

Computer Science 571 Exam #1
Prof. Papa
Thursday, February 28, 2013, 5:30pm – 6:45pm

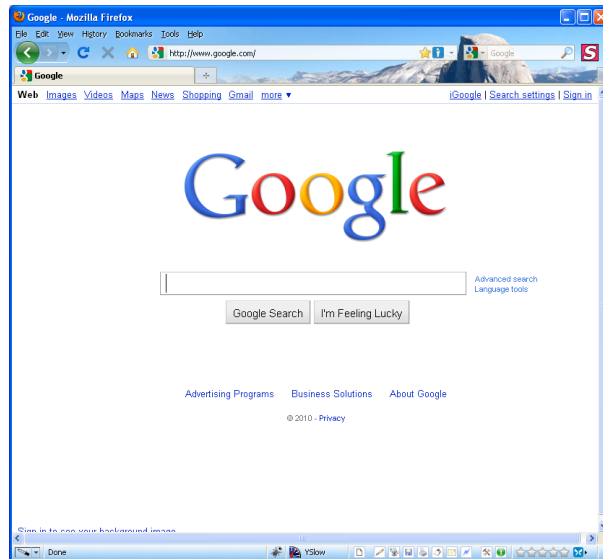
Name:

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

HTTP QUESTIONS [10 PTS]

Below is the web page www.google.com. Following that is part of the exchange of messages between the browser and the server, obtained by running Live HTTP Headers. Answer the questions that follow.



<http://www.google.com/>

```
GET / HTTP/1.1
Host: www.google.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.8; rv:19.0)
Gecko/20100101 Firefox/19.0
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: 115
Connection: keep-alive
Cookie:
PREF=ID=ad4bfd318f60ef61:U=d7975ec97a8ae5d6:TM=1236208343:LM=1282698891
:GM=1:IG=5:S=otW48uJwh42uYmnq;

HTTP/1.1 200 OK
```

Date: Mon, 04 Oct 2010 02:20:26 GMT
Expires: -1
Cache-Control: private, max-age=0
Content-Type: text/html; charset=UTF-8
Content-Encoding: gzip
Server: gws
Content-Length: 7443
X-XSS-Protection: 1; mode=block

http://www.google.com/extern_js/f/CgJlbhICdXMrMEU4ASwrMFo4ACwrMA44ACwrMBc4ACwrMCC4ACwrMDw4ACwrMFE4ACwrMFk4ESwrMAo4ggFALywrMBY4ACwrMBk4ACwrMCE4AEABLCswJTjPiAEsKzAqOAssKzArOBESKzAlOAQsKzBAOAAsKzBBOAAsKzBOOAYsKzBTOAAsKzBUOAAsKzBjOAAsKzAdOFwsKzBcOB4sKzAYOAAsKzAmOAAsgAIZkAie/dNfTluJeFAQ.js

GET
/extern_js/f/CgJlbhICdXMrMEU4ASwrMFo4ACwrMA44ACwrMBc4ACwrMCC4ACwrMDw4ACwrMFE4ACwrMFk4ESwrMAo4ggFALywrMBY4ACwrMBk4ACwrMCE4AEABLCswJTjPiAEsKzAqOAssKzArOBESKzAlOAQsKzBAOAAsKzBBOAAsKzBOOAYsKzBTOAAsKzBUOAAsKzBjOAAsKzAdOFwsKzBcOB4sKzAYOAAsKzAmOAAsgAIZkAie/dNfTluJeFAQ.js HTTP/1.1
Host: www.google.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.8; rv:19.0)
Gecko/20100101 Firefox/19.0
Accept: /*/*
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: 115
Connection: keep-alive
Referer: http://www.google.com/
Cookie:
PREF=ID=ad4bfd318f60ef61:U=d7975ec97a8ae5d6:TM=1236208343:LM=1282698891:GM=1:IG=5:S=otW48uJwh42uYmnq;
NID=39=vsAHcifTqnMwhNqpVT_enNbxq7Gk6DdOpr2p_mtqu9SLFy7HZ_ijFyPWt4jJbCOZx0UY3mDDh8O_EnFa41UbZpzmUtPLMnNH0VNLMGCMWbJGpBD6vGfYqHXLsubENTrv;
rememberme=true; SID=

