

Computer Science 571 2nd Exam
Prof. Horowitz

Thursday, December 2, 2010, 2:00m – 3:15am

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 [45 pts]

The following JavaScript regular expression is used to validate a URL.

```
var re = /^\/(?(\d{3}))\)?[[\.\-\/]?(\d{3})[\.\-\/]?(\d{4})$/;
```

Do the following phone numbers match the pattern above, YES or NO

1. [2 pts] (310).555.1212
 2. [2 pts] 555-2000
 3. [2 pts] 3105551212
 4. [2 pts] 432/4000
5. [6 pts] what is the purpose of the ^?
6. [6 pts] What is the purpose of the \$?

Below is JavaScript code that reads all the cookies that came from your server and displays their names and values. If there are no cookies, the script says “There are no cookies here”. If there are cookies, it displays a line per cookie showing what’s in the cookie. Some of the code is missing (questions 7xxxxxxx, 8xxxxxxx, 9xxxxxxx, 10xxxxxxx, and 11xxxxxxx). Please provide the missing code:

```

window.onload = showCookies;
function showCookies( ) {
    var outMsg = 7xxxxxxx;
    if (document.cookie == "") {
        outMsg = 8xxxxxxx;
    }
    else {
        var thisCookie = document.cookie.9xxxxxxx("; ");

        for ( var i = 0; i < thisCookie.length; i++) {
            outMsg += "Cookie name is '" + thisCookie[i].10xxxxxxx("=")[0]
outMsg += "'", and the value is '" + thisCookie[i].split("=")[1] + "'<br />" ;
        }
    }
    Document.getElementById("11xxxxxxx").innerHTML = outMsg;
}

```

7. [5 pts]

8. [5 pts]

9. [5 pts]

10. [5 pts]

11. [5 pts]

Web Performance Questions [15 pts]

The lecture on High Performance Web Sites listed 14 rules for improving the speed of a website. Answer the questions that follow:

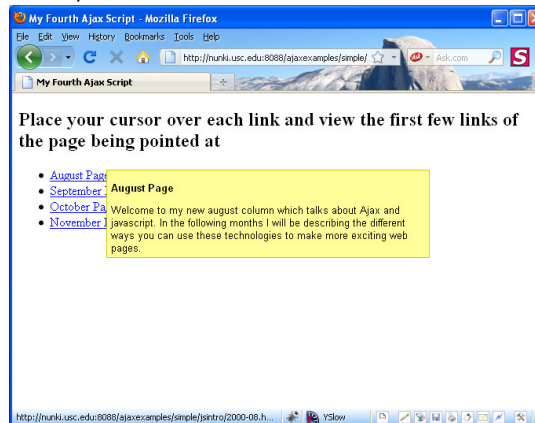
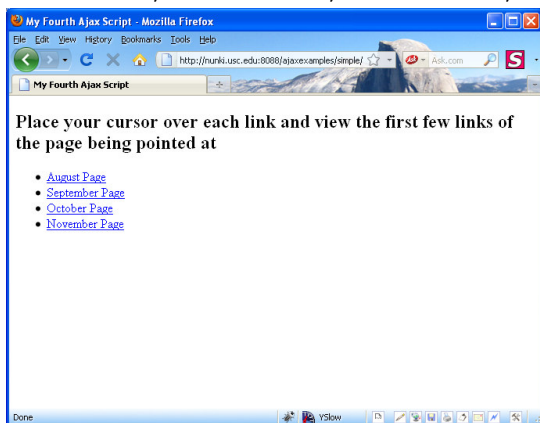
12. [5 pts] Is it recommended to place stylesheets at the beginning or at the end of a web page?

13. [5 pts] What does CDN stand for and how does it improve website performance?

14. [5 points] Why is it suggested to minimize re-directs?

JavaScript and AJAX Questions [18 pts]

Below are two screenshots of web pages. The first screen shows an initial page, and the second screen shows the result after the cursor is passed over the link labeled August Page. A popup appears containing the first few lines of the web page that will appear if the August Page link is selected. After the screenshots you will find a template for the code that produced the result. Fill in the missing phrases that are shown as 15XXXXXXX, 16XXXXXXX, 17XXXXXXX, 18XXXXXXX, 19XXXXXXX, 20XXXXXXX, 21XXXXXXX, 22XXXXXXX, 23XXXXXXX.



```
<!15XXXXXXX html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN">
<html><head>
  <title>My Fourth Ajax Script</title>
  <link rel="stylesheet" rev="stylesheet" href="script04.css" />
  <script src="script04.js" type="text/javascript" language="Javascript">
  </script>
</head><body>
<h2>A Gentle Introduction to JavaScript</h2><ul>
  <li><a href="jsintro/2000-08.html">August Page</a></li>
  <li><a href="jsintro/2000-09.html">September Page</a></li>
  <li><a href="jsintro/2000-10.html">October Page</a></li>
  <li><a href="jsintro/2000-11.html">November Page</a></li>
</ul>
<div id="16XXXXXXX"> </div>
</body>
</html>
```

