

# COMP303 Internet Computing

## Review Questions

Q1)

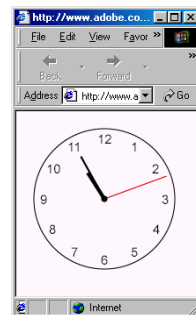
How many of the following can be used to make a cookie in the users machine?

- Java
- XML and XSLT, operating on the server
- PHP
- C

Q2)

Here is an SVG clock.

How would you create it using SVG animate commands, no JavaScript? (Ignore the 'setting up' of the initial clock line positions).



Q3)

How many of the following types of Internet files/ data can be created using a simple text editor such as Microsoft Notepad?

- XML
- HTML
- Flash
- SVG
- Microsoft Agent scripting
- Apache httpd.conf configuration file
- A Cascading Style Sheet file
- JavaScript code
- PHP code to access a database
- A DTD file

Q4)

A client program wishes to download a document with URL:

*http://www.cse.ust.hk/course/comp303/index.html*

The sequence of events/commands is shown below. **C** means client, **S** means server. Which line is incorrect?

**C:** *<establish connection to www.cse.ust.hk on port 80>*

**C:** *GET /course/comp303/index.html HTTP/1.0*

**S:** *HTTP/1.0 400 OK*

**S:** *... transfer of HTTP Header and HTML content from server to client...*

**S:** *<close the connection to the client>*

Q5)

A web server outputs a simple text file. What is the MIME type as written in the header?

- text/vnd.latex-z
- text/richtext
- text/rtf
- text/enriched
- text/html
- text/xml
- text/plain
- text/enriched
- text/sgml
- text/directory

Q6)

Here is an SVG program:

```
<svg width='100%' height='100%'
  xmlns='http://www.w3.org/2000/svg'
  xmlns:xlink='http://www.w3.org/1999/xlink'
  onload='Init(evt)'\>
<title>DOM Example</title>
<script><![CDATA[
  var SVGDocument = null;
  var SVGRoot = null;
  var SVGLeft = null;
  var SVGRight = null;
  var svgns = 'http://www.w3.org/2000/svg';
  var xlinkns = 'http://www.w3.org/1999/xlink';
  var maxFace = 5;

  function message(evt)
  {
    if (evt.target == evt.target.parentNode.lastChild) {
      alert('You have got it!');
      SVGRoot.removeChild(SVGLeft);
      SVGRoot.removeChild(SVGRight);
      maxFace+=5;
      makeFace();
    }
    else {
      alert('Try again!');
    }
  }

  function makeFace() {
    SVGLeft = SVGDocument.createElementNS(svgns, 'g');
    SVGRoot.appendChild(SVGLeft);
    for (var i=0; i<maxFace; i++) {
      var x=30+Math.floor(Math.random() * 340);
      var y=30+Math.floor(Math.random() * 540);
      var symbolRef = "#piggy";
      var node =
        SVGDocument.createElementNS(svgns, 'use');
      node.setAttribute('x', x);
      node.setAttribute('y', y);
```

```

        node.addEventListener('click', message, false);
        node.setAttributeNS(xlinkns, 'xlink:href',
                            symbolRef);
        SVGLeft.appendChild(node);
    }

    SVGRight = SVGLeft.cloneNode(true);
    SVGRight.setAttribute('transform',
                          'translate(400,0)');
    SVGRight.removeChild(SVGRight.lastChild);
    SVGRoot.appendChild(SVGRight);
}

function Init(evt)
{
    SVGDocument = evt.target.ownerDocument;
    SVGRoot = SVGDocument.documentElement;
    makeFace();
}
]]></script>

<defs>
  <g id='piggy' stroke='pink' fill='white'
    stroke-width='5'>
    <circle cx='-20' cy='-20' r='10' />
    <circle cx='20' cy='-20' r='10' />
    <ellipse cx='0' cy='2.5' rx='30' ry='25' />
    <circle cx='-8' cy='-8' r='4' fill='pink'
      stroke='none' />
    <circle cx='8' cy='-8' r='4' fill='pink'
      stroke='none' />
    <ellipse cx='0' cy='9' rx='13' ry='9' />
    <circle cx='-4' cy='9' r='3' fill='pink'
      stroke='none' />
    <circle cx='4' cy='9' r='3' fill='pink'
      stroke='none' />
  </g>
</defs>
</svg>

```

- a. Draw an example of the SVG display when the above program is first loaded.
  
- b. Describe what this program does.

