# APACHE SERVER and PHP5 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, resolves dependencies, and configures it based on 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 "Editing" steps. Briefly explain the "purpose" of each step (Q4 & Q5):

Q4. Edit httpd.conf configuration file,     Listen 54321

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

Listen port_selected; ServerAdmin your_email; remove the '#' before Include conf/extra/httpd-mpm.conf

Q5. Edit httpd-mpm.conf configuration file

```
<IfModule mpm_prefork_module>
        StartServers 2
        MinSpareServers 2
        MaxSpareServers 2
        MaxClients 2
        MaxRequestsPerChild 0
</IfModule>
```

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

Q6. What are the 4 basic steps in the PHP installation?

A6. Configure, make, make install, edit httpd.conf

- setenv PATH "/usr/bin:$PATH"
  The PHP installation needs a version of 'sed' that does not truncate long lines.
- make clean -> remove your old compiled binary files

Q7. What is the purpose of these lines to be added to the http.conf file?

```
<FilesMatch ".ph(p[2-6]?|tml)$">
        SetHandler application/x-httpd-php
</FilesMatch>
```

A7. Ensures that Apache, when it recognizes scripts ending with extension .php will invoke the PHP direct module.

Q8. What is libphp5.so in this line that is automatically added to httpd.conf?

        LoadModule php5_module modules/libphp5.so

A8. It is the binary module built by the PHP installation
 -> starting the Apache 2 web server with the PHP loadable module.

Q9. What are the commands to start and stop Apache?

A9. Apachectl start, apachectl stop          OR          httpd –k start and httpd –k stop

- ps -gx -> check running processes Q10. List 3 possible uses of Apache log files.

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A10.     Finding problem with a site
             Analyzing Traffic patterns
             Detecting malicious activity

- purpose of the error log file in Apache

log "diagnostic" information, record any "errors" found, first place to look for "problems"

- purpose of the access log file in Apache? record all requests

# WEB SERVER [10 PTS]

[2 pts] Are persistent connections turned on?      - No. KeepAlive is Off

[2 pts] What is the number of simultaneous requests that can be served?  - 256 (MaxClients)

[2 pts] Which users are denied access to executing CGI scripts?

None: See line 45: "Allow from all"

[2 pts] What is the default MIME type?

text/plain. See line 62: "DefaultType text/plain"

[2 pts] What is the purpose of lines 73 – 80?

Limits access to the server status to machines in the "local area
network" (IP addresses starting with 10.0.X.X, 192.168.X.X, and
172.16.X.X), excluding Internet access.

Q: Suppose you are a small startup company in the United States selling imported tennis balls from Indonesia. Your company is called IndoTennis and you have 3 employees. You intend to sell the imported tennis balls to any and all customers who visit your website and wish to purchase them. Unfortunately your company has little money to spare and you can only afford one computer to host your website. You have no budget for software and OS purchase.

1. What operating system will the computer likely run?

**Linux/Fedora/Debian/Ubuntu (Any Linux flavour)**

2. What web server will the computer likely run?          - Apache or NgiNX

3. How do you get a static IP address to associate to your website?

From the **ISP or the service provider** you are getting services from.

4. How do you sign up for a domain name, say www.indotennis.com?

You register the domain name with an **ICANN approved registrar**

5. Name two critical features of your web server you will need to configure in order to host the website?

Any two of **Server Root, Document Root, Location of Server cgi scripts**

6. What features of your web server will you need to configure in order to process secure transactions of purchases of tennis balls?        - **Configure SSL (HTTPS), Obtain certificate from a CA**

7. How would you arrange to have your content developers use a separate web server to develop new web pages without affecting the existing website?

**Run a web server on a different port or virtually hosting another web site on the same server**

8. How will you keep track of how many people visit your website?

By looking at the **access log entries** or using **Google Analytics**

9. How will you keep track of each and every purchase that is made?

By using a **database** in which all purchases can be recorded and an inventory can be maintained

10. What file or file(s) have to be created/set in order to establish a secure directory, accessible with Basic Authentication?        - **.htaccess and .htpasswd**

a portion of an Apache web server error_log file.

[Fri Sep 29 11:19:23 2006] [error] [client 147.21.16.3] File does not exist: /auto/home-scf-22/csci571/
WebServer/Apache_1.3.36/htdocs//refresh.html

[Fri Sep 29 11:36:23 2006] [error] [client 72.30.132.30] File does not exist: /auto/home-scf-22/csci571/
WebServer/Apache_1.3.36/htdocs/robots.txt

5. [2 pts] The first entry says "File does not exist". What exactly is the error?

Double **forward slash** in URL

6. [2 pts] What exactly is the error in the second entry?

There is no file named robots.txt in htdocs

7. [2 pts] Is the second entry a "real" error?

No, since search engines look in the root of a website for "robots.txt" for special instructions to index and/or follow local hyperlinks. The "robots.txt" file is optional on websites.

## HTTP

Q4: Why are transactions (3) and (4) responding with an Etag?

