PUNE INSTITUTE OF COMPUTER TECHNOLOGY

DHANKAWADI , PUNE – 411043

ACADEMIC YEAR: 2020 – 2021

YEAR / SEMESTER: T.E. – VI

DEPARTMENT: COMPUTER ENGINEERING

SUBJECT: Web Technology Lab (310256)

Revised on date: 5th January 2021

TITLE	***Design with HTML , XML***
PROBLEM STATEMENT /DEFINITION	Design & develop a web application using HTML, CSS, XML from the given list: 1. Leave management application 2. Project Management 3. Meeting room booking application & Touch–less / Paperless resource utilization 4. Exam cell automation application 5. Virtual Lab 6. Online Assessment
OBJECTIVE	• To develop web pages using HTML • To optimize page styles & layout with CSS • To distinguish between HTML & XML
S/W PACKAGES AND HARDWARE APPARATUS USED	Operating System open source Fedora 20 or higher equivalent or Windows Networked computer with internet access Editor : IDE , Eclipse or any simple equivalent editor (i.e. text based & WYSIWYG based), Netbeans Web browser / Internet explorer 7
REFERENCES	• Web enabled commercial application development using HTML , DHTML , JavaScript , Perl CGI by Ivan Bayross • Musiciano C. Kennedy B., ‘ HTML & XHTML ’ , 5th or higher edition , O’Reilly / SPD Publications , ISBN B1 – 7366 – 517 – 1 • Learning XML by Erik T. Ray , O’reilly • Internet & World Wide Web , How to Programe , 3rd or higher edition , H. M. Deitel , P. J. Deitel , A. B. Goldberg , Pearson education • McKinnon A., McKinnon L., ‘ XML ’ , Vikas Publishing House , 2004 , ISBN 981 – 254 – 299 – X • https://www.w3schools.com/xml/
STEPS	Refer to steps below
INSTRUCTIONS FOR WRITING JOURNAL	• Title • Problem Statement • Description (HTML vs XML & various tags in it CSS) • Block diagrams (design part) • Troubleshooting (if any) • Conclusion • References

Problem Statement:

Design & develop a web application using HTML, CSS, XML from the given list:
1. Leave management application
2. Project Management
3. Meeting room booking application & Touch–less / Paperless resource utilization
4. Exam cell automation application
5. Virtual Lab
6. Online Assessment

Objectives:

1) To develop web pages using HTML
2) To optimize page styles & layout with CSS
3) To distinguish between HTML & XML

Outcomes:

1) Define the key terms relevant to coding HTML and CSS, including: tag, attribute, element, entity, selector, header, table, ordered list, unordered list, link, heading, paragraph ; et cetra .
2) Describe the function of common tags & styles in short snippets of code & predict the output of the same .
3) They will be able to create well–formed & valid XML documents, write DTDs & Schemas & deliver XML documents over the Web using different style sheets
4) Define & compare the concepts of multimedia , hypermedia & hypertext .

Theory:

Introduction :

Files that travel across the largest network in the world , the Internet , & carry information from ‘ Server ’ to ‘ Client ’ that requested them are called ‘ **Web pages** / HTML documents ’ . Individual who develops these web pages is called ‘ **Web Developer** ’ . Web Pages are created using HTML syntax . The organization of web pages into directories & files stored on the HDD of a computer is called ‘ **Web Site** ’ creation . As studied in previous assignment , the Server Computer runs special software called ‘ **Web Server** ’ software that allows :

- Web Site Management
- Accept a client’s request for information
- Respond to a client’s request by providing the page with the required information

Computers that offer the facility to read information stored in web pages are called ‘ **Web Clients** ’ . Web Clients run special software called a ‘ **Browser** ’ that allows to :

- Connect to an appropriate Server
- Query the Server for the information to be read
- Provides an interface to read the information returned by the Server

Following points emphasize the requirements of a good web site :

First Impression – Did the initial page grab the attention ?

Interface Design – Is the menu interface interactive enough & visually interesting ?

Corporate Mildew – Is the site trapped in a web of corporate look , feel & canned marketing speak ?

