

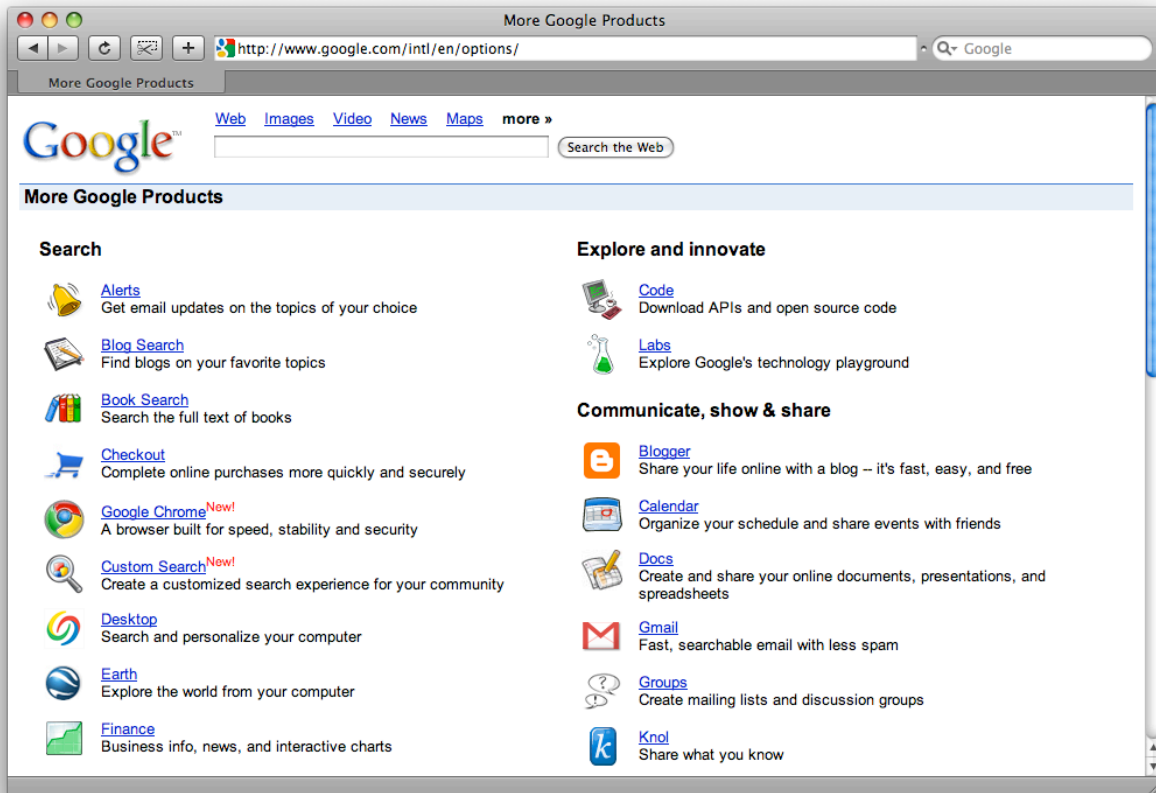
Computer Science 571 Exam #1
Prof. Papa
Thursday, February 27, 2014, 5:30pm – 6:40pm

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

HTML Questions [20 pts]



Snapshot of the More Google Products Page

Below is the Google source code (slightly edited) with line numbers added, that produced the page above. Some lines are long and wrap around. Please answer all of the questions that follow the source code.

```
1. <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
2. "http://www.w3.org/TR/html4/loose.dtd">
3. <html>
4. <head>
5. <meta http-equiv="Content-Type" content="text/html; charset=UTF-8"/>
6. <title>More Google Products</title>
```

```

7. <script type="text/javascript" src="https://ssl.google-
analytics.com/urchin.js"></script>
8. <script type="text/javascript">
9.   _uacct='UA-18000-1';
10.  _utcp='/intl/';
11.  _uanchor=1;
12. </script>
13. <link media="screen" rel="stylesheet"
href="http://www.google.com/css/google.css" type="text/css">
14. <link media="screen" rel="stylesheet"
href="http://www.google.com/css/rc.css" type="text/css">
15. <link media="screen" rel="stylesheet" href="../../css/styles.css"
type="text/css">
16. <link media="screen" rel="stylesheet" href="../../css/options.css"
type="text/css">
17. </head>
18. <body onload="document.gs.reset()">
19. <div id="container">
20. <table id="hc" width="100%" cellpadding="0" cellspacing="0">
21. <tr>
22. <td id="logo">
23. <a href="/webhp?hl=en"></a></td><td
align="left" nowrap id="hc-links">
24. <script type="text/javascript">
25.   function qs(el) {
26.     if (window.RegExp && window.encodeURIComponent) {
27.       var qe=encodeURIComponent(document.gs.q.value);
28.       if (el.href.indexOf("q=")!=-1) {
29.
30.       } else {
31.         el.href+="&q="+qe;
32.       }
33.     }
34.     return 1;
35.   }
36.   &nbsp;
37.   <font size="-1"><a href="/webhp?hl=en&tab=iw" onclick="return
qs(this);">Web</a>
38.   &nbsp;&nbsp;&nbsp;
39.   <a href="/imghp?hl=en&tab=wi" onclick="return qs(this);">Images</a>
40.   &nbsp;&nbsp;&nbsp;
41.   <a href="http://video.google.com/?hl=en&tab=wv" onclick="return
qs(this);">Video</a>
42.   &nbsp;&nbsp;&nbsp;
43.   <a href="/nwshp?hl=en&tab=wn" onclick="return qs(this);">News</a>
44.   &nbsp;&nbsp;&nbsp;
45.   <a href="http://maps.google.com/maphp?hl=en&tab=w1" onclick="return
qs(this);">Maps</a>
46.   &nbsp;&nbsp;&nbsp;
47.   <b>more &raquo;</b></font>
48.
49. <table cellpadding="4" cellspacing="1" border="0" width="100%">
50. <form name="gs" method="get" action="/search">
51. <tr>
52. <td><font size="-1"><input value="" name="output" type="hidden"><input
value="" name="sitesearch" type="hidden"><input name="hl" type="hidden"