A4: Because CSS and JavaScript **can be cached by the browser**

Q7: Why is the content returned by transaction (6) not compressed?

A7: Because JPG images should not be compressed, as they already are.

Q8: What is the purpose of transaction (5)?

A8: Provide an icon to be used on the left side of the address field in a browser.

Q9: What content distribution network is Bloomberg using?

A9: GoTraffic.net

Q11: Normal TCP traffic begins with what?

A11: A **3-way handshake**. The **SYN** packet **synchronizes** the sequence numbers

Q12. What does HTTP use as a transport layer protocol?          - A12: TCP

Q13. What layer is HTTP?          - A13: Application layer

Q14: What does it mean that HTTP is a **stateless protocol**?

A15: It means the web server maintains no information about past client requests.

Q15: For each HTTP Status codes, indicate each type.

A15: **2xx: Success; 3xx: Redirection; 4xx: Client Error; 5xx: Server Error**

Q16: What are three uses of Apache log files?

**a) finding problem with a site (broken links); b) analyze traffic patterns; c) detecting malicious activity**

Q17: What are the two different methodologies to analyze web server traffic patterns

a) use web server logs    b) use Google Analytics


## JSON QUESTIONS [10 PTS]

Q1: List 3 properties of JSON

- Subset of ECMA-232 Third Edition      - Language independent

- text-based      - light-weight    - Easy to parse

- Not a document format          - Not a markup language          - Not a serialization format

Q2. What is a possible drawback of the eval() function?

The eval() technique is subject to security vulnerabilities

Q3. What is the first index in a JSON array?      - JSON does not talk about indexing: can be 0 or 1

Q4. JSON Parsers (True / False)    - A JSON encoder must only produce well-formed JSON text [X]True

Q5. What is JSONP?    - "JSON with padding" is a JSON extension wherein the name of a callback function is specified as an input argument of the call itself.


## CSS

Q6: What are Pros of CSS Frameworks?

[X] Can save considerable times when designing sites     [X] Create cross-browser compliant code

[X] Have built-in grids to speed up layout development   [ ] Create non-consistent code-base for teams

Q7: What are Cons of CSS Frameworks?

[X ] Have lots of code that will not be used.      [X] Every page needs to include Framework's CSS

[ ] Do not rely much on classes          [X] Class structure is non-semantic

Q8: What other CSS Frameworks considerations are true?

[ ] Frameworks are easy to update      [ ] Frameworks are easy to debug

[X] Adding functionality can be time consuming          [X] Time is need to mastering them

[X] They are a great way to learn CSS techniques

Q9: What are frameworks that are currently popular and recommended?

[X] blueprint;  [X] 52 framework;  [X] 960 grids;  [ ] YUI;  [X] Bootstrap;  [X] css-boilerplate;  [X] Baseline

Q10: Where are CSS Operators found in?

A10: In CSS Pre-processors

# JAVASCRIPT REGULAR EXPRESSIONS

re = /\w+\s/g creates a regular expression that looks for one or more characters followed by a space, and it looks for this combination throughout the string

Q3. [5 points] What is displayed by the alert? alert( "123".match( /\d/g ))      - A3. '1', '2', '3'

What additional attributes are introduced in HTML5 for the form input fields to make it easier to demand and match the input?          - REQUIRED and PATTERN

if (!preg_match("/^[a-zA-Z ]*$/",$name)) {$nameErr = "Only letters and white space allowed";}

if ( empty($_POST["gender"]) ) {

$_SERVER["PHP_SELF"]

<?php if (isset($gender) && $gender=="female") echo "checked";?>


# HTML5, DOM & ADVANCED JAVASCRIPT

Q1: The purpose of the HTML5 placeholder attribute is:

[X] … to be a short hint to the user about what kind of input a form field is expecting.

[ ] .. to replace a proper label for the form field

Q2: Give an example of a field where the HTML5 autocomplete attribute should be "off".

A2: The account number in a banking website

Q3: What is the purpose of the HTML5 autofocus attribute?

A3: The autofocus attribute indicates to the browser that the control it's applied to should receive the focus when the page loads.

Q4: List 3 DOM APIs that can be used in more modern browsers to get an Element:

a) getElementById       b) getElementsByTagName        c) getElementsByClassName       d) querySelector

Q5: What does it mean that the JavaScript language is functionally scoped?

A5: It means that any variables created inside a function are only available inside that function and not visible outside.

Q2: Since arrays in JavaScript are objects what do they have?       - A2: properties and methods


In XML DOM, there are a dozen different node types, e.g. ELEMENT_NODE is one. Mention three others.

| Name | Value | | |
|------|-------|---|---|
| ELEMENT_NODE | 1 | PROCESSING_INSTRUCTION_NODE | 7 |
| ATTRIBUTE_NODE | 2 | COMMENT_NODE | 8 |
| TEXT_NODE | 3 | DOCUMENT_NODE | 9 |
| CDATA_SECTION_NODE | 4 | DOCUMENT_TYPE_NODE | 10 |
| ENTITY_REFERENCE_NODE | 5 | DOCUMENT_FRAGMENT_NODE | 11 |
| ENTITY_NODE | 6 | NOTATION_NODE | 12 |


# CGI and PHP Questions #23-#41 [18 Points]

PHP_SELF: A variable that returns the current script being executed, including its name and path

get data from users on the Web?          - URLs / Links, Forms, Cookies, Sessions

Q7: Where does PHP put all of the query parameters that were sent with the URL?

