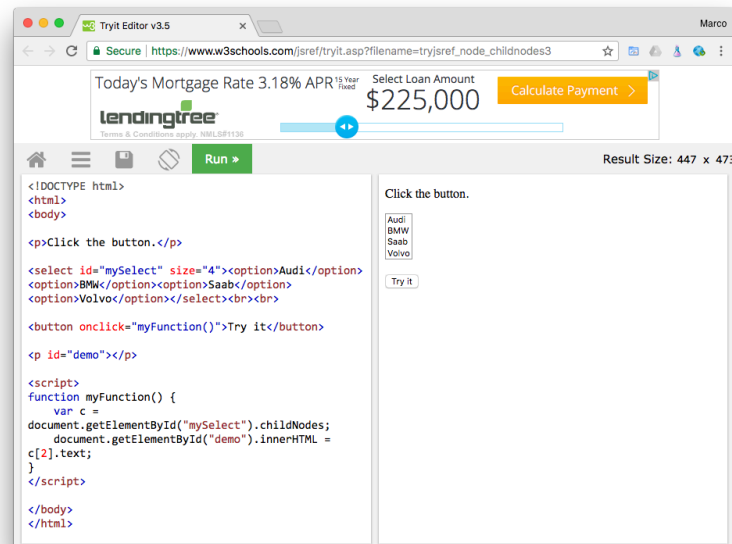
A9.

Q10. Is the use of ETag recommended for a farm of Apache servers?

A10.

DOM QUESTIONS [10 PTS]

Q1. (3 points) Consider the following example from www.w3schools.com.



The code is duplicated here:

```
<!DOCTYPE html>
<html>
<body>
<p>Click the button.</p>
```

```

<select id="mySelect"
size="4"><option>Audi</option><option>BMW</option><option>Saab</option>
<option>Volvo</option></select><br><br>
<button onclick="myFunction()">Try it</button>
<p id="demo"></p>
<script>
function myFunction() {
    var c = document.getElementById("mySelect").childNodes;
    document.getElementById("demo").innerHTML = c[2].text;
}
</script>
</body>
</html>

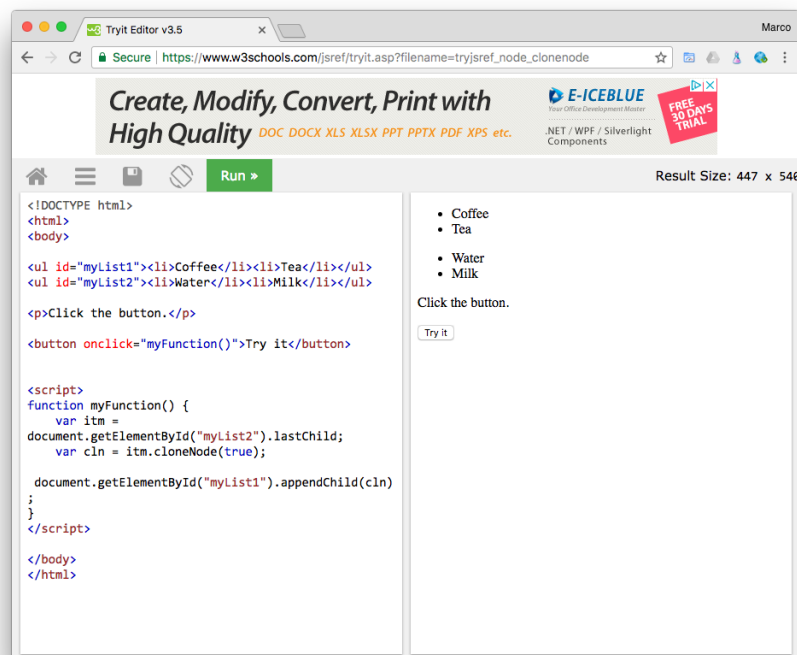
```



What happens when one clicks the “Try It” button?

A1. _____

Q2. (3 points) Consider the following example from www.w3schools.com.



The code is duplicated here:

```

<!DOCTYPE html>
<html>
<body>
<ul id="myList1"><li>Coffee</li><li>Tea</li></ul>
<ul id="myList2"><li>Water</li><li>Milk</li></ul>
<p>Click the button.</p>
<button onclick="myFunction()">Try it</button>

```

```

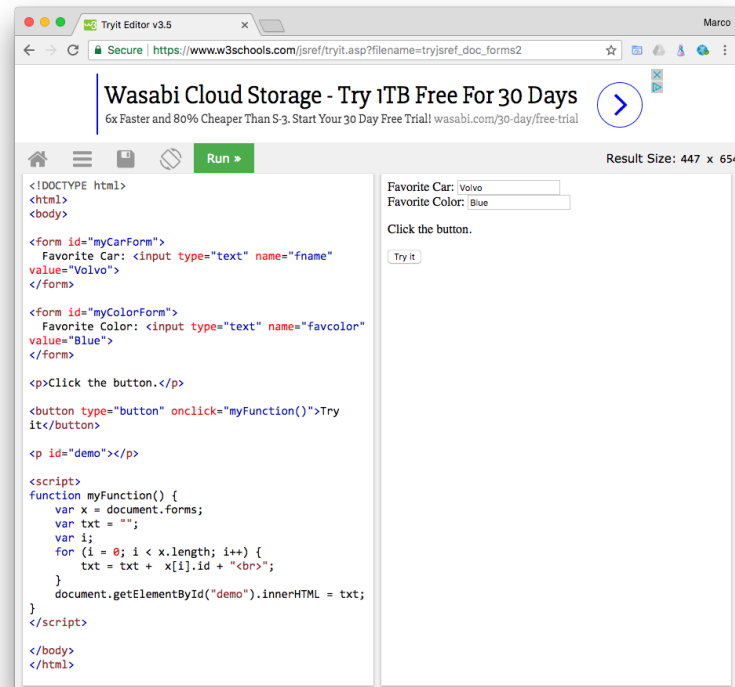
<script>
function myFunction() {
    var itm = document.getElementById("myList2").lastChild;
    var cln = itm.cloneNode(true);
    document.getElementById("myList1").appendChild(cln);
}
</script>
</body>
</html>

```

What happens when one clicks the “Try It” button?

A2. _____

Q3. (4 points) Consider the following example from www.w3schools.com.



The code is duplicated here:

```

<!DOCTYPE html>
<html>
<body>
<form id="myCarForm">
  Favorite Car: <input type="text" name="fname" value="Volvo">
</form>
<form id="myColorForm">
  Favorite Color: <input type="text" name="favcolor" value="Blue">
</form>
<p>Click the button.</p>
<button type="button" onclick="myFunction()">Try it</button>

```



```
<p id="demo"></p>
<script>
function myFunction() {
    var x = document.forms;
    var txt = "";
    var i;
    for (i = 0; i < x.length; i++) {
        txt = txt + x[i].id + "<br>";
    }
    document.getElementById("demo").innerHTML = txt;
}
</script>
</body>
</html>
```

What happens when one clicks the “Try It” button?

A3. _____