Coriolis Effect – Does the site generate enough currents of interest based on design & content for the user to comeback ?

HTML :

The language used to develop web pages is called **H**yper**T**ext **M**arkup **L**anguage which is interpreted by a Browser . HTML is a set of special codes that can be embedded in text to add formatting & linking information . **HTML Tags** are instructions that are embedded directly into text of document . It is a signal to a browser that it should do something other than just throw text up on the screen . HTML tags can be of two types :

Paired Tags &

Singular Tags

Some HTML tags require additional information to be supplied to them that are known as *Attributes* of a tag . Attribute(s) are written immediately following the tag , separated by a *space* . The creation of textual content of Web Site is done in any editor viz; Notepad / Eclipse / IDE ; et cetra & saved as *filename.**htm / .html*** file .

Tag	Name	Example
<!--	comment	<!--This can be viewed in the HTML part of a document-->
<a –	anchor	 Visit PICT
	bold	Example
<big>	big (text)	<big> Example </big>
<body>	body of HTML document	<body> The content of your HTML page </body>
 	line break	The contents of your page The contents of your page
	center	This will center your contents
<dd> <dl> <dt>	definition description definition list definition term	<dl> <dt> definition term </dt> <dd> definition of the term </dd> </dl>
	Emphasis	This is an example of using emphasis tag
<embed>	embed object	<embed src = “your file” width = “100%” height = “60” align = “center”>
	Font	 Example
<h1> <h2> <h3> <h4> <h5> <h6>	heading 1 heading 2 heading 3 heading 4 heading 5 heading 6	Heading 1 Example Heading 2 Example Heading 3 Example Heading 4 Example Heading 5 Example Heading 6 Example
head	heading of HTML document	<head>Contains elements describing the document</head>
<hr>	horizontal rule	<hr width="50%" size="3" noshade />
<html>	hypertext markup language	<html> <head> <meta> <title>Title of your web page</title> </head> <body>HTML web page contents </body> </html>
	Italic	Example
<img>	Image	
<input>	input field	**Ex:** <form method=post action="/cgibin/example.cgi"> <table border="0" cellspacing="0" cellpadding="2"><tr><td bgcolor="#8463ff"><input type="text" size="10" maxlength="30"></td><td bgcolor="#8463ff" valign="Middle"> <input

		type="image" name="submit" src="yourimage.gif"></td></tr> </table> </form> **Ex:** <form method=post action="/cgibin/example.cgi"> Select an option: <input type="radio" name="option"> Option 1 <input type="radio" name="option" checked> Option 2 <input type="radio" name="option"> Option 3 Select an option: <input type="checkbox" name="selection"> Selection 1 <input type="checkbox" name="selection" checked>Selection 2 <input type="checkbox" name="selection"> Selection 3 <input type="Submit" value="Submit"> <input type="Reset" value="Clear"> </form>
<menu> 	Menu list item ordered list	<menu> <li type="disc">List item 1 <li type="circle">List item 2 <li type="square">List item 3 </MENU> <ol type="i"> - List item 1 - List item 2
<link>	Link	<head> <link rel="stylesheet" type="text/css" href="style.css" /> </head>
< marquee >	scrolling text	<marquee bgcolor="#cccccc" loop="-1" scrollamount="2" width="100%">Example Marquee</marquee>
<meta>	meta	<meta http-equiv="Pragma" content="nocache">
<option>	listbox option	<form method=post action="/cgibin/example.cgi"> Select an option: <select> <option>option 1</option> <option selected>option 2</option> </select> </form>
<p>	paragraph	<p align="center"> This is an example displaying the use of the paragraph tag
<small>	small (text)	Example
<strike>	deleted text	<strike>Example</strike>
<table>	table	<table cellpadding="2" cellspacing="2" width="100%"> <tr> <th>Column 1</th> <td bgcolor="#cccccc">Column 1</td> <td bgcolor="#cccccc">Column 2</td> </tr> <tr> <td>Row 2</td> <td>Row 2</td> </tr> </table>
<title>	document title	<title>Title of your HTML page</title>
<u>	underline	<u>Example</u>
<tt>	teletype	<tt>Example</tt>
<style>	CSS	

DHTML (Dynamic HTML) :

It combines HTML with Cascading Style Sheets (CSS) & Scripting Languages . HTML specifies a web page's element lie table , frame , paragraph , bulleted list ; etc. CSS can be used to determine an element's size , color , position & number of other features .