```

```

value="en"><input maxlength="2048" value="" name="q" type="text" size="40">
<input value="Search the Web" name="submit" type="submit"></font></td>
53. </tr>
54. </form>
55. </table>
56. <br>
57. </td>
58. </tr>
59. <tr>
60. <td id="hc-text" colspan="2">
61. <table id="header" width="100%" cellpadding="0" cellspacing="0"
border="0">
62. <tr>
63. <td>
64. <table width="100%" border="0" cellpadding="2" cellspacing="0">
65. <tr>
66. <td id="headerText"><font size="3"><b>More Google
Products</b></font></td>
67. </tr>
68. </table>
69. </td>
70. </tr>
71. </table>
72. <br>
73. </td>
74. </tr>
75. </table>
76. <table width="100%" border="0" cellpadding="2" cellspacing="0">
77. <tr>
78. <td id="content" valign="top">
79. <table id="mc" cellpadding="0" cellspacing="0">
80. <tr>
81. <td id="mc-left" valign="top">
82. <div class="product-group">
83. <h3>Search</h3>
84.
85. <table class="product" cellpadding="4" cellspacing="0">
86. <tr>
87. <td style="padding-right:10px;" valign="top"><a href="/alerts?hl=en"
onclick="javascript:urchinTracker('/intl/en/options/outbound/alerts');"></a></td><td><a
onclick="javascript:urchinTracker('/intl/en/options/outbound/alerts');"
href="/alerts?hl=en">Alerts</a>
88. <br>Get email updates on the topics of your choice</td>
89. </tr>
90. </table>
91.
92. ....
93.
94. </div>
95. <div class="product-group">
96. <h3>Make your computer work better</h3>
97.
98. <table class="product" cellpadding="4" cellspacing="0">
99. <tr>

```

```

100. <td style="padding-right:10px;" valign="top"><a
href="http://pack.google.com/?hl=en&brand=GPMD&utm_source=en_US-et-
more&utm_medium=et&utm_campaign=en_US"
onclick="javascript:urchinTracker('/intl/en/options/outbound/pack');"></a></td><td><a
onclick="javascript:urchinTracker('/intl/en/options/outbound/pack');"
href="http://pack.google.com/?hl=en&brand=GPMD&utm_source=en_US-et-
more&utm_medium=et&utm_campaign=en_US">Pack</a>
101. <br>A free collection of essential software</td>
102. </tr>
103. </table>
104.
105. </div>
106.
107. </td>
108. </tr>
109. </table>
110. </td>
111. </tr>
112. </table>
113.
114. <div id="footer">
115.   &copy;2009 Google - <a href="/webhp?hl=en"
onclick="javascript:urchinTracker('/intl/en/options/outbound/footer-
home');">Google Home</a> - <a href="/ads/"
onclick="urchinTracker('/intl/en/options/outbound/footer-ads');">Advertising
Programs </a> - <a href="/services/"
onclick="javascript:urchinTracker('/intl/en/options/outbound/footer-
services');">Business Solutions</a> - <a href="/about.html"
onclick="javascript:urchinTracker('/intl/en/options/outbound/footer-
about');">About Google</a> - <a href="http://www.google.com/support?hl=en"
onclick="javascript:urchinTracker('/intl/en/options/outbound/footer-
help');">Help Center</a>
116. </div>
117. </div>
118. <script type="text/javascript">
119.   urchinTracker();
120. </script>
121. </body>
122. </html>

```

For the questions below, if a link is clicked, please provide the **complete URL**, which produces the resulting page.

1. [2 pts] What character set is used in the file?

ANSWER: **UTF-8**

2. [2 pts] How many cascading style sheets are used in this file, and what are their names?

ANSWER: **4, google.css, rc.css, styles.css, options.css**

3. [2 pts] Where is the JavaScript function urchinTracker(), called on line 119, located?