A7: PHP puts them into an associative array. That array is what is called a Super global variable.

Q8: What is an example of a PHP Super global variable?        - $_GET, $_POST, $_COOKIE, $_SESSION

Q9: What is the difference between PHP urlencode and rawurlencode?

A9: in urlencode, spaces become "+, in rawurlencode, spaces become "%20"

Q10: Which parts of the URL would you use urlencode and which rawurlencode?

A10: urlencode for path, rawurlencode for query string

EXAMPLE

JS Q5.          var foo = 5;     var bar = "5";   console.log(foo + bar);  //55
                var bar = "b";   console.log(foo * bar);  //NaN


CSS Q3.  #header **div.insider-logo** a {display: block;height: 25px;position: relative !important}
A3:     <H1 id=header>
                <**div class=**insider-logo>
                        <a href=http://www.myco.com>
                </div>
        </H1>


JS Q:
```
function myFunction() {
        var text = "";     var i = 0;
        while (i < 10) {text += "<br>The number is " + i; i++;}
        document.getElementById("demo").innerHTML = text;}
```

PHP Q:
```
<?php
// Show all errors
        error_reporting(E_ALL);          $arr = array('fruit' => 'apple', 'veggie' => 'carrot');
        print $arr['fruit'];          print $arr['veggie'];        // apple carrot
        define('fruit', 'veggie');
        print $arr['fruit'];          print $arr[fruit];          // apple carrot
        print "Hello $arr[fruit]";                              // Hello apple
// braces surrounding arrays within strings allows constants to be interpreted
        print "Hello {$arr[fruit]}";       print "Hello {$arr['fruit']}";      // Hello carrot Hello apple
        print "Hello $_GET['foo']";           // Parse error. 'foo' is undefined
        print "Hello " . $arr['fruit'];          // Hello apple
?>
```

```
document.getElementById('first').onclick = function() { this.style.background = '#ff8'; };
```

```
var button = document.getElementById('w3c');
button.addEventListener('click', function() {this.style.background = '#ff8';}, false);
button.addEventListener('click', function() {alert('Hello');}, false);
```

```
var func = function(e) { if (e.target.src) { e.target.src = 'star_on.gif'; } };
document.getElementById('star_table').addEventListener('mouseover', func, false);
```

```
ELEMENT_NODE = 1; // MS parser doesn't define Node.ELEMENT_NODE
for(i=0;i<planes.length;i++){
    planeNodeList=planes.item(i).childNodes;
    for(j=0;j<planeNodeList.length;j++){
        if(planeNodeList.item(j).nodeType==ELEMENT_NODE){
            if(planeNodeList.item(j).nodeName=="Airbus"){
                document.write(planeNodeList.item(j).firstChild.nodeValue +"<BR />");}
            else if(planeNodeList.item(j).nodeName=="seats"){
                document.write(planeNodeList.item(j).firstChild.nodeValue +"<BR />");}}}}
```

## CIG&PHP Q

```php
if (!isset($_POST['submit']))
$_SERVER['PHP_SELF']
echo "Hello, ".$Fname." ".$Lname.".<br />";
foreach ($food as $f) { echo $f."<br />"; }
echo "<i>".$quote."</i><br />";

$cities=array("Tokyo", "Mexico City", "New York City", "Mumbai", "Seoul");
foreach($cities as $c){ echo "$c, ";}
```

books.xml, "clones" the first "book" node, appends it after the last "book" node, and then prints out the resulting "title" nodes

```
x=xmlDoc.getElementsByTagName('book')[0];
cloneNode=x.cloneNode(true);
xmlDoc.documentElement.appendChild(cloneNode);
//Output all titles
y=xmlDoc.getElementsByTagName("title");
for (i=0;i<y.length;i++){
        document.write(y[i].childNodes[0].nodeValue);
        document.write("<br />");
}
```

## XML

What does XML stand for?                - eXtensible Markup Language

XML documents must have a root tag          XML tags are case sensitive

XML elements must be properly nested         XML preserves white spaces

XML elements can be empty                All XML elements must be properly closed

XML attribute values must always be enclosed in quotes

Q: For the XML parser to ignore a certain section of your XML document, which syntax is correct?

- <![CDATA[ Text to be ignored ]]>

Q1: What are advantages of XML?

[X ] XML keeps content separate from presentation        [ ] XML is not hard to read

[X ] XML can be used on both client and server         [ ] Image data types are represented well

[X ] XML has widespread support in multiple languages and runtime      [X ] XML is an open format

Q3. What are two ways to add "validity" to XML documents?

A3: Document Type Definitions (DTD) and XML Schemas