HERE IS THE JAVASCRIPT FILE script04.js

```
window.onload =17XXXXXXX;
var xhr = false;
var xPos, yPos;
function initAll() {
  var allLinks = document.getElementsByTagName("18XXXXXXX");
  for (var i=0; i< allLinks.length; i++) {
```

```

        allLinks[i].onmouseover = showPreview; } }
function showPreview(evt) { getPreview(evt); return false; }
function hidePreview() {
    document.getElementById("previewWin").style.19xxxxxxx = "hidden"; }
function getPreview(evt) {
    if (evt) { var url = evt.target; }
    else { evt = window.event; var url = evt.srcElement; }
    xPos = evt.clientX; yPos = evt.clientY;
    if (window.XMLHttpRequest) {
        xhr = new 20xxxxxxx(); }
    else { if (window.ActiveXObject) {
        try { xhr = new ActiveXObject("Microsoft.XMLHTTP"); } catch (e)
{ } } }
    if (xhr) { xhr.21xxxxxxx = showContents;
        xhr.open("GET", url, true); xhr.send(null);
    } else { alert("Sorry, but I couldn't create an XMLHttpRequest"); } }
function showContents() {
    var prevWin = document.getElementById("previewWin");
    if (xhr.readyState == 4) {
        prevWin.innerHTML = (xhr.status == 22xxxxxxx) ? xhr.responseText
: "There was a problem with the request " + xhr.status;
        prevWin.style.top = parseInt(yPos)+2 + "px";
        prevWin.style.left = parseInt(xPos)+2 + "px";
        prevWin.style.visibility = "visible";
        prevWin.onmouseout =23xxxxxxx; }}

```

HERE IS THE STYLESHEET script04.css

```

#previewWin {
    background-color: #FF9;
    width: 400px;
    height: 100px;
    font: .8em arial, helvetica, sans-serif;
    padding: 5px;
    position: absolute;
    visibility: hidden;
    top: 10px;
    left: 10px;
    border: 1px #CC0 solid;
    clip: auto;
    overflow: hidden;
}
#previewWin h1, #previewWin h2 {
    font-size: 1.0em;
}

```

15. [2 points]

16. [2 points]

17. [2 points]

18. [2 points]

19. [2 points]

20. [2 points]

21. [2 points]

22. [2 points]

23. [2 points]

XML Schema Questions [10 pts]

```
<?xml version="1.0"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
             targetNamespace="http://www.books.org"
             xmlns="http://www.books.org"
             elementFormDefault="qualified">
  <xsd:element name="BookStore">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Book" maxOccurs="unbounded">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Title" type="xsd:string"/>
              <xsd:element name="Author" type="xsd:string"/>
              <xsd:element name="Date" type="xsd:string"/>
              <xsd:element name="ISBN" type="xsd:string"/>
              <xsd:element name="Publisher" type="xsd:string"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

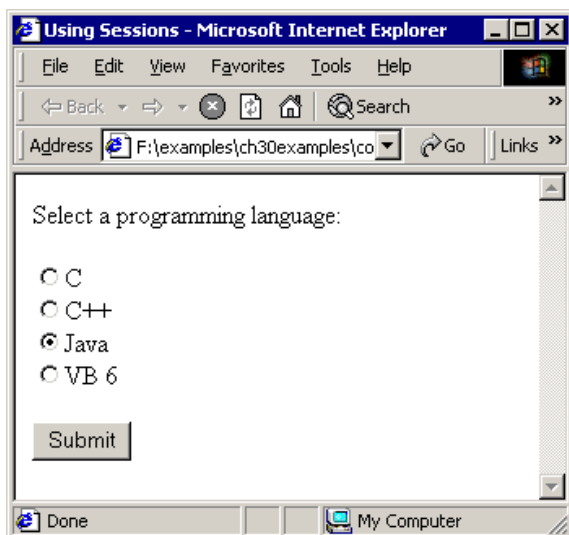
Above is an XML Schema file. Answer the following questions:

24. [3 pts] What is the default namespace?

25. [7 pts] Produce an instance file which conforms to the definitions above. Your answer does not have to refer to an actual book.

Java Servlet Questions [12 pts]

Below is a web page containing 4 programming languages, each with a radio button and a submit button. After the user chooses a programming language and clicks on Submit a java servlet is invoked. The servlet begins by setting the content type. It then creates the session, extracts the current time, the creation time, and saves it. It then gets and prints the session id. Fill in the missing details for questions 26XXXXXXX, 27XXXXXXX, 28XXXXXXX, 29XXXXXXX, 30XXXXXXX, and 31XXXXXXX below.



Above is a picture of a browser that is displaying the html page below.

