B.E.

Fifth Semester Examination, Dec.-2007

Web Development (CSE-307-E)

Note : Attempt any *five* questions. All questions carry equal marks.

Q. 1. (a) Explain the purpose of HTML, URL and HTTP.

Ans. (i) HTML : HTML is an initialism of **Hyper Text Markup Language,** is the predominant markup language for web pages. It provides a means to describe the structure of text-based information in a document—by denoting certain text as links, headings, paragraphs, lists, and so on—and to supplement that text with interactive forms, embedded images, and other objects. HTML is written in the form of tags, surrounded by angle brackets. HTML can also describe, to some degree, the appearance and semantics of a document, and can include embedded scripting language code (such as JavaScript) which can affect the behaviour of web browsers and other HTML processors.

(ii) URL : Uniform Resource Locator (URL), still known as Universal Resource Locator, is a technical, Web-related term used in two distinct meanings :

* In popular usage and many technical documents. it is a synonym for Uniform Resource Identifier (URI);

* Strictly, the idea of a uniform syntax for global identifiers of network-retrievable documents was the core idea of the World Wide Web. In the early times, these identifiers were variously called "document names," "Web addresses" and "Uniform Resource Locators."

(iii) HTTP : Hypertext Transfer Protocol (HTTP) is a communications protocol for the transfer of information on intranets and the World Wide Web. Its original purpose was to provide a way to publish and retrieve hypertext pages over the Internet.

HTTP development was coordinated by the World Wide Web consortium (W3C) and the Internet Engineering Task Force (IETF), culminating in the publication of a series of Request for Comments (RFCs).

HTTP is a request/response standard between a client and a server. A client is the end-user. the server is the web site.

Q. 1. (b) Explain all MIME types.

Ans. Multipurpose Internet Mail Extensions (MIME) is an Internet standard that extends the format of e-mail to support :

* **Text** in character sets other than US-ASCII;

* **Non-**Text attachments;

* Multi-part message bodies; and

* Header information in non-ASCII character sets.

However, its use has grown beyond describing the content of e-mail to describing content type in general.

MIME Types :

1. Mixed : Multipart/mixed is used for sending files with different "Content-Type" headers inline (or as attachments). If sending pictures or other easily readable files, most mail clients will display them inline (unless otherwise specified with the "Content-disposition" header). Otherwise it will offer them as attachments. The default content-type for each part is "text/plain."

2. Message : A message/rfc 822 part contains an email message, including any headers, Rfc 822 is a

misnomer, since the message may be a full MIME message. This is used for digests as well as for E-mail forwarding.

3. Digest : Multipart/digest is a simple way to send multiple text messages. The default content-type for each part is "message/rfc 822."

4. Alternative : The multipart/alternative subtype indicates that each part is an "alternative" version of the same (or similar) content, each in a different format denoted by its "Content-Type" header. The format are ordered by how faithful they are to the original, with the least faithful first and the most faithful last. Systems can then choose the "best" representation they are capable of processing; in general, this will be the last part that the system can understand, although other factors may affect this.

5. Related : A multipart/related is used to indicate that message parts should not be considered individually but rather as parts of an aggregate whole. The message consists of a root part (by default, the first) which reference other parts inline, which may in turn reference other parts. Message parts are commonly referenced by the "Content-ID" part header. The syntax of a reference is unspecified and is instead dictated by the encoding or protocol used in the part.

6. Report : Multipart/report is a message type that contains data formatted for a mail server to read. It is split between a text/plain (or some other content/type easily readable) and a message/delivery-status, which contains the data formatted for the mail server to read.

7. Signed : A multipart/signed message is used to attach a digital signature to a message. It has two parts, a body part and a signature part. The whole of the body part, including mime headers, is used to create the signature part.

8. Encrypted : A multipart/encrypted message has two parts. The first part has control information that is needed to decrypt the application/octet-stream second part.

Q. 2. Explain the purpose and syntax of following HTML tags; Embedding image, Table creation, Unordered cist, Header tag, Bold tag.

Ans. 1. Embedding image this html tag is basically used to attach an image to text. The syntax for this tag is,

<EMBED src ="yourfile.jpg" width="100%" height="60" align="center">

2. Table Creation tag is used to create a table in an html page. Syntax for table tag is

<TABLE BORDER="4" CELLPADDING="2" CELLSPACING="2" WIDTH="100">
<TR><TD> Column 1</TD> <TD> Column 2 </TD> </TR>
</TABLE>

3. Unordered list tag is used to create an unordered data arrays in a list. Syntax is,

BR>

<UL>
<LI> Listitem 1
<LI> Listitem 2
</UL>

4. Header Tag is used to put headers in html pages. Syntax for header tag is
<H1> Heading 1 Example </H1>

5. Bold is used to make certain portion of the text bold. Syntax for bold tag is
<B> Example </B>.

Q. 3. (a) Explain various web page and site design considerations.

Ans. Web design is a process of conceptualization, planning, modeling, and execution of electronic media content delivery via Internet in the form of Markup language suitable for interpretation by a web browser and displayed as a Graphical user interface (GUI).