ANSWER: <https://ssl.google-analytics.com/urchin.js>

4. [2 pts] Explain the purpose of line 26, which is repeated here:

```
if (window.RegExp && window.encodeURIComponent) {
```

ANSWER: evaluates to TRUE if the browser supports the RegExp and encodeURIComponent JavaScript APIs

5. [2 pts] Consider line 27, which is repeated here. On what line or lines, are the object named “gs” and “q” located? Please indicate (line number) their location in the source code.

```
var qe=encodeURIComponent(document.gs.q.value);
```

ANSWER: on lines 50 and 52

```
50. <form name="gs" method="get" action="/search">
51. <tr>
52. <td><font size="-1"><input value="" name="output"
type="hidden"><input value="" name="sitesearch"
type="hidden"><input name="hl" type="hidden" value="en"><input
maxlength="2048" value="" name="q" type="text" size="40"> <input
value="Search the Web" name="submit" type="submit"></font></td>
```

6. [2 pts] Explain the purpose of line 28, which is repeated here:

```
if (el.href.indexOf("q=") != -1) {
```

ANSWER: Checks for the presence of the string “q=” in the HREF, since indexOf returns the position of the first occurrence of the string “q=”, or -1 if the string is not present.

7. [2 pts] On what lines is the JavaScript function named “qs” called?

ANSWER: on lines 37, 39, 41, 43, and 45

8. [4 pts] What is the resulting URL if the search box is empty and the link labeled “Search the Web” is clicked?

ANSWER: <http://www.google.com/search?output=&sitesearch=&hl=en&q=>

9. [2 pts] What is the resulting URL if the search box contains “Hello World” and the link labeled “Search the Web” is clicked?

ANSWER:
<http://www.google.com/search?output=&sitesearch=&hl=en&q=Hello+World&submit=Search+the+Web>

Web Server Questions [10 pts]

Below is a replica of an actual httpd.conf file from a real website. Each line has been numbered. Answer the questions immediately after the end of the file.

```
1. #####
2. ### General Settings
3. #####

4. ServerType standalone
5. ServerRoot "/usr/bin/local/apache"
6. PidFile "/var/run/httpd.pid"
7. ScoreBoardFile "/var/log/apache/httpd.scoreboard"
8. Timeout 300
9. KeepAlive Off
10. MaxKeepAliveRequests 100
11. KeepAliveTimeout 15
12. MinSpareServers 10
13. MaxSpareServers 20
14. StartServers 6
15. MaxClients 256
16. MaxRequestsPerChild 0
17. Port 8088
18. HostnameLookups Off
19. ServerSignature Off
20. ErrorDocument 403 /link_error.php
21. ErrorDocument 404 /link_error.php
22. ErrorDocument 500 /link_error.php
23. User nobody
24. Group nobody
25. ServerAdmin webmaster@mp3xyz.com
26. ServerName SERVER-IP
27. NameVirtualHost SERVER-IP
28. DocumentRoot "/usr/bin/local/apache/htdocs"
29. ServerTokens ProductOnly

30. Include conf/vhosts.conf
31. Include conf/vhosts_ssl.conf

32. #LoadModule sql_log_module      libexec/mod_log_sql.so
33. LoadModule php5_module          libexec/libphp5.so

34. <Directory "/usr/bin/local/apache/htdocs">
35. Options FollowSymLinks
36. AllowOverride None
37.     Order deny,allow
38.     Allow from all
39. </Directory>

40. ScriptAlias /cgi-bin/ "/usr/bin/local/apache/cgi-bin/"

41. <Directory "/usr/bin/local/apache/cgi-bin">
42.     AllowOverride None
43.     Options +ExecCGI
44.     Order allow,deny
```

```

45.     Allow from all
46. </Directory>

47. <Files ~ "^\.ht">
48.     Order allow,deny
49.     Deny from all
50.     Satisfy All
51. </Files>

52. DirectoryIndex index.html index.php

53. LogLevel warn
54. LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-Agent}i\" \"%{Cookie}i\"" combined
55. LogFormat "%h %l %u %t \"%r\" %>s %b" common
56. LogFormat "%{Referer}i -> %U" referer
57. LogFormat "%{User-agent}i" agent

58. ErrorLog /var/log/apache/error_log
59. CustomLog /var/log/apache/access_log combined env=!attacks
60. CustomLog /var/log/apache/attack_log combined env=attacks

61. TypesConfig /usr/bin/local/apache/conf/mime.types
62. DefaultType text/plain

63. AddEncoding x-compress Z
64. AddEncoding x-gzip gz tgz
65. AddType application/x-tar .tgz
66. AddType application/x-httpd-php .php
67. AddType application/x-httpd-php-source .phps

68. BrowserMatch "Mozilla/2" nokeepalive
69. BrowserMatch "MSIE 4\.0b2;" nokeepalive downgrade-1.0 force-response-1.0
70. BrowserMatch "RealPlayer 4\.0" force-response-1.0
71. BrowserMatch "Java/1\.0" force-response-1.0
72. BrowserMatch "JDK/1\.0" force-response-1.0

73. <Location /server-status>
74. SetHandler server-status
75. Order Deny,Allow
76. Deny from all
77. Allow from 10.0.0.0/24
78. Allow from 192.168.0.0/16
79. Allow from 172.16.200.0/16
80. </Location>

```

Answer the following questions:

[2 pts] In what directory is the server installed?