Q7)

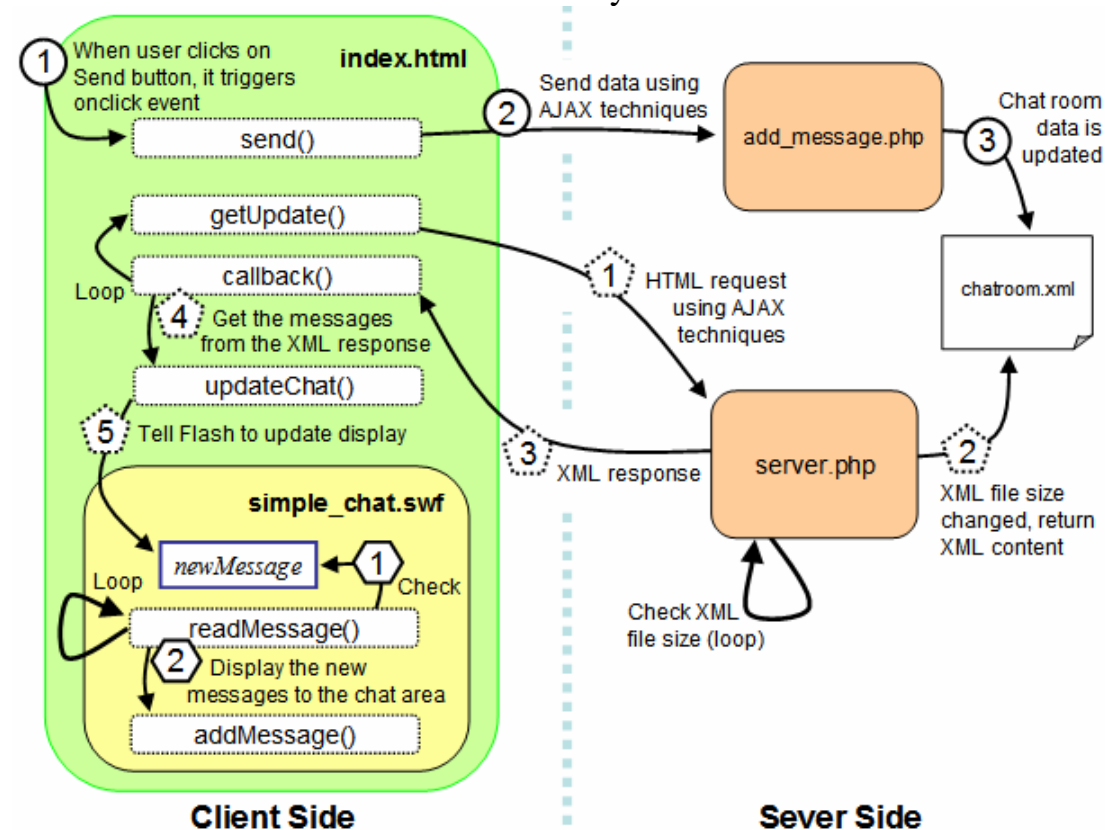
The following is a simple chat system similar to the A3 chat system.

Bob: Good morning  
Alice: Hi Bob  
Bob: What will you do on Sunday?  
Alice: Nothing, just stay at home.

Your name:

Your message:

Here is the flow of information for the system.



Here is an example XML file used in the system.

```
<?xml version="1.0"?>
<chatroom>
  <messages>
    <message name="Bob">Good morning</message>
    <message name="Alice">Hi Bob</message>
    <message name="Bob">What will you do today?</message>
    <message name="Alice">Stay at home.</message>
  </messages>
</chatroom>
```

Now we need to improve the chat system so that the sending time of each message is stored in the XML file. The following is the target XML file:

```
<?xml version="1.0"?>
<chatroom>
  <messages>
    <message name="Bob" time="09:37:51">Good morning</message>
    <message name="Alice" time="09:38:09">Hi Bob</message>
    <message name="Bob" time="09:38:36">What will you do today?</message>
    <message name="Alice" time="09:39:49">Stay at home.</message>
  </messages>
</chatroom>
```