The intent of web design is to create a web site--a collection of electronic files that reside on a web server/ servers and present content and interactive features/interfaces to the end user in form of web pages once requested. Before creating and uploading a website, it is important to take the time to plan exactly what is needed in the website. Thoroughly considering the audience or target market, as well as defining the purpose and deciding what content will be developed are extremely important.

1. Purpose : It is essential to define the purpose of the website as one of the first step in the planning process. A purpose statement should show focus based on what the website will accomplish and what the users will get from it. A clearly defined purpose will help the rest of the planning process as the audience is identified and the content of the site is developed.

2. Audience :

* Defining the audience is a key step in the website planning process. The audience is the group of people who are expected to visit your website—the market being targeted. These people will be viewing the website for a specific reason and it is important to know exactly what they are looking for when they visit the site. Taking into account the characteristics of the audience will allow an effective website to be created that will deliver the desired content to the target audience.

3. Content : Content evaluation and organization requires that the purpose of the website be clearly defined. Collecting a list of the necessary content then organizing it according to the audience's needs is a key step in website planning.

4. Compatibility and Restrictions : Because of the market share of modern browsers (depending on your target market), the compatibility of your website with the viewers is restricted.

5. Planning documentation : Documentation is used to visually plan the site while taking into account the purpose, audience and content, to design the site structure, content and interactions that are most suitable for the website.

Q. 3. (b) Explain the purpose of CSS.

Ans. In web development, **Cascading Style Sheets (CSS)** is a style sheet language used to describe the presentation of a document written in a markup language. Its most common application is to style web pages written in HTML and XHTML, but the language can be applied to any kind of XML document, including SVG and XUL.

CSS is used to help readers of web pages to define colors, fonts, layout and other aspects of document presentation. It is designed primarily to enable the separation of document content (written in HTML or a similar markup language) from document presentation (written in CSS). This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, and reduce complexity and repetition in the structural content. CSS can also allow the same markup page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech-based browser or screen reader) and on Braille based, tactile devices. CSS specifies a priority scheme to determine which style rules apply if more than one rule matches against a particular element. In this so-called cascade, priorities or weights are calculated and assigned to rules, so that the results are predictable.

The CSS specifications are maintained by the World Wide Web Consortium (W3C). Internet media type (MIME type) text/css is registered for use with CSS.

Q. 4. What are objects in Javascripts? Explain string object and window object.

Ans. The String object is used to manipulate a stored piece of text. and. The JavaScript Window Object is the highest level JavaScript object which corresponds to the web browser window.

Window object properties :

* Client Information.
* Closed- A boolean value that indicates whether the window is closed.
* Default Status--- This is the default message that is loaded into the status bar when the window loads. Window.default Status = "Click on a link on the left to navigate this website."
* Event.
* External.
* Last Modified
* Length -- The number of frames that the window contains.
* Name the window name.
* Navigator.
* Offscreen Buffering.
* Opener the object that caused the window to open.
* Status--- The status bar is the bar on the lower left side of the browser and is used to display temporary message. The below example will write a message to the status bar window.status="This message will display in the window status bar."

Q. 5. Explain the multimedia feature implementation when creating a web page. Explain all the necessary multimedia tags for this purpose.

Ans. The World Wide Web is capable of using most forms of media in combination. The addition of graphics, movies, sound and animation has transformed the Web. Use of media on the web depends on digitization, the process of converting media to a series of numbers. The size of media files is still a factor in their effective use. New technology is making dynamic multimedia more accessible to those without the latest state-of-the-art computers. Data compression is used for almost every image, sound and video file on the Web. However, media files remain very large, or are getting even larger. Sound files a few seconds in play length can be several hundred kilobytes in size, and a few seconds of a movie displayed in a small window will be even larger.

Media can be delivered in one of two ways, inline or externally. Inline media is embedded in the page. External media is accessed using a hyperlink. External media has the advantage of allowing page users with slow connections to decide if they want to download the file.

An embedded object is any object that can be run or viewed from a browser, including sound, video, images, and programs. To use an embedded object the browser must either handle the file type or have an appropriate plug-in to handle it.