/usr/bin/local/apache

[2 pts] What line defines the directory containing executable scripts?

`ScriptAlias /cgi-bin/ "/usr/bin/local/apache/cgi-bin/"`

[1 pts] What is the location of the directory containing the web pages?

`/usr/bin/local/apache/htdocs`

[2 pts] What is the purpose of lines 63 – 67?

`Adding additional mime types and associated programs`

[1 pts] Does the server provide a status page, and if so where is it located?

`Yes, /usr/bin/local/apache/server-status`

[1 pts] What port does the server run on?

`8088`

[1 pts] What page is returned in the event the server cannot find the requested page?

`link_error.php`

PHP Questions [10 pts]

Each question is worth 2 points.

Q1: Which of the following is true in PHP for rules that must be followed when naming a variable?

A1:

- ☒ **Must begin with a dollar sign**
- ☐ **The first character after the dollar sign must be an uppercase letter or underscore**
- ☐ **Identifiers can contain spaces.**
- ☒ **May contain uppercase and lowercase letters, numbers and underscores**
- ☒ **Identifiers are case sensitive**
- ☐ **ALL OF THE ABOVE**
- ☐ **NONE OF THE ABOVE**

Q2: What is the purpose of a variable declared “static”?

A2: it does not disappears (from the stack) when a function is completed, and its value is retained

Q3: Consider the PHP code snippet:

```
<?php
$vat_rate = 0.175;
echo $vat_rate * 100 . "%";
?>
```

What is the output produced?

A3: 17.5%

Q4: Consider this PHP code snippet:

```
<?php
$foo = 25;
$bar = "Hello";
echo "5x5=$foo";
echo '5x5=$foo';
?>
```

What is the output produced?

A4:
5x5=25
5x5=\$foo

Q5: Consider this PHP code snippet:

```
<?php
function foo($arg_1, $arg_2)
{
    $arg_2 = $arg_1 * $arg_2;
    return $arg_2;
}
$result_1 = foo(12, 3);
echo $result_1;
echo foo(12, 3);
?>
```

What is the output produced?

A5:
36
36

JAVASCRIPT REGULAR EXPRESSIONS QUESTIONS [20 PTS]

JavaScript 1.5 introduced a new notation for Regular Expressions using the `?` notation. Consider the following program that checks all the following:

- A password matches a string of six or more characters (letters, number or underscore);
- that contains at least one digit;
- that contains at least one uppercase character;
- that contains at least one lowercase character: and
- both passwords must be identical.
- A username must not be blank; and
- must contains only letters, numbers and underscores.

Complete the missing code.

```
<script type="text/javascript">

function checkPassword(str) {
    var re = /^(?=.*\d) (?=.*[a-z]) (?=.*[A-Z]) \w{6,}$/;
    return re.test(str);
}

function checkForm(form) {

    if(form.username.value == "") {
        alert("Error: Username cannot be blank!");
        form.username.focus();
        return false;
    }

    re = /^!\w+$/;
    if(!re.test(form.username.value)) {
        alert("Error: Username must contain only letters, numbers and
underscores!");
        form.username.focus();
        return false;
    }

    if(form.pwd1.value != "" && form.pwd1.value == form.pwd2.value) {
        if(!checkPassword(form.pwd1.value)) {
            alert("The password you have entered is not valid!");
            form.pwd1.focus();
            return false;
        }
    } else {
        alert("Error: Please check that you've entered and confirmed your
password!");
        form.pwd1.focus();
        return false;
    }
    return true;
}
```

```

</script>
<form ... onsubmit="return checkForm(this); ">
<p>Username: <input type="text" name="username"></p>
<p>Password: <input type="password" name="pwd1"></p>
<p>Confirm Password: <input type="password" name="pwd2"></p>
<p><input type="submit"></p>
</form>

```

DOM QUESTIONS [10 PTS]

Below is the Teaching Assistant's solution to homework #4. You should recall that homework #4 was the XML exercise that involved writing an HTML/JavaScript program, which takes the URL of an XML document containing information related to plants, parses the XML file, and displays results in HTML. The resulting HTML will display an HTML table showing the data for the plants from the XML file and the books image. Some of the code has been removed. Your task is to restore the missing code. Place your answer to the right of the #XXXXXXs. There are 10 questions each worth 1 point.

```

<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html><head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Homework #4</title>
</head>

<body>
  <script type="text/javascript">
    function loadXML(url) {
      var xmlhttp;

      if (window.XMLHttpRequest) {
        xmlhttp = new XMLHttpRequest();
      } else {
        xmlhttp = new ActiveXObject("Microsoft.XMLHTTP");
      }
      xmlhttp.open("GET", url, false);
      xmlhttp.send();
      return xmlhttp;
    }

    function query() {
      var input = document.getElementById("input").value.trim();
      var xmlhttp;
      var xmlDoc;
      var bookNodes
      var count;
      var i;
      var e;
      var w;
      if (!input) {
        alert("Please input XML file name.");
        return;
      }
    }
  </script>