HTTP/1.1 200 OK
Content-Type: text/javascript; charset=UTF-8
Expires: Sun, 02 Oct 2011 00:00:00 GMT
Last-Modified: Sun, 04 Oct 2009 00:00:00 GMT
Cache-Control: private, x-gzip-ok=""
Content-Encoding: gzip
Date: Mon, 04 Oct 2010 02:20:26 GMT
Server: gws
Content-Length: 53542
X-XSS-Protection: 1; mode=block

http://www.google.com/ig/cp/get?hl=en&gl=us

GET /ig/cp/get?hl=en&gl=us HTTP/1.1
Host: www.google.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.8; rv:19.0)
Gecko/20100101 Firefox/19.0
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: 115
Connection: keep-alive
Referer: http://www.google.com/
Cookie: IGTP=LI=1:LM=1270163525;
PREF=ID=ad4bfd318f60ef61:U=d7975ec97a8ae5d6:TM=1236208343:LM=1282698891
:GM=1:IG=5:S=otW48uJwh42uYmnq;
If-Modified-Since: Sun, 03 Oct 2010 21:59:43 GMT
If-None-Match: 18194221794218319504

HTTP/1.1 304 Not Modified
X-Content-Type-Options: nosniff
Date: Mon, 04 Oct 2010 02:20:26 GMT
Server: igfe
X-XSS-Protection: 1; mode=block

http://www.google.com/csi?v=3&s=webhp&action=&e=17259,18167,26730,26781,26805,26885&ei=6jmpTNvVD4XSpASQyfnrDA&expi=17259,18167,26730,26781,26805,26885&imc=2&imn=2&imp=0&rt=prt.34,ol.74,iml.34,xjsls.158,xjses.404,xjsee.443,xjs.457

GET
/csi?v=3&s=webhp&action=&e=17259,18167,26730,26781,26805,26885&ei=6jmpTNvVD4XSpASQyfnrDA&expi=17259,18167,26730,26781,26805,26885&imc=2&imn=2&imp=0&rt=prt.34,ol.74,iml.34,xjsls.158,xjses.404,xjsee.443,xjs.457
HTTP/1.1

Host: www.google.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.8; rv:19.0) Gecko/20100101 Firefox/19.0
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: 115
Connection: keep-alive
Referer: http://www.google.com/
Cookie:
PREF=ID=ad4bfd318f60ef61:U=d7975ec97a8ae5d6:TM=1236208343:LM=1282698891
:GM=1:IG=5:S=otW48uJwh42uYmnq;

HTTP/1.1 204 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

Q1. What is the name of the web server that returns the google home page?

gws

Q2. How big is the google.com home page?

7443 bytes

Q3. What is the name of the JavaScript file requested by google.com?

dNfTluJeFAQ.js

Q4. What is the name of the Referer page that requests the JavaScript file above?

www.google.com

Q5. The result of this request, GET /ig/cp/get?hl=en&gl=us HTTP/1.1 is to return HTTP/1.1 304 Not Modified. In a sentence or two explain what this means.

The browser already had a copy of the file in its cache and the expiration date If-Modified-Since: Sun, 03 Oct 2010 21:59:43 GMT was not exceeded.

APACHE SERVER QUESTIONS [10 PTS]

The Apache 2 build and installation involved 3 basic steps. Briefly explain the purpose of each step:

Q1. ./configure

A1. Creates the source files and configures it to your "hardware" environment

Q2. make

A2. Compiles and links the source code

Q3. make install

A3. Installs the httpd binary in the destination directory, usually apache2

The Apache 2 configuration and customization steps involve 2 basic steps. Briefly explain the purpose of each step:

Q4. Edit httpd.conf configuration file

Listen 54321

A4. Change server port so that it does not conflict with port 80 already used

Q5. Edit httpd-mpm.conf configuration file

```
<IfModule mpm_prefork_module>
    StartServers      2
```

```

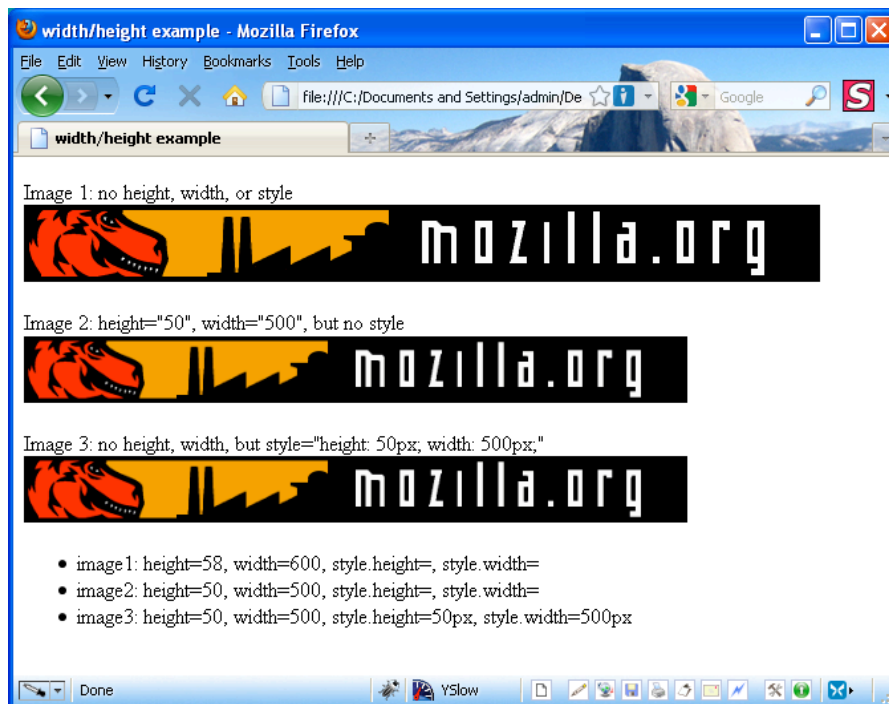
        MinSpareServers      2
        MaxSpareServers      2
        MaxClients           2
        MaxRequestsPerChild   0
</IfModule>

```

A5. Ensure your servers take up only a minimum amount of resources

JAVASCRIPT QUESTIONS [10 PTS]

Below is a web page and after that the source code that produced it. Some of the code is missing. Please provide the missing code next to QUESTIONS 1,2,3,4,5. Each is worth 2 points.



PLACE YOUR ANSWERS NEXT TO THE LINE OF XXXXXXXXXXXXXS

```

function init()
{
  var arrImages = new Array(3) ; //QUESTION 1
  arrImages[0] = document.getElementById("image1");
  arrImages[1] = document.getElementById("image2");
  arrImages[2] = document.getElementById("image3");
  var objOutput = document.getElementById("output");
  var strHtml = "<ul>";
  for (var i = 0; i < arrImages.length; i++)
    strHtml += "<li>image" + (i+1) +
              ": height=" + arrImages[i].height +
              ", width=" + arrImages[i].width +
              ", style.height=" + arrImages[i].style.height +
              ", style.width=" + arrImages[i].style.width +

```

```

        "<\li>";
        strHtml += "<\ul>"; //QUESTION 2
        objOutput.innerHTML = strHtml; //QUESTION 3
    }
</script>
</head>
<body onload="init();" //QUESTION 4
<p>Image 1: no height, width, or style
    
</p>
<p>Image 2: height="50", width="500", but no style
    
</p>
<p>Image 3: no height, width, but style="height: 50px; width: 500px;"
    
</p>
<div id="output"> </div> //QUESTION 5
</body>
</html>

```

JAVASCRIPT REGULAR EXPRESSIONS QUESTIONS [20 PTS]

JavaScript 1.5 introduced a new notation for Regular Expressions using the `?` notation. Please explain the meaning of each of the following four (4) regular expressions:

Q1. `?=.*\d`

A1. means at least one character that is a number

Q2. `?=.*[a-z]`

A2. means at least one character that is a lower case letter

Q3. `?=.*[A-Z]`

A3. means at least one character that is an upper case letter

Q4. `.{6,}`

A4. means at least 6 characters

Q5. What is the following code testing for?

```

re = /^w+$/;
if(!re.test(form.username.value))

```

A5. Username must contain only letters, numbers and underscores

XML/DOM QUESTIONS [20 pts]

The example below loops through all child nodes of <book>, and displays their names and values, producing the following output:

```
title: Everyday Italian
author: Giada De Laurentiis
year: 2005
```