Embedding sound files : The <embed> tag does not create a new line. Use a <p> or <br> tag as needed. Here is an example of code embedding sound files.

<EMBED SRC=sound.wav AUTOSTART=true Loop = 6 CONTROL=smallconsole WIDTH=144 HEIGHT=15 ALIGN=righ>

Linking Sound Files : Placing a link to a sound is accomplished using the same tag as a link to another Web page. If no appropriate plug-in or helper application is available the browser will offer the user the opportunity to download the file. In the first example both the image and text act as links.

<A HREF=sound.aif"><IMG SRC=speaker.gif WIDTH=52 HEIGHT=73> Listen to this </A>

or   ..A HREF="play.ram"> Listen to this. </A>

Real Media Files : Linking to a Real Media metafile (a text file listing the absolute path to one or more Real Media files) is better supported by browsers than embedding the sound in the page. Use the .ram extension for linking and the .rpm extension when embedding. If you list more than one file they will play successively.

<A HREF="sound.ram">Listen to this </A>

Embedding Real Media Files in Your Page :

<P> <EMBED SRC ="listen.rpm" TYPE="audio/x-pn-realaudio-plugin" HEIGHT=60 WIDTH=275 CONSOLE="label" CONTROLS="ControlPanel, StatusBar">.

Video Files : When linking to an external video use the correct file suffixes : .qt or .mov for Quick Time, .avi for AVI files, and .mpg or .mpeg for MPEG's. : The first example links using both a gif image and text. The second example embeds a video. Image attributes can be used for imbedded videos. This tag also supports Shockwave movies.

<A HREF ="film.mov"> <IMG SRC="movie.gif" WIDTH=50, HEIGHT=50>3.14 Mb QuickTime Movie </A>

<EMBED SRC ="film_clip.avi" WIDTH=200 HEIGHT=100 AUTOSTART=true>.

Q. 6. (a) What is the difference between ASP. NET and JSP NET?

Ans. NET is a web application framework marketed by Microsoft that programmers can use to build dynamic web sites, web applications and web services. It s part of Microsoft's. Net platform and is the successor to Microsoft's Active Server Pages (ASP) technology. ASP.NET is built on the Common Language Runtime, allowing programmers to write ASP. NET code using any Microsoft. NET language.

Difference : Both JSP.net and ASP.net have some initial methods which are very common. Both of these languages are used for the scripting on the server side. The basic aim of these is to facilitate the online users of different website for data entry and for getting information and responsiveness from any particular website.

The ASP.net uses the scripting of two languages called J-Script and VB-Script. Whereas JSP.net uses the Java language for the coding and not for any scripting language. The difference is that the JSP.net uses the Java language inside the JSP page and it is not required by JSP.net to use Java classes and methods in it.

The ASP.net gives response while JSP.net requests in case of accessing the information and building new things. This may include the MIMI output response itself. JSP is more powerful as compared to ASP because it provides security to the user's document. This is the reason that it is getting more popular everyday. JSP. net technology is becoming more widely used in the programming of web development while ASP.net is also being used for in that broad spectrum.

JSP.net provides and helps programmer to work easily. For this matter, it is not necessary that the programmers must have skill in Java only, with practice anyone can make a powerful set of tools that can be embedded in the JSP.net.

Q. 6. (b) Explain the role of Servelets in WWW.

Ans. World Wide Web is based on applets and servelet window based technologies.these servelets are stored on the server side and can be dynamically accessed by simply typing a required www address on the www browser. This process make world wide web an easy to use technology for all the users of the www. Java language provides a platform independent technology to implement servelets and develop web pages which can be dynamically relocated anywhere in the word through world wide web on demand. Java Servelets are Java objects that are compiled and stored persistently in the server side. Quite problematic to write and maintain due to compulsory compilation stage and the inherent verbosity of Java, and its many required

protocols. Java objects which are based on servlet framework and APIs and extend the functionality of a HTTP server. Mapped to URLs and managed by container with a simple architecture Available and running on all major web servers and app servers platform and server independent.