```

```

xmlhttp = loadXML(input);
if (xmlhttp.status == 404) {
    alert("Cannot find file.");
    return;
} else if (xmlhttp.status != 200) {
    alert("Communication error.");
    return;
}
xmlDoc = xmlhttp.responseXML;
if (xmlDoc == null) {
    alert("Error in XML file.");
    return;
} else {
    plantNodes =
xmlDoc.documentElement.getElementsByTagName("PLANT");
    count = 0;
    for (i = 0; i < plantNodes.length; i++) {
        if (plantNodes[i].parentNode ==
xmlDoc.documentElement
                                && plantNodes[i].childNodes.length
> 1) {
                                count++;
                                break;
                            }
                    }
    if (!count) {
        alert("Error in XML file.");
        return;
    }
    w = window.open("", "",
"width=800,height=600,scrollbars=yes");
    w.document.write("<table border='1' style='text-align:
center;'><tr><th>COMMON</th><th>BOTANICAL</th><th>ZONE</th><th>LIGHT</th><th>
PRICE</th><th>IMAGE</th></tr>");
    for (i = 0; i < plantNodes.length; i++) {
        if (plantNodes[i].childNodes.length < 2) {
            continue;
        }
        w.document.write("<tr style='text-align:
left;'><td>");
        e = plantNodes[i].getElementsByTagName("COMMON")[0];
        if (e && e.firstChild &&
e.firstChild.nodeValue.trim()) {
            w.document.write(e.firstChild.nodeValue);
        } else {
            w.document.write("NA");
        }
        w.document.write("</td><td>");
        e =
plantNodes[i].getElementsByTagName("BOTANICAL")[0];
        if (e && e.firstChild &&
e.firstChild.nodeValue.trim()) {
            w.document.write(e.firstChild.nodeValue);
        } else {
            w.document.write("NA");
        }
    }
}

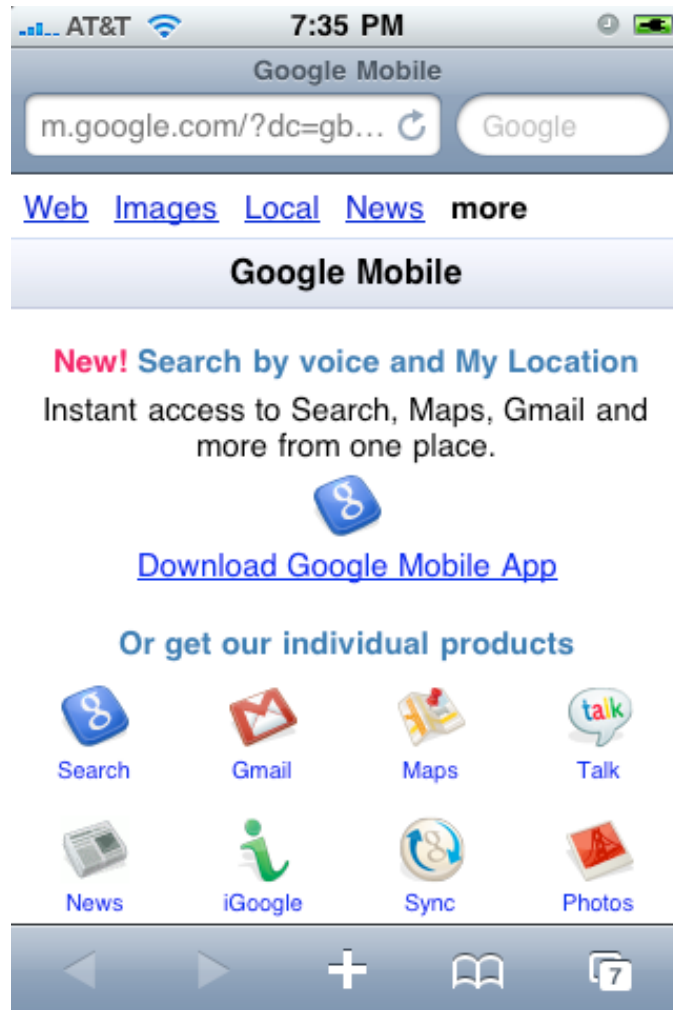
```

```

        w.document.write("</td><td>");
        e = plantNodes[i].getElementsByTagName("ZONE")[0];
        if (e && e.firstChild &&
e.firstChild.nodeValue.trim()) {
            w.document.write(e.firstChild.nodeValue);
        } else {
            w.document.write("NA");
        }
        w.document.write("</td><td>");
        e = plantNodes[i].getElementsByTagName("LIGHT")[0];
        if (e && e.firstChild &&
e.firstChild.nodeValue.trim()) {
            w.document.write(e.firstChild.nodeValue);
        } else {
            w.document.write("NA");
        }
        w.document.write("</td><td>");
        e = plantNodes[i].getElementsByTagName("PRICE")[0];
        if (e && e.firstChild &&
e.firstChild.nodeValue.trim()) {
            w.document.write(e.firstChild.nodeValue);
        } else {
            w.document.write("NA");
        }
        w.document.write("</td><td>");
        e = plantNodes[i].getElementsByTagName("IMAGE")[0];
        if (e && e.firstChild) {
            w.document.write("<img width='50' height='50'
src='"
                                +
e.firstChild.nodeValue.trim()
                                + "' alt='Plant
Image'>");
        } else {
            w.document.write("Image Not Available");
        }
        w.document.write("</td></tr>");
    }
w.document.close();
}
</script>
<center>
    Enter URL for Plant Catalog XML File <br> <input id="input"
size="50" type="text"> <br>
    <button onclick= "query();" >Submit Query</button>
</center>
</body></html>

```

HTTP QUESTIONS [20 PTS]



The picture above is a snapshot of an iPhone, accessing Google Mobile. Below, are the HTTP headers between the iPhone and Google. The transactions have been edited, leaving only a few of the transaction transmitting images.