```
<html><head> <title>Using Sessions</title> </head><body>
  <form action = " /SessionServlet" method = "post">
    <p>Select a programming language:</p>
    <p>
      <input type = "radio" name = "language" value = "C" />C <br />
      <input type = "radio" name = "language" value = "C++" />C++ <br />
<input type = "radio" name = "language" value = "Java" checked = "checked" />Java<br />
      <input type = "radio" name = "language" value = "VB6" />VB 6
    </p> <p><input type = "submit" value = "Submit" /></p>
  </form></body></html>
```

Below is the Java Servlet that is invoked.

```
// SessionServlet.java
import javax.servlet.*;
import javax.servlet.26XXXXXXXX.*;
import java.io.*;
import java.util.*;
public class SessionServlet extends HttpServlet {
    private final Map books = new HashMap();
    public void init()
    {
        books.put( "C", "0130895725" );
        books.put( "C++", "0130895717" );
        books.put( "Java", "0130125075" );
        books.put( "VB6", "0134569555" );
    }
    // receive language selection and create HttpSession object
    // containing recommended book for the client
    protected void doPost( 27XXXXXXXX request,
        28XXXXXXXX response )
        throws ServletException, IOException
    { String language = request.getParameter( "29XXXXXXXX" );
      HttpSession session = request.getSession( true );

      // add a value for user's choice to session
      session.setAttribute( language, books.get( language ) );
      response.setContentType( "text/html" );
      PrintWriter out = 30XXXXXXXX.getWriter( );
      out.println( "<html><head>" );
      out.println( "<title>Welcome</title></head><body>" );
      out.println( "<p>Welcome! You selected " + language + ".</p>" );
      out.println( "<p>Your unique session ID is: " + session.getId() + "<br />" );
      out.println( "This " + ( session.isNew() ? "is" : "is not" ) + " a
new session<br />" );
```

```

        out.println( "The session was created at: " +
            new Date( session.getCreationTime() ) + "<br />" );
        out.println( "You last accessed the session at: " +
            new Date( session.getLastAccessedTime() ) + "<br />" );
        out.println( "The maximum inactive interval is: " +
            session.getMaxInactiveInterval() + " seconds</p>" );
        out.println( "<p><a href = " +
            "\"servlets/SessionSelectLanguage.html\">" +
            "Click here to choose another language</a></p>" );
        out.println( "<p><a href = \"sessions\">" +
            "Click here to get book recommendations</a></p>" );
        out.println( "</body></html>" );
        out.close( );
    }

protected void doGet( XXXXXX request, XXXXXX response ) NO RESPONSE IS REQUIRED
    throws ServletException, IOException
{
    HttpSession session = request.getSession( false );
    // get names of session object's values
    Enumeration valueNames;
    if ( session != null )
        valueNames = session.getAttributeNames();
    else
        valueNames = null;
    PrintWriter out = response.getWriter();
    response.setContentType( "text/html" );
    out.println( "<html><head>" );
    out.println( "<title>Recommendations</title>" );
    out.println( "</head><body>" );
    if ( valueNames != null &&
        valueNames.hasMoreElements( ) ) {
        out.println( "<h1>Recommendations</h1>" );
        out.println( "<p>" );
        String name, value;
        while ( valueNames.hasMoreElements( ) ) { NO RESPONSE REQUIRED
            name = valueNames.nextElement().toString();
            value = session.getAttribute( name ).toString();
            out.println( name + " How to Program. " +
                "ISBN#: " + value + "<br />" );
        }
        out.println( "</p>" );
    }
    else { out.println( "<h1>No Recommendations</h1>" );
        out.println( "<p>You did not select a language.</p>" );
    }
    out.println( "</body></html>" );
    out.close(); // close stream
}

```


26. [2 pts]

27. [2 pts]

28. [2 pts]

29. [2 pts]

30. [2 pts]

31. [2 pts]