CSS (Cascading Style Sheets) :

Style Sheets are powerful mechanism for adding styles to Web documents that enforces standards & uniformity throughout a web site & provide numerous attributes to create dynamic effects . Style information can be associated with the web page in several ways :

- by embedding the style information directly through a STYLE attribute
- by embedding the style information directly through a < STYLE > header
- by embedding the style information directly through < LINK > element

Order of importance for adding style sheets into the document :

I. Inline styles
II. Embedded styles
III. Linked styles
IV. Imported styles
V. Default browser styles

Advantages :

- ✓ ability to make global changes to all documents from a single location
- ✓ greater author control over appearance of text & its placement on the page
- ✓ reduced clutter of multiple opening & closing tags on individual text elements
- ✓ simplified modification of page design through style editing
- ✓ eliminating the need for clumsy HTML workarounds to achieve basic layout effects
- ✓ great improvement of the design potential for HTML pages without introducing a large no. of new proprietary tags or compromising ability of other browser to effectively display the document text

XML – Nuts & Bolts :

- DTD
- XSD – eXtensible Schema Definition
- XSL – eXtensible Style Languages
- XML Linking Languages (XPath , Xlink & Xpointer)
- XML Namespaces

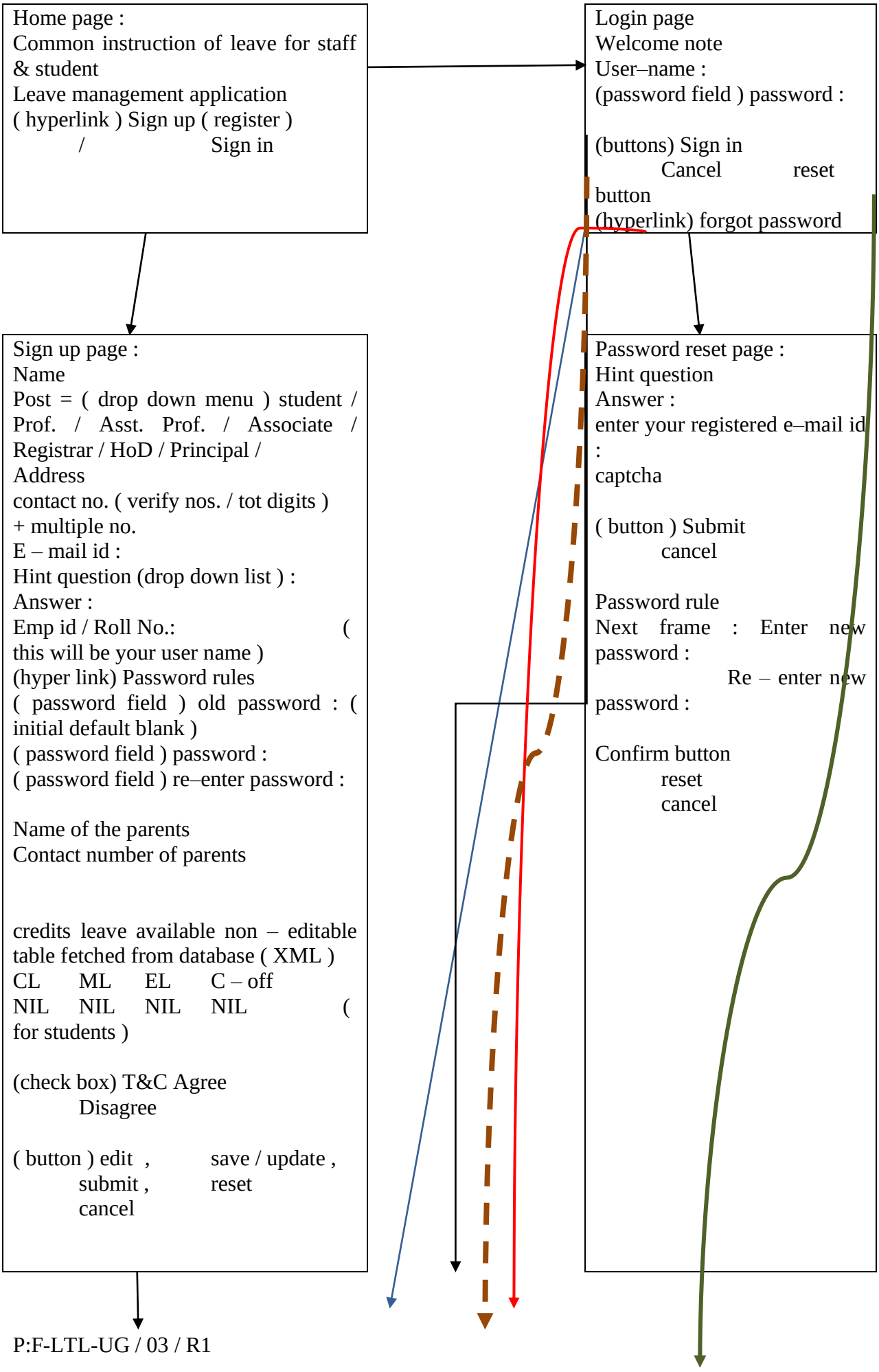
Advantages of Schemas :

