

Computer Science 571 Exam #1
Prof. Papa
Thursday, October 11, 2012, 5:30pm – 6:45pm

Name:

Social Security or 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

WEB SERVER QUESTIONS [10 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. **Provide short answers to each question below.**

1. What operating system will the computer run?

Linux/Fedora/Debian (Any Linux flavour)

2. What web server will the computer run?

Apache

3. How do you get an IP address?

From the ISP or the service provider you are getting services from.

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

You register the domain name with an ICANN approved registrar

5. Name two critical features of your web server you will need to configure in order to host the website?

Server Root, Document Root, Location of Server side scripts

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

Configure SSL (HTTPS), Obtain certificate from a CA

7. How would you arrange to have your content developers use a separate web server to

develop new web pages without affecting the existing website?

Running web server on a different port or virtually hosting another web site on same server

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

By looking at the access log entries

9. How will you keep track of each and every purchase that is made?

By using a database in which all purchases can be recorded and an inventory can be maintained

10. What file or file(s) have to be created/set in order to establish a secure directory?

.htaccess and .htpasswd

WEB SERVER/HTTP QUESTIONS [12 PTS]

Below is a portion of an Apache web server access_log file.

```
64.221.222.142 - - [29/Sep/2006:16:12:23 -0700] "GET /cgi-bin/logscribe/makelog\
.pl?CSCI351=CGI=Demo,http://nunki.usc.edu:8088/cgisample.html HTTP/1.1" 200 55
64.221.222.142 - - [29/Sep/2006:16:12:23 -0700] "GET /cgi-bin/thanks-counter/co\
unter.cgi?position=5 HTTP/1.1" 200 1339
64.221.222.142 - - [29/Sep/2006:16:12:23 -0700] "GET /cgi-bin/thanks-counter/co\
unter.cgi?position=3 HTTP/1.1" 200 1353
64.221.222.142 - - [29/Sep/2006:16:12:23 -0700] "GET /cgi-bin/thanks-counter/co\
unter.cgi?position=2 HTTP/1.1" 200 1171
64.221.222.142 - - [29/Sep/2006:16:12:23 -0700] "GET /cgi-bin/thanks-counter/co\
unter.cgi?position=1 HTTP/1.1" 200 1339
64.221.222.142 - - [29/Sep/2006:16:12:23 -0700] "GET /cgi-bin/esclock/clock.cgi\
?0 HTTP/1.1" 200 157
64.221.222.142 - - [29/Sep/2006:16:12:23 -0700] "GET /cgi-bin/esclock/clock.cgi\
?1 HTTP/1.1" 200 154
64.221.222.142 - - [29/Sep/2006:16:12:23 -0700] "GET /cgi-bin/esclock/clock.cgi\
?2 HTTP/1.1" 200 65
64.221.222.142 - - [29/Sep/2006:16:12:23 -0700] "GET /cgi-bin/esclock/clock.cgi\
?3 HTTP/1.1" 200 157
24.126.88.149 - - [29/Sep/2006:16:12:38 -0700] "GET /cgi-bin/showcgi.pl?name=ka\
ndarp&street=rrrr&city=Isl&state=California&amount=5000&home=on&family=Please+d\
escribe+here+the+names+and+ages+of+%0D%0Apeople+in+your+family+and+the+number
+o\
f+cards+%0D%0Ayou+are+requesting.+ HTTP/1.1" 200 1756
64.221.222.142 - - [29/Sep/2006:16:12:42 -0700] "POST /cgi-bin/mailform.cgi HTT\
P/1.1" 302 299
```

64.221.222.142 - - [29/Sep/2006:16:12:42 -0700] "GET /done.html HTTP/1.1" 200 1\05

(Note: the backslash (\) denotes that the text continues on the next line)

1. [2 pts] Name the clients that are making requests of this server:

64.221.222.142 , 24.126.88.149

2. [2 pts] Name the different methods that are being used:

GET , POST

3. [2 pts] Name the programs that are being invoked:

counter.cgi, clock.cgi, showcgi.pl, mailform.cgi

Below is a portion of an Apache web server error_log file.

```
[Fri Sep 29 11:19:23 2006] [error] [client 147.21.16.3] File does not exist: /a\
uto/home-scf-22/csci571/WebServer/Apache_1.3.36/htdocs//refresh.html
[Fri Sep 29 11:36:23 2006] [error] [client 72.30.132.30] File does not exist: /\
auto/home-scf-22/csci571/WebServer/Apache_1.3.36/htdocs/robots.txt
[Fri Sep 29 12:23:08 2006] [error] [client 72.30.132.30] File does not exist: /\
auto/home-scf-22/csci571/WebServer/Apache_1.3.36/htdocs/robots.txt
[Fri Sep 29 12:23:10 2006] [error] [client 72.30.110.35] File does not exist: /\
auto/home-scf-22/csci571/WebServer/Apache_1.3.36/htdocs/ftp/template_files/temp\
lates/assignments.html
Can't create /home/scf-03/csci571/server/cgi-bin/logscribe/access.log: No such \
file or directory
Can't find string terminator "END_OF_TEXT" anywhere before EOF at /auto/home-sc\
f-22/csci571/WebServer/Apache_1.3.36/cgi-bin/cgipm/test6.pl line 7.
[Fri Sep 29 12:39:27 2006] [error] [client 66.229.27.185] Premature end of scri\
pt headers: /auto/home-scf-22/csci571/WebServer/Apache_1.3.36/cgi-bin/cgipm/tes\
t6.pl
[Fri Sep 29 13:38:28 2006] [error] [client 72.30.132.30] File does not exist: /\
auto/home-scf-22/csci571/WebServer/Apache_1.3.36/htdocs/robots.txt
[Fri Sep 29 13:38:28 2006] [error] [client 72.30.252.95] File does not exist: /\
auto/home-scf-22/csci571/WebServer/Apache_1.3.36/htdocs/ftp/template_files/scol\
ds/
```

(Note: the backslash (\) denotes that the text continues on the next line)

4. [2 pts] The first entry says “File does not exist”. What exactly is the error?

Double forward slash in URL

5. [2 pts] What exactly is the error in the second entry?

There is no file named robots.txt in htdocs

6. [2 pts] Re-write here one of the entries in the error_log file caused by attempting to run a Perl script

[Fri Sep 29 12:39:27 2006] [error] [client 66.229.27.185] Premature end of script headers: /auto/home-scf-22/csci571/WebServer/Apache_1.3.36/cgi-bin/cgipm/test6.pl

XML QUESTIONS [30 PTS]

There are 15 questions and each question is worth 2 points. Place a checkmark on the correct answer.

1. What does XML stand for?
☐ Example Markup Language
☐ X-Markup Language
☐ eXtra Modern Link
☒ eXtensible Markup Language
2. Each attribute in XML should have:
☒ Name and Value
☐ Style and Form
☐ Letter and Number
3. Is this a "well formed" XML document?
<?xml version="1.0"?>
<note>
<to>Tove</to>
<from>Jani</from>
<heading>Reminder</heading>
<body>Don't forget me this weekend!</body>
</note>
☐ No
☒ Yes
4. Is this a "well formed" XML document?
<?xml version="1.0"?>
<to>Tove</to>
<from>Jani</from>
<heading>Reminder</heading>
<body>Don't forget me this weekend!</body>
☐ Yes
☒ No
5. Which statement is true?
☐ XML documents must have a root tag
☐ XML tags are case sensitive

- ☐ XML elements must be properly nested
☒ All the statements are true

6. XML preserves white spaces

- ☐ False
☒ True

7. Is this a "well formed" XML document?

```
<?xml version="1.0"?>
<note>
<to age="29">Tove</to>
<from>Jani</from>
</note>
```

- ☒ Yes
☐ No

8. Is this a "well formed" XML document?

```
<?xml version="1.0"?>
<note>
<to age=29>Tove</to>
<from>Jani</from>
</note>
```