Transaction 1:

http://m.google.com/?dc=gbackstop

```
GET /?dc=gbackstop HTTP/1.1
Host: m.google.com
User-Agent: Mozilla/5.0 (iPhone; U; CPU like Mac OS X; en) AppleWebKit/420.1
(KHTML, like Gecko) Version/3.0 Mobile/3B48b Safari/419.3
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
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.7
Keep-Alive: 300
Connection: keep-alive
Referer: http://www.google.com/mobile/products/search.html
Cache-Control: max-age=0
```

HTTP/1.x 200 OK
Set-Cookie: __utzm=30314979.1254714059.1.1.utmcsr%3Dgoogle.com%7Cutmccn%3D%28referral%29%7Cutmcmd%3Dreferral%7Cutmcct%3D%2Fmobile%2Fproducts%2Fsearch.html;
Domain=m.google.com; Expires=Fri, 18-Sep-2009 19:29:48 GMT; Path=/; HttpOnly
Set-Cookie: __utma=30314979.1527468456.1254714059.1254714059.1254714059.1;
Domain=m.google.com; Expires=Sat, 19-Sep-2009 11:59:08 GMT; Path=/; HttpOnly
Set-Cookie: __utmc=30314979; Domain=m.google.com; Path=/; HttpOnly
Set-Cookie: __utmb=30314979.1.10.1254714059; Domain=m.google.com;
Expires=Mon, 05-Oct-2009 04:10:57 GMT; Path=/; HttpOnly
Content-Type: text/html; charset=UTF-8
Content-Encoding: gzip
Date: Mon, 05 Oct 2009 03:40:58 GMT
Expires: Mon, 05 Oct 2009 03:40:58 GMT
Cache-Control: private, max-age=0
X-Content-Type-Options: nosniff
X-XSS-Protection: 0
X-Frame-Options: SAMEORIGIN
Content-Length: 7674
Server: GFE/2.0

Transaction 2:

http://www.google-analytics.com/__utm.gif?utmwv=4.5.6&utmhn=m.google.com&utmcs=-&utmsr=216x384&utmsc=undefined-bit&utmul=en&utmje=0&utmfl=-&utmcn=1&utmhid=27594224&utmr=http%3A%2F%2Fwww.google.com%2Fmobile%2Fproducts%2Fsearch.html&utmp=%2F%3Fdc%3Dgbackstop&utmcc=__utma%3D30314979.1527468456.1254714059.1254714059.1%3B%2B__utzm%3D30314979.1254714059.1.1.utmcsr%3Dgoogle.com%7Cutmccn%3D%28referral%29%7Cutmcmd%3Dreferral%7Cutmcct%3D%2Fmobile%2Fproducts%2Fsearch.html%3B

GET /__utm.gif?utmwv=4.5.6&utmhn=m.google.com&utmcs=-&utmsr=216x384&utmsc=undefined-bit&utmul=en&utmje=0&utmfl=-&utmcn=1&utmhid=27594224&utmr=http%3A%2F%2Fwww.google.com%2Fmobile%2Fproducts%2Fsearch.html&utmp=%2F%3Fdc%3Dgbackstop&utmcc=__utma%3D30314979.1527468456.1254714059.1254714059.1%3B%2B__utzm%3D30314979.1254714059.1.1.utmcsr%3Dgoogle.com%7Cutmccn%3D%28referral%29%7Cutmcmd%3Dreferral%7Cutmcct%3D%2Fmobile%2Fproducts%2Fsearch.html%3B

HTTP/1.1
Host: www.google-analytics.com
User-Agent: Mozilla/5.0 (iPhone; U; CPU like Mac OS X; en) AppleWebKit/420.1 (KHTML, like Gecko) Version/3.0 Mobile/3B48b Safari/419.3
Accept: image/png,image/*;q=0.8,*/*;q=0.5
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip,deflate
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.7
Keep-Alive: 300
Connection: keep-alive
Referer: http://m.google.com/?dc=gbackstop

HTTP/1.x 200 OK
Content-Length: 35
Date: Sun, 19 Jul 2009 17:30:00 GMT
Pragma: no-cache
Expires: Wed, 05 Jul 2000 21:53:59 GMT
Last-Modified: Wed, 21 Jan 2004 19:50:30 GMT

Content-Type: image/gif
Server: Golfe
Cache-Control: private, no-cache, no-cache=Set-Cookie, proxy-revalidate
X-XSS-Protection: 0