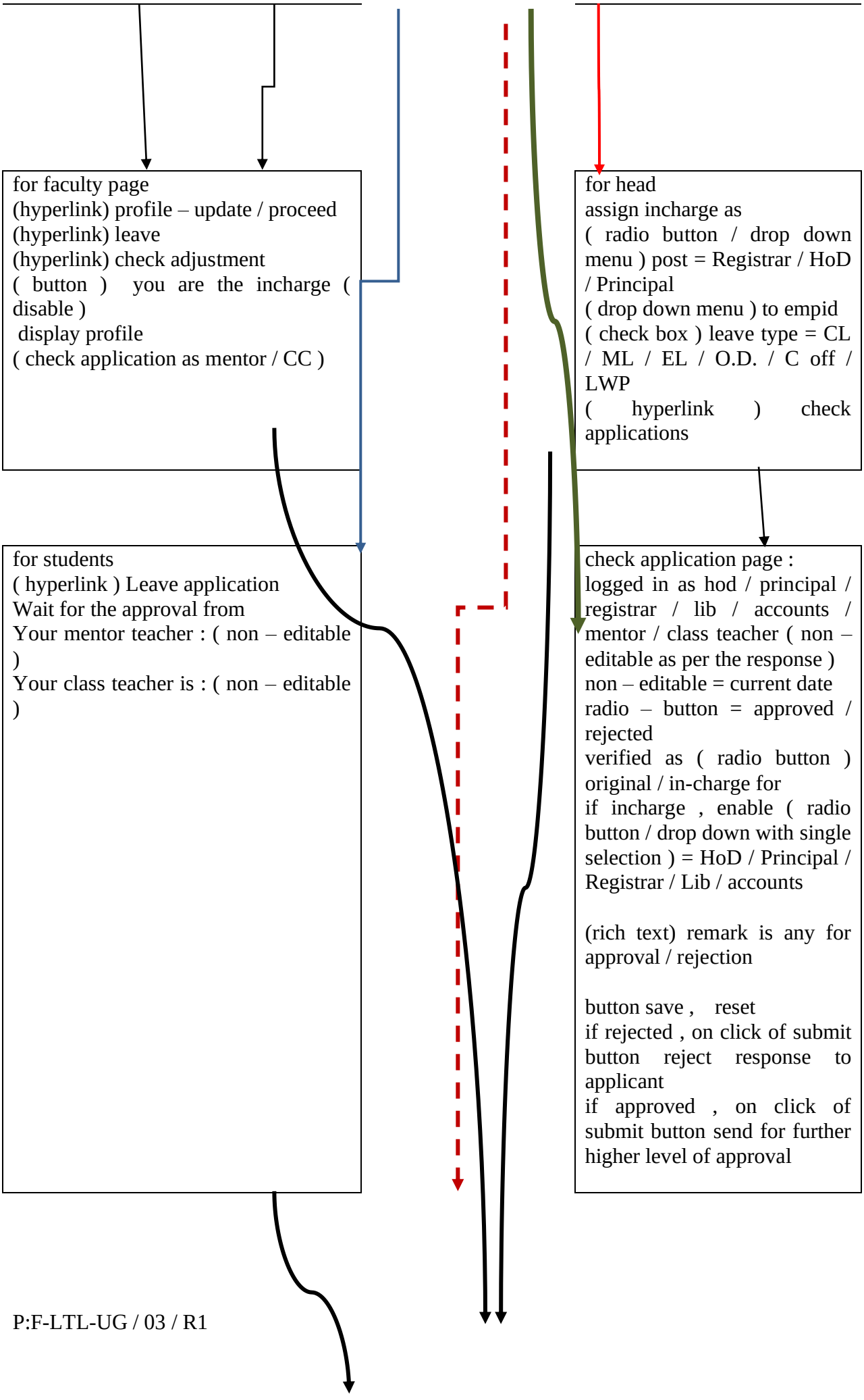
- ✓ easier to validate the correctness of data
- ✓ easier to work with data from database
- ✓ easier to define data facets & data patterns
- ✓ easier to convert data between different data types