- ☒ No
☐ Yes

9. XML elements cannot be empty

- ☒ False
☐ True

10. Which is not a correct name for an XML element?

- ☐ <h1>
☒ <1dollar>
☐ All 3 names are incorrect
☐ <Note>

11. Which is not a correct name for an XML element?

- ☐ <age>
☐ All 3 names are incorrect
☒ <first name>
☐ <NAME>

12. Which is not a correct name for an XML element?

- ☐ <7eleven>
☒ All 3 names are incorrect
☐ <xmldocument>
☐ <phone number>

13. XML attribute values must always be enclosed in quotes
☐ False
☒ True
14. For the XML parser to ignore a certain section of your XML document, which syntax is correct?
☐ <PCDATA> Text to be ignored </PCDATA>
☐ <CDATA> Text to be ignored </CDATA>
☐ <xml:CDATA[Text to be ignored]>
☒ <![CDATA[Text to be ignored]]>
15. Which statement is true?
☐ All XML documents must have a DTD
☒ All XML elements must be properly closed
☐ All XML elements must be lower case
☐ All the statements are true

JAVASCRIPT QUESTIONS [20 PTS]

Name:

E-mail:

Zip Code:

The Figure above shows a form that is to have the following client-side validations features:

- The name must be at least four characters long, must contain at least one blank space, and must neither begin nor end with a space.
- The e-mail address must be at least five characters long, must contain no blank spaces, must contain exactly one @ character, and must contain at least one period.
- The ZIP code must be numeric and exactly five characters long.

You need to complete the JavaScript program below that performs the given validations. In case of validation failures, you should pop up an appropriate alert.

```
<html>  
  <head><title>Text Verification</title>
```

```

    <title></title>
</head>

<body>
  <form action="http://www.usc.edu/cgi/echo.cgi" method="get"
    name="infoform">
    <table border="0">

      <tr>
        <td width="80">
          <p>Name:</p>
        </td>

        <td>
          <p><input type="text" name="thename" value="" size="30"
/></p>
        </td>
      </tr>

      <tr>
        <td width="80">
          <p>E-mail:</p>
        </td>

        <td>
          <p><input type="text" name="email" value="" size="30"
/></p>
        </td>
      </tr>

      <tr>
        <td width="80">
          <p>Zip Code:</p>
        </td>

        <td>
          <p><input type="text" name="zip" value="" size="10" /></p>
        </td>
      </tr>
    </table>
    <input type="submit" value="Submit" />

  </form>
  <script language="JavaScript">
  <!--
  document.infoform.onsubmit=validate;

  function countchar(thestring,thechar) {
    var count=0;
    for(var x=0 ; x<thestring.length ; x++) {
      if(thestring.charAt(x)==thechar) {
        count++;
      }
    }
    return count;
  }

```

```

    }

    function validate()      {

        var name=document.infoform.thename.value;
        if( (name.length<4) ||
            (countchar(name," ")==0) ||
            (name.indexOf(" ")==0) ||
            (name.lastIndexOf(" ")==(name.length-1)) ) {

            alert("Invalid name format.");
            document.infoform.thename.focus();
            document.infoform.thename.select();
            return false;
        }

        var email=document.infoform.email.value;
        if( (email.length<5) ||
            (countchar(email," ")>0) ||
            (countchar(email,"@")!=1) ||
            (countchar(email,".")==0) ) {

            alert("Invalid email format.");
            document.infoform.email.focus();
            document.infoform.email.select();
            return false;
        }

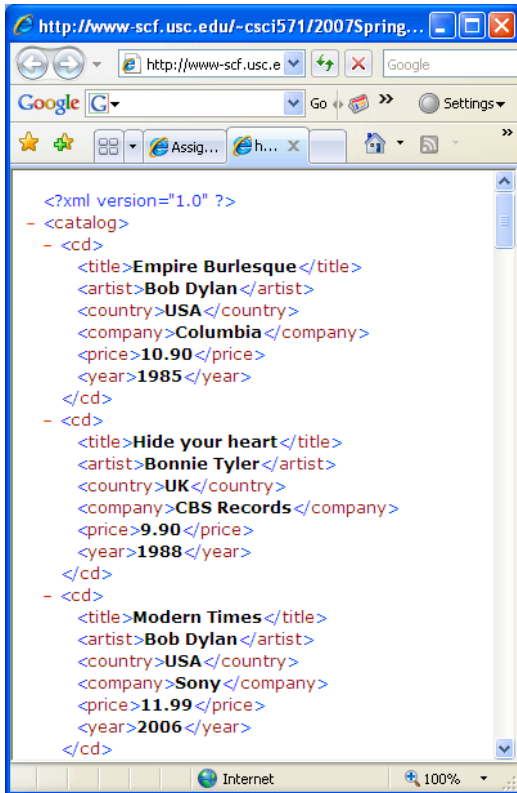
        var zip=document.infoform.zip.value;
        if( isNaN(zip) || (zip.length!=5) ) {

            alert("Invalid zip format.");
            document.infoform.zip.focus();
            document.infoform.zip.select();
            return false;
        }
        return true;
    }
    //-->
</script>
</body>
</html>