Complete the missing code. Notice that loadxmlstring.js contains the function loadXMLString() that returns back the Document Object.

```
<html>
<head>
<script src="loadxmlstring.js"></script>
</head>
<body>
<script>
text="<book>";
text=text+"<title>Everyday Italian</title>";
text=text+"<author>Giada De Laurentiis</author>";
text=text+"<year>2005</year>";
text=text+"</book>";

xmlDoc=loadXMLString(text);

x=xmlDoc.documentElement.childNodes;
for (i=0;i<x.length;i++)
{
document.write(x[i].nodeName);
document.write(": ");
document.write(x[i].childNodes[0].nodeValue);
document.write("<br>");
}

</script>
</body>
</html>
```

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

CSS QUESTIONS [10 PTS]

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

```
html, body, div, p, table, td, form, img, h1, h2, h3, h4,
h5, h6, input { font-family: Tahoma, Verdana, Segoe, sans-
serif; padding: 0px; margin: 0px; border: 0px transparent
none; background-position: left top; background-repeat: no-
repeat; }
```

Q1. Explain the purpose of the line above

A1. Changes fonts, border, margin and other layout settings for 15 tags all at once.

```
a:active, a:hover { color: #4E7DC2; text-decoration:
underline; }
```

Q2. Explain the purpose of the line above

A2. It modifies the color and underlines the text of active hyperlinks or hyperlinks where the mouse is over.

```
#page { margin-left: auto; margin-right: auto; width:
934px; position: relative; top: 0px; }
```

Q3. Explain the purpose of the line above

A3. I create an "ID Attribute", with settings to be applied to a single web page to modify margins, width, position and top

```
.copyright { font-size: 82%; font-family: Tahoma; margin:
0px 17px 10px 0px; color: #AECAD E; clear: both; }
```

Q4. On the line above, what is "copyright"?

A4. A "class" name

```
#masterNav { position: absolute; top: 49px; right: 15px;
width: 192px; z-index: 70; }
```

Q5. On the line above, what is "masterNav"?

A5. An "ID Attribute" name

PERL QUESTIONS [20 PTS]

Each questions about the listed program is worth 4 points.

Consider this program:

```
$name = 'Mark';
$goodguy = 'Tony';

if ($name == $goodguy) {
    print "Hello, Sir.\n";
} else {
    print "Begone, evil peon!\n";
}
```

Q1. What is printed by it?

A1. Hello, Sir.

Consider this program:

```
$foo=291;
$bar=30;
if ($foo < $bar) {
    print "$foo is less than $bar (numeric)\n";
}

if ($foo lt $bar) {
    print "$foo is less than $bar (string)\n";
}
```

Q2. What is printed by it?

A2. 291 is less than 30 (string)

Consider this program:

```
$myvar="scalar variable";
```

```

@myvar=("one","element","of","an","array","called","myvar")
;

print $myvar;           # refers to the contents of a scalar
                        # variable called myvar
print $myvar[1];        # refers to the second element of the
                        # array myvar
print @myvar;           # refers to all the elements of array
                        # myvar

```

Q3. What is printed by it?

A3. “scalar variableelementoneelementofanarraycalledmyvar”

Consider this program:

```

@names =('Mrs Smith','Mr Jones','Ms Samuel','Dr
Jansen','Sir Philip');
@medics =('Dr Black','Dr Waymour','Dr Jansen','Dr Pettie');

foreach $person (@names) {
    print "$person\n";
    if ($person=~ /Dr /) {
        foreach $doc (@medics) {
            print "\t$doc\n";
            last if $doc eq $person;
        }
    }
}

```

Q4. What is printed by it?

A4.

```

Mrs Smith
Mr Jones
Ms Samuel
Dr Jansen
    Dr Black
    Dr Waymour
    Dr Jansen
Sir Philip

```

Consider this program:

```
@cities=("Brussels","Hamburg","London","Breda");  
&look;  
$cities[1]="";  
&look;  
sub look {  
    print "Cities: ",scalar(@cities), ": @cities\n";  
}
```

Q5. What is printed by it?

A5.

Cities: 4: Brussels Hamburg London Breda

Cities: 4: Brussels London Breda