Transaction 3:

http://www.gstatic.com/mgc/images/icons/32x32/googlemobileapp.png

GET /mgc/images/icons/32x32/googlemobileapp.png HTTP/1.1
Host: www.gstatic.com
User-Agent: Mozilla/5.0 (iPhone; U; CPU like Mac OS X; en) AppleWebKit/420.1 (KHTML, like Gecko) Version/3.0 Mobile/3B48b Safari/419.3
Accept: image/png,image/*;q=0.8,*/*;q=0.5
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip,deflate
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.7
Keep-Alive: 300
Connection: keep-alive
Referer: http://m.google.com/?dc=gbackstop
If-Modified-Since: Thu, 09 Apr 2009 09:38:48 GMT
Cache-Control: max-age=0

HTTP/1.x 304 Not Modified
Content-Type: text/html; charset=UTF-8
X-Content-Type-Options: nosniff
Date: Mon, 05 Oct 2009 03:41:00 GMT
Server: sffe
X-XSS-Protection: 0

Transaction 4:

http://www.gstatic.com/mgc/images/icons/32x32/mail.png

GET /mgc/images/icons/32x32/mail.png HTTP/1.1
Host: www.gstatic.com
User-Agent: Mozilla/5.0 (iPhone; U; CPU like Mac OS X; en) AppleWebKit/420.1 (KHTML, like Gecko) Version/3.0 Mobile/3B48b Safari/419.3
Accept: image/png,image/*;q=0.8,*/*;q=0.5
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip,deflate
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.7
Keep-Alive: 300
Connection: keep-alive
Referer: http://m.google.com/?dc=gbackstop
If-Modified-Since: Wed, 15 Apr 2009 15:38:29 GMT
Cache-Control: max-age=0

HTTP/1.x 304 Not Modified
Content-Type: text/html; charset=UTF-8
X-Content-Type-Options: nosniff
Date: Mon, 05 Oct 2009 03:41:00 GMT
Server: sffe
X-XSS-Protection: 0

[more transactions requesting images]

Transaction 5:

http://www.gstatic.com/mgc/images/icons/change_language.gif

GET /mgc/images/icons/change_language.gif HTTP/1.1
Host: www.gstatic.com
User-Agent: Mozilla/5.0 (iPhone; U; CPU like Mac OS X; en) AppleWebKit/420.1 (KHTML, like Gecko) Version/3.0 Mobile/3B48b Safari/419.3
Accept: image/png,image/*;q=0.8,*/*;q=0.5
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip,deflate
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.7
Keep-Alive: 300
Connection: keep-alive
Referer: http://m.google.com/?dc=gbackstop
If-Modified-Since: Tue, 28 Apr 2009 16:38:44 GMT
Cache-Control: max-age=0

HTTP/1.x 304 Not Modified
Content-Type: text/html; charset=UTF-8
X-Content-Type-Options: nosniff
Date: Mon, 05 Oct 2009 03:41:00 GMT
Server: sffe
X-XSS-Protection: 0

Transaction 6:

http://toolbarqueries.google.com/search?sourceid=navclient-ff&features=Rank&client=navclient-auto-ff&googleip=0;null;105&ch=80fa3a956&q=info:http%3A%2F%2Fm.google.com%2F%3Fdc%3Dgbackstop

GET /search?sourceid=navclient-ff&features=Rank&client=navclient-auto-ff&googleip=0;null;105&ch=80fa3a956&q=info:http%3A%2F%2Fm.google.com%2F%3Fdc%3Dgbackstop HTTP/1.1
Host: toolbarqueries.google.com
User-Agent: Mozilla/5.0 (iPhone; U; CPU like Mac OS X; en) AppleWebKit/420.1 (KHTML, like Gecko) Version/3.0 Mobile/3B48b Safari/419.3 GoogleToolbarFF 3.1.20081127
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
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.7
Keep-Alive: 300
Connection: keep-alive

HTTP/1.x 200 OK
Cache-Control: private, max-age=0
Date: Mon, 05 Oct 2009 03:41:01 GMT
Expires: -1
Content-Type: text/html; charset=ISO-8859-1
Set-Cookie: PREF=ID=e3dafdf88e959327:TM=1254714061:LM=1254714061:S=mD55816DcUOFgxFy; expires=Wed, 05-Oct-2011 03:41:01 GMT; path=/; domain=.google.com
Server: gws
Transfer-Encoding: chunked
Content-Encoding: gzip
X-XSS-Protection: 0

Transaction 7:

http://www.google.com/csi?v=3&s=mog&action=default_load_66&e=0&mog_d=0&mog_ui=4&rt=nav.320,foot.358,ol.2051,prt.2051

```
GET
/csi?v=3&s=mog&action=default_load_66&e=0&mog_d=0&mog_ui=4&rt=nav.320,foot.358,ol.2051,prt.2051 HTTP/1.1
Host: www.google.com
User-Agent: Mozilla/5.0 (iPhone; U; CPU like Mac OS X; en) AppleWebKit/420.1 (KHTML, like Gecko) Version/3.0 Mobile/3B48b Safari/419.3
Accept: image/png,image/*;q=0.8,*/*;q=0.5
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip,deflate
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.7
Keep-Alive: 300
Connection: keep-alive
Referer: http://m.google.com/?dc=gbackstop
Cookie:
PREF=ID=e3dafdf88e959327:TM=1254714061:LM=1254714061:S=mD55816DcUOFgxFy

HTTP/1.x 204 No Content
Content-Length: 0
Date: Wed, 21 Jan 2004 19:51:30 GMT
Pragma: no-cache
Cache-Control: private, no-cache
Expires: Wed, 17 Sep 1975 21:32:10 GMT
Content-Type: text/html
Server: Golfe
X-XSS-Protection: 0
X-Cache: MISS from .
Via: 1.0 .:80 (squid)
Connection: keep-alive
-----
```

Each of the following questions is worth 2 points.