Here is the program code of index.html

```
1  <html>
2  <head>
3  <script>
4
5  var datasize = 0;
6  var rows = 0;
7  var xmlDoc = null;
8  var xml_request = null;
9
10 // send data to the server
11 function send() {
12     // get username, message from HTML
13     var username = document.getElementById("username");
14     var message = document.getElementById("message");
15
16     // get the current time
17     var d = new Date();
18     var time = d.getHours()
19         + ":" + d.getMinutes()
20         + ":" + d.getSeconds();
21     var params = "username=" + username.getAttribute("value")
22         + "&message=" + message.getAttribute("value")
23         + "&time=" + time;
24
25     // create XMLHttpRequest object for sending data
26     var send_request =
27         new XMLHttpRequest("Microsoft.XMLHTTP");
28     send_request.open("POST", "add_message.php", true);
29     send_request.setRequestHeader("Content-type",
30         "application/x-www-form-urlencoded");
31
32     // send data to the server
```

```

33     send_request.send(params);
34
35     // clear the message field
36     message.setAttribute("value", "");
37 }
38
39 // get latest XML from server
40 function getUpdate() {
41     var params = "datasize=" + datasize;
42
43     // create XMLHttpRequest object for getting the XML file
44     xml_request = new ActiveXObject("Microsoft.XMLHTTP");
45     xml_request.onreadystatechange = callback;
46     xml_request.open("POST", "server.php", true);
47     xml_request.setRequestHeader("Content-type",
48         "application/x-www-form-urlencoded");
49
50     // send the request
51     xml_request.send(params);
52 }
53
54 // callback function
55 // when the server replies, it will be executed
56 function callback() {
57     // if the server replies
58     if (xml_request.readyState == 4
59         && xml_request.status == 200
60         && xml_request.responseText) {
61
62         xmlDoc = new ActiveXObject("Microsoft.XMLDOM");
63         xmlDoc.loadXML(xml_request.responseText);
64
65         if (xml_request.responseText.length > datasize) {
66             datasize = xml_request.responseText.length;
67
68             // update Flash
69             updateChat();
70         }
71
72         // request XML again
73         getUpdate();
74     }
75 }
76
77 // update Flash
78 function updateChat() {
79
80     // retrieve message elements from DOM
81     var messages = xmlDoc.getElementsByTagName("message");
82
83     // create a string with new messages
84     var msgStr = "";
85     for (i=rows; i<messages.length; i++) {
86         var username = messages[i].getAttribute("name");
87         var time = messages[i].getAttribute("time");

```

```

89         var content = "";
90         if (messages[i].firstChild != null)
91             content = messages[i].firstChild.nodeValue;
92         msgStr += "|" + username;
93         msgStr += "|" + time;
94         msgStr += "|" + content;
95     }
96     msgStr += "|";
97
98
99     // pass the string to Flash
100    var flashObj = document.getElementById("flashObj");
101    flashObj.SetVariable("newMessage", msgStr);
102    rows = messages.length;
103 }
104
105 </script>
106 </head>
107
108 <body onload="getUpdate()" style="font-family:Times New
109 Roman;font-size:15">
110 <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
111     codebase="http://active.macromedia.com/..."
112     id="flashObj" width="500" height="200">
113     <param name="movie" value="simple_chat.swf" />
114     <embed src="simple_chat.swf"
115         type="application/x-shockwave-flash"
116         pluginspage="http://www.macromedia.com/..." />
117 </object>
118 <br />
119 <br />
120 <b>Your name:</b>
121 <input type="text" id="username" />
122 <br />
123 <b>Your message:</b>
124 <input type="text" id="message" style="width:312" />
125 <input type="button" value="Send" onclick="send()"
126     style="width:80"/>
127 </body>
128 </html>

```

Here is the program code of add\_message.php

```
1  <?php
2      $username = $_GET["username"];
3      $message = $_GET["message"];
4      $time = $_GET["time"];
5
6      // open the xml file
7      require_once('xmlHandler.php');
8      $fn_xml = "chatroom.xml";
9      $xmlh = new xmlHandler($fn_xml);
10     $xmlh->openFile();
11     // add message element to the xml file
12     $messages_n = $xmlh->getElement("messages");
13     $message_n = $xmlh->addElement($messages_n, "message");
14     $xmlh->setAttribute($message_n, "name", $username);
15     $xmlh->setAttribute($message_n, "time", $time);
16     $xmlh->addText($message_n, $message);
17
18     // save the xml file
19     $xmlh->saveFile();
20  ?>
```

There is one problem in add\_message.php. Which statement(s) has a problem?



Q8)

Here is the code of a PHP program. Let us assume that there is no cookie created before this program is run.

```
<html>
  <head>
    <title>Visit Me!</title>
  </head>
  <body>
    <?php
      if (isset($_COOKIE["visit_count"]))
        setcookie("visit_count",
                  $_COOKIE["visit_count"] + 1);
      else
        setcookie("visit_count", 1);

      $visit_count = $_COOKIE["visit_count"];
    ?>
    You have visited here <?php echo $visit_count ?>
    time(s).
  </body>
</html>
```

- a. There is one problem in this PHP program. What is the problem?
- b. How can we change the program so that we will not have this problem?
- c. Let us assume that we have fixed the above problem. What will be the output of this program, if we have not visited this web page before?