```

XML/DOM QUESTIONS [20 pts]

Below is a snapshot of a portion of the ex0.xml file from Special Topics, XSL Examples.



The program must begin by checking if your browser has an XML/DOM parser.

```
if (window.ActiveXObject){
    var xmlDoc = new ActiveXObject("Microsoft.XMLDOM");    // this is IE
    xmlDoc.async="false";
    xmlDoc.load(URL);
}
else if (document.implementation && document.implementation.createDocument)
{
    var xmlDoc= document.implementation.createDocument("", "doc", null); // NS
    xmlDoc.async=false;
    loaded = xmlDoc.load(URL);
}
```

Now assume that albums.xml has been downloaded and the XML parser in your browser (stored in the variable URL above) has processed the file so it is ready for processing by your JavaScript/DOM program. Write a JavaScript/DOM program that prints out each of the data items contained within all of the tags. For example, your output would start out as:

```
Empire Burlesque
Bob Dylan
USA
Columbia
10.90
```

1985
Hide your heart
Bonnie Tyler
Etc.

```
function generateHTML(xmlDoc)
{ ELEMENT_NODE = 1;
  root=xmlDoc.DocumentElement;
  html_text="<html><head><title>XML Parse Result</title></head><body>";
  if(xmlDoc.documentElement.hasChildNodes())
    albums=xmlDoc.documentElement.childNodes;

    for(i=0;i<albums.length;i++)
    {
      //Check for FF white spaces and if already visited ignore (Not necessary for exam)
      if(albums.item(i).nodeType!=ELEMENT_NODE) continue;
      albumList =albums.item(i).childNodes;
      for(j=0;j<albumList.length;j++)
      {
        if(albumList.item(j).nodeType==ELEMENT_NODE)
        {
          html_text+= albumList.item(j).firstChild.nodeValue+"<br>";
        }
      }
    }

  html_text+="</body> </html>";
}
```

CSS QUESTIONS [8 PTS]

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

Q1. Give an HTML example usage of the declaration below:

```
.contentWrap #contentMain .centerColumn
{width:380px;
float:left;
margin:0;}
```

A1.

```
<div class="contentWrap">
  <strong id="contentMain">
    <h1 class="centerColumn"> This is centered</h1>
```

```
        </strong>
    </div>
```

Q2. What does this declaration do?

```
.isGeneric .contentWrap{margin:20px 20px 0;}
```

A2. Declares two classes that, when BOTH applied, reset the margins.

Q3. Give one (1) HTML example of usage of the declaration below:

```
a img,:link img,:visited img{border:0;}
```

A3.

```
<a href="http://mycompany.com">
    
</a>
```

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

```
.showNav ul {
    height:16px;
    padding:5px 0 0;
    float:left;
    width:620px;
    margin:0 20px 0 0;
}

.showNav ul li {
    display:block;
    float:left;
    padding: 1px 8px 0 8px;
}

.showNav ul li a:hover{color:#202022;}
```

A4.

```
<div class="showNav">
    <ul>
        <li>Some navigation</li>
    </ul>
</div>
```