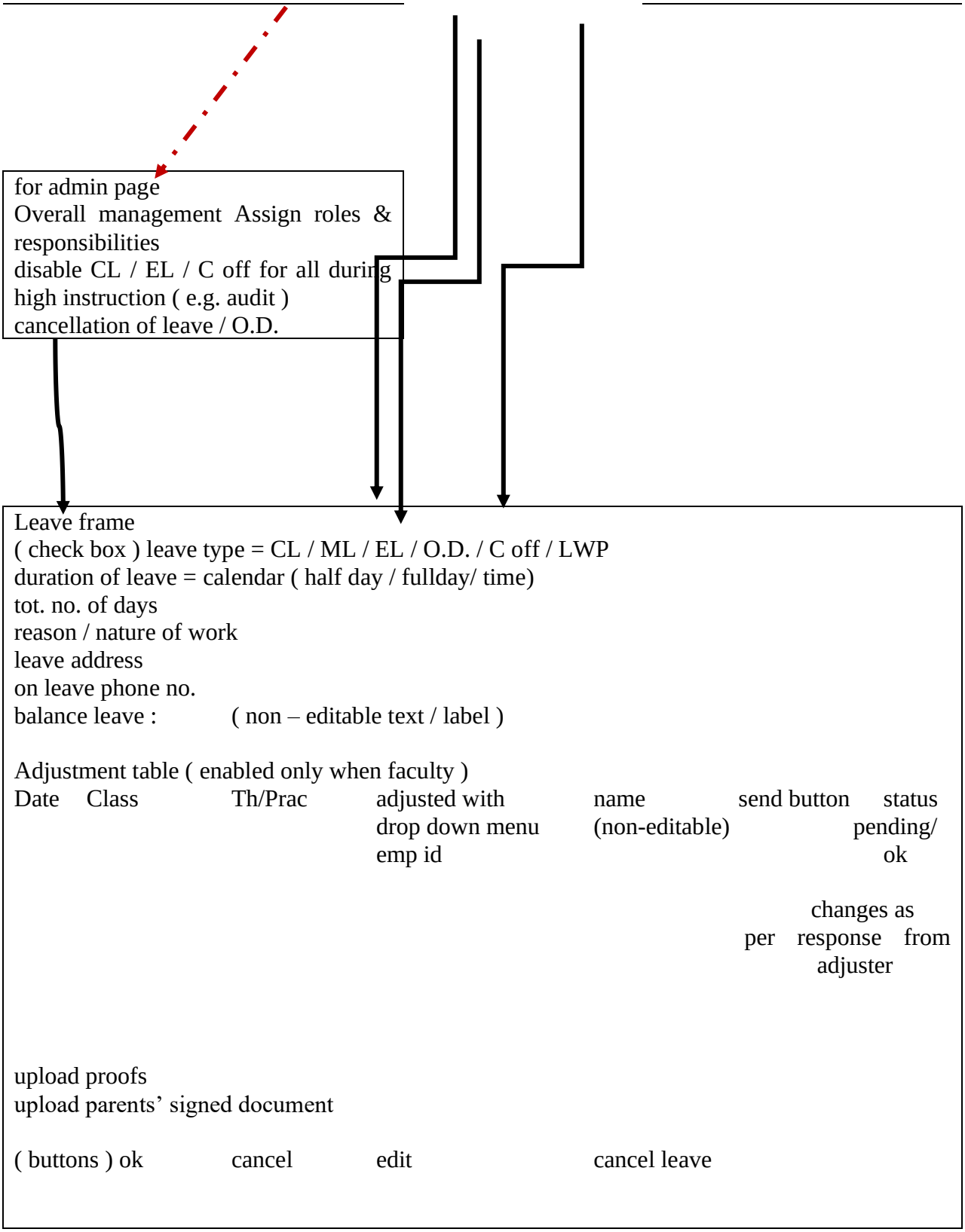
HTML vs XML

HyperText Markup Language	**Extensible Markup Language**
used to display data	used to transport & store data
it is markup language	provides framework to define markup languages
not case sensitive	case sensitive
it is presentation language	neither presentation nor programming lang.
predefined tags	custom tag
no strict rules	strict rules
Static	dynamic
does not preserve white spaces	preserve white spaces
list out the limitations	list out the limitations

Sample Scope of Leave management application:


Home page :
Common instruction of leave for staff & student
Leave management application
(hyperlink) Sign up (register)
/ Sign in
Login page
Welcome note
User–name :
(password field) password :
(buttons) Sign in
Cancel reset button
(hyperlink) forgot password
Sign up page :
Name
Post = (drop down menu) student / Prof. / Asst. Prof. / Associate / Registrar / HoD / Principal /
Address
contact no. (verify nos. / tot digits)
+ multiple no.
E – mail id :
Hint question (drop down list) :
Answer :
Emp id / Roll No.: (this will be your user name)
(hyper link) Password rules
(password field) old password : (initial default blank)
(password field) password :
(password field) re–enter password :
Name of the parents
Contact number of parents
credits leave available non – editable table fetched from database (XML)
CL ML EL C – off
NIL NIL NIL NIL (for students)
(check box) T&C Agree
Disagree
(button) edit , save / update , submit , reset
cancel
Password reset page :
Hint question
Answer :
enter your registered e–mail id :
captcha
(button) Submit
cancel