[2 pts] How many web servers are involved in these HTTP transactions and what are their names?

Answer: 4 servers: GFE, Golfe, sffe, gws

[2 pts] What product is used to analyze transaction logs?

Answer: Google Analytics.

[2 pts] How many cookies are being set in these transactions and what are their names?

Answer: 5, 4 in transaction 1, and 1 in transaction 6; __utnz, __utma, __utmc, __utmb, PREF

[2 pts] What is the name of the browser used in these transactions?

Answer: Safari

[2 pts] What character set is used in these transactions?

Answer: UTF-8

[2 pts] In the last transaction the server responds with a “204 No Content”. What does that mean?

Answer: the server is returning an “empty” body (Content-type: text/html, Content-length: 0)

[2 pts] Are any transactions returning compressed data?

Answer: Yes, 1 and 6

[2 pts] Some transactions are returning “304 Not Modified”. What does that mean?

Answer: the browser cached the PNG images and no image is transmitted.

[2 pts] Besides cookies, where is “analytics” information stored into?

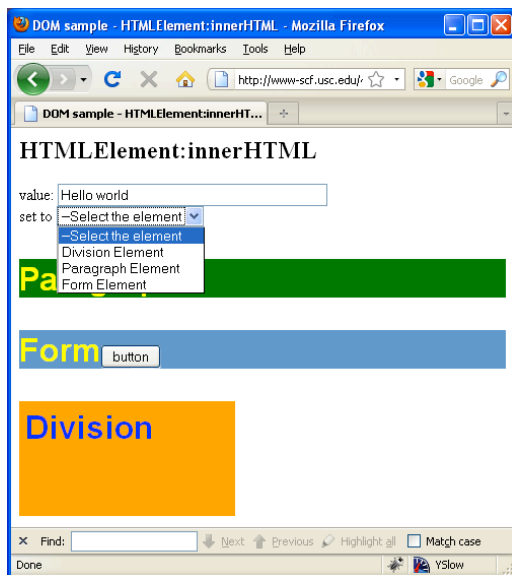
Answer: in a GIF image named __utm.gif

[2 pts] What MIME media type(s) are supported by the iPhone browser?

Answer: any image media type [image/*]

JAVASCRIPT QUESTIONS [10 PTS]

Consider the following web page, which includes a selection box containing three choices: Division Element, Paragraph Element and Form Element.



Below is the source for the above web page with some of the lines missing. Fill in the missing lines.

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<html><head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>DOM sample</title>
<style type=text/css>
.smp {
  PADDING-RIGHT: 0.2em; PADDING-LEFT: 0.2em; PADDING-BOTTOM: 0.2em; WIDTH:
200px;
```

```

    PADDING-TOP: 0.2em; POSITION: absolute; height: 100px}
#t1 {FONT-WEIGHT:700; FONT-SIZE: 2em; color: blue;
    FONT-FAMILY: sans-serif; BACKGROUND-COLOR: orange}
#t2{FONT-WEIGHT:700; FONT-SIZE: 2em; LEFT: 120px;
    color: yellow; FONT-FAMILY: sans-serif; top: 200px; BACKGROUND-COLOR:
green}
#t3{FONT-WEIGHT:700; FONT-SIZE: 2em;
    color: yellow; FONT-FAMILY: sans-serif; BACKGROUND-COLOR: #6699cc}
</style>
<script language="Javascript" type="text/javascript">
function notSupported( ) {alert('your browser is not supported');}
function setInnerHTML(nm, value) {
    if (nm == '') return;
    var
element=document.getElementById?document.getElementById(nm):(document.all?doc
ument.all(nm):null)
    if (element) {
        if(element.innerHTML) {
            element.innerHTML=value;
        }
        else notSupported( ); }
    else NotSupported( ); }
</script>
</head><body>
<h2>HTML<h2>
<form>
value: <input size=40 value="Hello world" name=t><br>
set to
<select name="sel" id="sel"
onChange="setInnerHTML(this.options[this.selectedIndex].value,
form.t.value);">
<option value="" selected>--Select the element
<OPTION value="t1">Division Element
<OPTION value="t2">Paragraph Element
<OPTION value="t3">Form Element</OPTION>
</select></form>
<p id=t2>Paragraph</p>
<form id=t3 name=t3>
Form<input type=button value=button>
</form>
<div class=smp id=t1>Division</DIV><table height=100 width=250>
    <tr><td></td></tr></tbody></table>
</div></body></html>

```