Q. 7. (a) What is the difference between absolute and relative links?
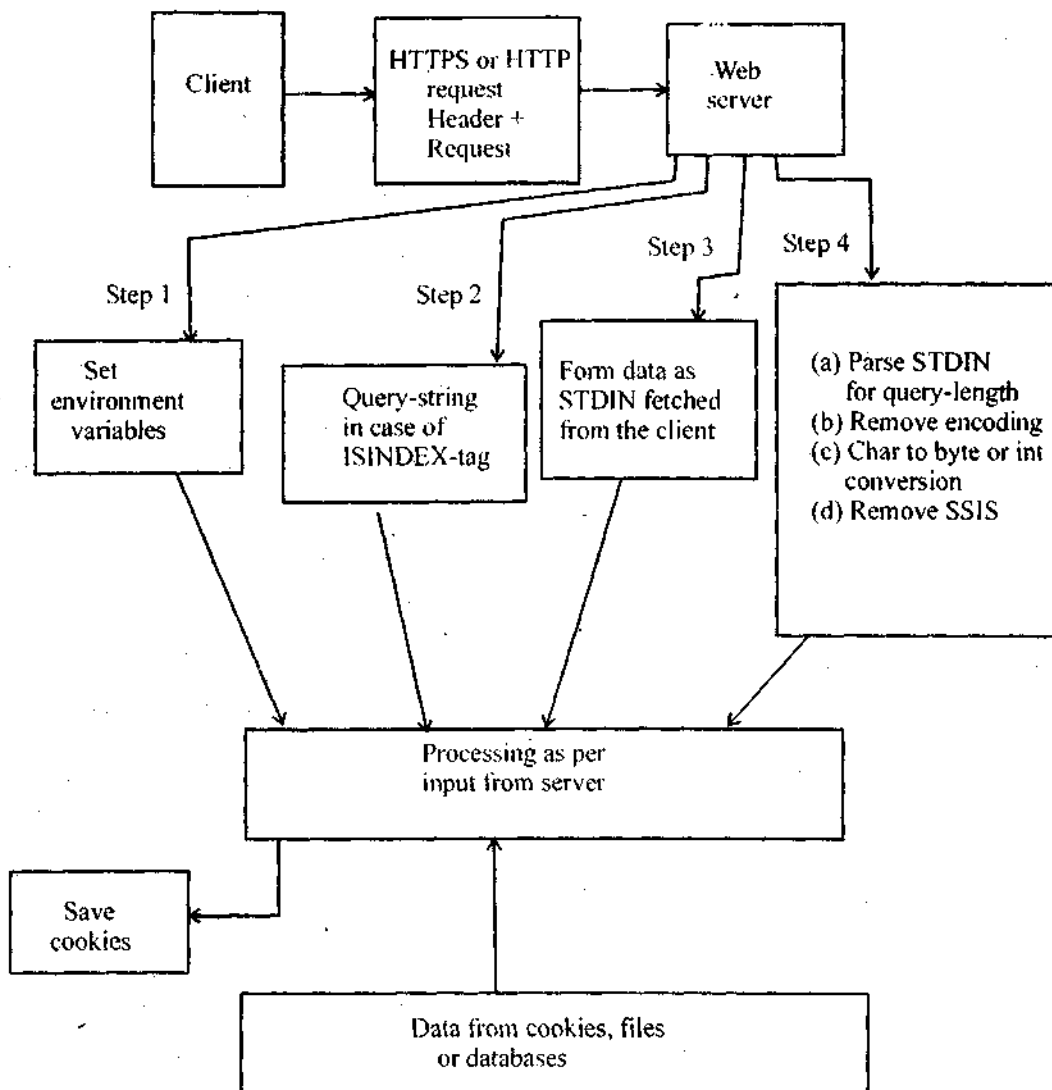
Ans. Relative and Absolute Links :

* It is important to note that there are two ways you can reference a document within an HREF attribute. You can reference it absolutely or relatively.

* An absolute link defines the location of the document absolutely including the protocol to use to get the document the server to get it from, the directory it is located in, and the name of the document itself.

* An anchor of this type will look like those we have seen so far......

  <A HREF="http"://www.eeye.com.sg/Tutorials/index.html">

  here </A>

* A relative link on the other hand takes advantage of the fact that the server knows where the current document is. Thus, if we want to link to another document in the same directory, we don't need to write out the full URL. All we need to use is the name of the file.

* For example, if we are looking at the index.html file addressed in the previous example, and we want to link to a file called page 1.html in the same directory (Tutorials), we need not write out the entire URL. In fact, either of the following anchor tags will work :

  <A HREF="http://www.eeye.com.sg/Tutorials/page1.html">

  here </A>

  <A HREF="page 1.html1">here</A>

* Similarly, if you wanted to link to a document in the directory "Tutorials/Chapter2/Part1" called "page 23.html, you could use the following anchor :

  <A HREF="Chpater2/Part1/page23.html">here</A>.

* This is because the web server will remember the "http://www.eeye.com.sg/Tutorials" part for you.

* One little technical note here. When you are creating a relative link to a directory under your current one, be careful not to put an initial backslash before the referenced directory. Otherwise, the server will think you are referencing the "root" directory. By example, the following link would be wrong :

  <A HREF="/Chapter2/Part1/Page 23.html"> here</A>.