Password rule
Next frame : Enter new password :
Re – enter new password :
Confirm button
reset
cancel
P:F-LTL-UG / 03 / R1


for faculty page
(hyperlink) profile – update / proceed
(hyperlink) leave
(hyperlink) check adjustment
(button) you are the incharge (disable)
display profile
(check application as mentor / CC)
for head
assign incharge as
(radio button / drop down menu) post = Registrar / HoD / Principal
(drop down menu) to empid
(check box) leave type = CL / ML / EL / O.D. / C off / LWP
(hyperlink) check applications
for students
(hyperlink) Leave application
Wait for the approval from
Your mentor teacher : (non – editable)
Your class teacher is : (non – editable)
check application page :
logged in as hod / principal / registrar / lib / accounts / mentor / class teacher (non – editable as per the response)
non – editable = current date
radio – button = approved / rejected
verified as (radio button) original / in-charge for
if incharge , enable (radio button / drop down with single selection) = HoD / Principal / Registrar / Lib / accounts
(rich text) remark is any for approval / rejection
button save , reset
if rejected , on click of submit button reject response to applicant
if approved , on click of submit button send for further higher level of approval



Note :

- *on every final button pop – up for confirmation*
- *on every page there must be buttons of back , Home page & Logout & accordingly pages must be interlinked*
- *make use of CSS & XML DTD / Schema wherever applicable*

Sample Scope of Exam cell automation application :

Major modules: (https://www.youtube.com/watch?v=wkm7Nqd1mMM)

