

Computer Science 571 2nd Exam – Section 1
Prof. Papa
Thursday, May 1, 2008, 5:30pm – 6:40pm

Name:

Student ID Number:

1. This is a closed book exam.
2. Please answer all questions on the respective test page

Java Servlet Questions [20 pts]

Below is snapshot of a web page that includes a text box and a button labeled Yahoo Search. When a query is entered and the button clicked, a Java Servlet is called that accepts the query and sends it to Yahoo to produce the results.



Below is part of the servlet.

```
public class WebSearch extends HttpServlet {
    public void doGet(HttpServletRequest request, HttpServletResponse res)
        throws IOException, ServletException
    {
        res.setContentType("text/html; charset=UTF-8");
        String query=request.getParameter("q");
        int max=Integer.parseInt(request.getParameter("maxresult"));
        int i =Integer.parseInt(request.getParameter("start"));
        PrintWriter out = res.getWriter ();
        SearchClient client = new SearchClient("amadeust94");
        WebSearchRequest request1 = new WebSearchRequest(query);
        request1.setResults(50);
        try {
            WebSearchResults results = client.webSearch(request1);
            out.println("<html>");
            out.println("<!-- <body> </body> -->"); //remove string
            out.println("<head>");
            out.println("<title>csci571 hw10 Yahoo Search Result</title>");
            out.println("</head>");
        }
    }
}
```

```

out.println("<body>");
// Print out how many hits were found.
out.println("<br><h2>Found          "
results.getTotalResultsAvailable() +
        " hits for "+query+" Displaying the first " +
        results.getTotalResultsReturned() + ".</h2><p>");
// Iterate over the results.
for (int j=0; j < max; j++) {
    WebSearchResult result = results.listResults()[i];
    String url=result.getUrl();
    String cacheUrl="";
    String cacheSize="";
        out.println("<br><a href="+url+"          " + (i + 1) + ": " +
result.getTitle()          +          "</a>          <br>"+result.getSummary()+"<br><font
color=green><b> URL: " + url+"</font>");
        i++;
    if(result.getCache()!=null){
        cacheUrl=result.getCache().getUrl();
        cacheSize=result.getCache().getSize();
        out.println("<font color=blue> Cache Size: "+cacheSize+"<a
href="+cacheUrl+"> Cached</a></font>");
    }
}
out.println("<p><a
href=\"http://csci351.usc.edu:16540/examples/servlet/yy?q="+query+"&start="+
i+"&maxresult="+max+"\">More Result</a>");
}
catch (IOException e) { }
catch (SearchException e) { }
catch (Exception e) { } }

```

The above Java servlet makes use of the Yahoo API for accessing web search results from a program. List any 5 Yahoo provided functions that the WebSearch class implements and for each one provide a short explanation of the input arguments and the output for each function you identify.

XML Schemas Question [20 points]