Q. 7. (b) Explain the FORM processing using CGT.

Ans. Form Processing Using CGT : Consider a job seeker using the information.

(i) The seeker browses a page having job information.

(ii) The web server renders job information.

(iii) A request for a form us sent by clicking on a hyperlink.

(iv) The server renders the form. Using GET & POST method the form is submitted to server.

(v) The CGI script processes the form data & renders an output to the server. The output data is either from the server file or from a remote server.

(vi) The output then reaches the seeker as a server response.

Figure below explains this cycle :

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[Client] → [HTTPS or HTTP request Header + Request] → [Web server]
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Step 1 — Set environment variables

Step 2 — Query-string in case of ISINDEX-tag

Step 3 — Form data as STDIN fetched from the client

Step 4 —
(a) Parse STDIN for query-length
(b) Remove encoding
(c) Char to byte or int conversion
(d) Remove SSIS

Processing as per input from server

Save cookies

Data from cookies, files or databases

Q. 8. Write short notes on :

(a) Plugins   (b) Cookies   (c) Meta tags   (d) URML

Ans. (a) **Plugins :** (Plug-in, addin, add-in, addon, or add-on) is a computer program that interacts with a host application (a web browser or an email client, for example) to provide a certain, usually very specific, function "on demand". Applications support plugins for many reasons. Some of the main reasons include : enabling third-party developers to create capabilities to extend an application, to support features yet unforeseen, reducing the size of an application, and separating source code from an application because of incompatible software licenses.

Examples of applications and their plugins include :

* Email clients use plugins to decrypt and encrypt email (Pretty Good Privacy).

* Graphics software use plugins to support file formats and process images (Adobe Photoshop).
* Media players use plugins to support file formats and apply filters (foobar 2000, GStreamer, Quintessential, VST, Winamp , XMMS).
* Packet sniffers use plugins to decode packet formats (OmniPeek).
* Remote sensing applications use plugins to process data from different sensor types (Opticks).
* Software development environments use plugins to support programming langauges (Eclipse, jEdit, MonoDevelop).
* Web Browsers use plugins to play video and presentation formats (Flash, Quick Time, Microsoft Silverlight).

Some digital mixing consoles allow plugins to extend features such as reverberation effects, equalization and compression.

(b) Cookies : Cookies, more commonly referred to as web cookies or just cookies, are parcels of text sent by a server to a web browser and then sent back unchanged by the browser each time it accesses that server. HTTP cookies are used for authenticating, tracking, and maintaining specific information about users, because the identification of users they provide is not always accurate and because they could such as site preferences or the contents of their electronic shopping carts. The term "cookie" is derived from "magic cookie," a well-known concept in UNIX computing which inspired both the idea and the name of HTTP cookies.

Cookies are also subject to a number of misconceptions, mostly based on the erroneous notion that they are computer programs. In fact, cookies are simple pieces of data unable to perform any operation by themselves. In particular, they are neither spyware nor viruses, despite the detection of cookies from certain sites by many anti-spyware products.

Most modern browsers allow users to decide whether to accept cookies, but rejection makes some websites unusable. For example, shopping baskets implemented using cookies do not work if cookies are rejected.

(c) Meta Tags : The meta tag in html is a not a required tag when you're creating your web pages; many pages don't use the tag at all, and I must confess that I've not used it on my home page, although I put it into this page by way of demonstration. To put it briefly, the meta tag is used by search engines to allow them to more accurately list your site in their indexes. Sometimes.

If you simply produce your home page and register the URL with a search engine, or a number of search engines, their spider programmes will (eventually) toddle along to your site to index it. Now, each of the search engines does this slightly differently.

(d) URML : A UML-Based Rule Modeling Language :

The modeling language used in the communication between business/domain analysts and business/domain experts for analyzing and documenting system requirements must not be 'technical' but should allow (semi-) visual and/or natural-language-like rule expressions, which can be understood by business/domain experts without extensive technical training. The UML offers a semi-visual (diagrammatic) language for information modelling allowing a limited number of embedded rule types (in particular, integrity constraints and derivation rules cf.). The Object Constraint Language (OCL) can be used for expressing integrity rules and derivation rules within UML class diagrams, but it is purely textual and does not allow a visual representation of rules. In order to facilitate rule modeling, the REWERSE Working Group II has developed a UML-Based Rule Modeling Language (URML), which allows visual rule modeling based on UML class models. Below is a description of the basic URML metamodel elements. For the full language specification, please contact Surgery Lukichev.

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