Below is a Schema, WebSearchResponse.xsd, for Yahoo's web service response of the Yahoo Search Web Service.

```
<?xml version="1.0" encoding="utf-8" ?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
  targetNamespace="urn:yahoo:srch"
  xmlns="urn:yahoo:srch"
  elementFormDefault="qualified">

  <xs:element name="ResultSet">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="Result"
type="ResultType" minOccurs="0" maxOccurs="100" />
      </xs:sequence>
      <xs:attribute name="totalResultsAvailable"
type="xs:integer" />
      <xs:attribute name="totalResultsReturned"
type="xs:integer" />
      <xs:attribute name="firstResultPosition"
type="xs:integer" />
    </xs:complexType>
  </xs:element>

  <xs:complexType name="ResultType">
    <xs:sequence>
      <xs:element name="Title" type="xs:string" />
      <xs:element name="Summary" type="xs:string" />
      <xs:element name="Url" type="xs:string" />
      <xs:element name="ClickUrl" type="xs:string" />
      <xs:element name="ModificationDate"
type="xs:string" minOccurs="0" />
      <xs:element name="MimeType" type="xs:string"
minOccurs="0" />
      <xs:element name="Cache" type="CacheType"
minOccurs="0" />
    </xs:sequence>
  </xs:complexType>

  <xs:complexType name="CacheType">
    <xs:sequence>
      <xs:element name="Url" type="xs:string" />
      <xs:element name="Size" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

The meaning of the schema response fields is as follows:

Field	Description
ResultSet	Contains all of the query responses. Has attributes: * totalResultsAvailable: The number of query matches in the database.

* totalResultsReturned: The number of query matches returned. This may be lower than the number of results requested if there were fewer total results available.

* firstResultPosition: The position of the first result in the overall search.

Result	Contains each individual response.
Title	The title of the web page.
Summary	Summary text associated with the web page.
Url	The URL for the web page.
ClickUrl	The URL for linking to the page. See URL linking for more information.
MimeType	The MIME type of the page
ModificationDate	The date the page was last modified, in unix timestamp format.
Cache	The URL of the cached result, and its size in bytes.

[20 pts] Write out an XML file that is an instance that conforms to the above schema, for a search that returns a single result . Remember to define the necessary namespaces, noting that the XSD file is located at <http://api.search.yahoo.com/WebSearchService/V1/WebSearchResponse.xsd>.

Web Services Questions [20 points]

Below is WSDL for a Web Service that provides Stock Quotes.

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions
targetNamespace="http://csci571b.usc.edu:9980/axis/services/urn:xmltoday-
delayed-quotes" xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:apachesoap="http://xml.apache.org/xml-soap"
xmlns:impl="http://csci571b.usc.edu:9980/axis/services/urn:xmltoday-delayed-
quotes" xmlns:intf="http://csci571b.usc.edu:9980/axis/services/urn:xmltoday-
```

```

delayed-quotes" xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:wSDL="http://schemas.xmlsoap.org/wSDL/"
xmlns:wSDLsoap="http://schemas.xmlsoap.org/wSDL/soap/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <wSDL:message name="testRequest">
  </wSDL:message>
  <wSDL:message name="getQuoteRequest">
    <wSDL:part name="symbol" type="xsd:string"/>
  </wSDL:message>
  <wSDL:message name="getQuoteResponse">
    <wSDL:part name="getQuoteReturn" type="xsd:float"/>
  </wSDL:message>
  <wSDL:message name="testResponse">
    <wSDL:part name="testReturn" type="xsd:string"/>
  </wSDL:message>
  <wSDL:portType name="StockQuoteService">
    <wSDL:operation name="test">
      <wSDL:input message="intf:testRequest" name="testRequest"/>
      <wSDL:output message="intf:testResponse" name="testResponse"/>
    </wSDL:operation>
    <wSDL:operation name="getQuote" parameterOrder="symbol">
      <wSDL:input message="intf:getQuoteRequest" name="getQuoteRequest"/>
      <wSDL:output message="intf:getQuoteResponse" name="getQuoteResponse"/>
    </wSDL:operation>
  </wSDL:portType>
  <wSDL:binding name="GetQuoteSoapBinding" type="intf:StockQuoteService">
    <wSDLsoap:binding style="rpc"
transport="http://schemas.xmlsoap.org/soap/http"/>
    <wSDL:operation name="test">
      <wSDLsoap:operation soapAction=""/>
      <wSDL:input name="testRequest">
        <wSDLsoap:body
encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://stock.samples" use="encoded"/>
        </wSDL:input>
      <wSDL:output name="testResponse">
        <wSDLsoap:body
encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://csci571b.usc.edu:9980/axis/services/urn:xmltoday-delayed-
quotes" use="encoded"/>
        </wSDL:output>
      </wSDL:operation>
    <wSDL:operation name="getQuote">
      <wSDLsoap:operation soapAction=""/>
      <wSDL:input name="getQuoteRequest">
        <wSDLsoap:body
encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://stock.samples" use="encoded"/>
        </wSDL:input>
      <wSDL:output name="getQuoteResponse">
        <wSDLsoap:body
encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://csci571b.usc.edu:9980/axis/services/urn:xmltoday-delayed-
quotes" use="encoded"/>
        </wSDL:output>
      </wSDL:operation>
    </wSDL:binding>

```

```

    <wsdl:service name="StockQuoteServiceService">
      <wsdl:port binding="intf:GetQuoteSoapBinding" name="GetQuote">
        <wsdlsoap:address
location="http://csci571b.usc.edu:9980/axis/services/urn:xmltoday-delayed-
quotes"/>
        </wsdl:port>
      </wsdl:service>
    </wsdl:definitions>

```

[18 pts] Fill out in the missing lines in the SOAP request and response to a request of the current value of the stock of the Google company, stock symbol AAPL, and a response that returns a “float” value of 169.54. Include the appropriate namespaces.

SOAP request:

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

```

ADD CODE HERE (9 pts)

```

</soapenv:Envelope>

```

SOAP response:

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

```

ADD CODE HERE (9 pts)

```

</soapenv:Envelope>

```

[2 pts] What “operations” are performed by this service?

Web Performance Questions [20 pts]

List the 5 rules out of the 14 rules for faster Web pages from Yahoo's Steve Souders that help speed up delivery and execution of JavaScript code.

JSON /AJAX Questions [20 pts]

The following five questions require answers according to Douglas Crockford's JSON and Ajax presentations. Each is worth 2 points.

Q1: List 4 properties of AJAX applications

Q2: What is the problem with mashups?

Q3: What are the 4 basic technologies in AJAX?

Q4: What are 3 problems with CSS

Q5: List 3 properties of JSON