P:F-LTL-UG / 03 / R1

i. Student registration
ii. Course wise subjects registration
iii. Exam Time table generation
iv. Hall ticket generation
v. Seat layout generation
vi. Faculty allocation to different blocks

et cetra …

Algorithmic steps :

1. Finalize the scope of given list of web application
2. Task distribution
3. Design the respective application in lab note book & get it verified by respective lab subject teacher
4. Write the code snippet in the editor (HTML , CSS , XML) & visualize the same in browser
5. Testing

Installation Steps: Windows Users

Download Netbeans 8.2 for PHP and if asked for JDK then download JDK 8. Download link for NetBeans 8.2 is https://netbeans.org/downloads/8.2/

Download JDK 8 from the link:

https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html

Installation Steps: Linux Users

For Linux platforms, the installation file has the .sh extension and you need to make the files executable by using the following command:

chmod +x <installer-file-name>. Type ./<installer-file-name>

Note: The rest of the installation process is similar to the windows installation process.

Installation Steps: MacOS Users

1. After the download completes, run the installer. The installer file has the *.dmg* extension.
2. On the panel that opens double-click the package icon. The package has the *.pkg* extension. The installation wizard starts.
3. Click *Continue* when the "This package will run a program to determine if the software can be installed." dialogue box is displayed.
4. At the Introduction page of the installation wizard, click *Continue*.
5. Review the license agreement and click *Continue*. Click *Accept* in the pop-up window to accept the license.
6. At the 'Select a Destination page', select the drive and click *Continue*.
7. Select the products you want to install.
8. Enter the administrator's name and password for your system and click *OK* to begin the installation

Testing :

Test id	Test case	Expected o/p	Actual o/p
1.	All web pages must be properly interlinked		
2.	Every page must have back button , home page button & logout with appropriate navigation		
3.	After the click of final button , pop – up confirmation is required		

4.	Web document is expected to be user – friendly with formal design		
5.	Style overloading		
6.	Provide the alternate values to attributes of tags w.r.t. compatibility of browser . explorer		
7.			

Rubrics:

Properties	*Excellent*	*Effective*	*Satisfactory*	*Need Improvement*
Layout / Design	The web site has an exceptionally attractive & usable layout. It is easy to locate all important elements. White space, graphic elements and/or alignment are used effectively to organize material. There are multiple graphic elements and variation in layout. Design elements assist visitors in understanding concepts and ideas	The web site has an attractive and usable layout. It is easy to locate all important elements. There are some graphic elements & limited variation in layout. Design elements sometimes assist visitors in understanding concepts and ideas	The web site has a usable layout, but may appear busy or boring. It is easy to locate most of the important elements	The web site has a cluttered look and is confusing. It is often difficult to locate important elements. There are few or no graphic elements, no variation in layout &/or the colors & text interfere with the readability
Navigation	Links for navigation are clearly labeled, consistently placed, allows the reader to easily move from a page to related pages (forward & back) & take the reader where s/he expects to go. A user does not become lost. The site is well–organized	Links for navigation are clearly labeled, allows the reader to easily move from page to page & internal links take the reader where he expects to go. A user rarely becomes lost	Links for navigation take the reader where expected, but some needed links seem to be missing / unclear. A user sometimes gets lost.	Some links do not take the reader to the sites/pages described i.e. confusing & information cannot be found easily. A user typically feels lost.
Work Ethic	Student always uses lab project time well. Conversations are primarily focused on the project & things needed to get the work done & are held in a manner that typically does not disrupt others	Student usually uses lab project time well. Most conversations are focused on the project & things needed to get the work done & are held in a manner that typically does not disrupt others	Student usually uses lab project time well, but occasionally distracts others from their work	Student does not use lab project time well OR typically is disruptive to the work of others
Graphics	Graphics are related to the theme/purpose of the site, are thoughtfully cropped, are of high quality & enhance reader interest or understanding	Graphics are related to the theme/purpose of the site, are of good quality & enhance reader interest or understanding.	Graphics are related to the theme/purpose of the site & are of good quality	Graphics seem randomly chosen, are of low quality, OR distract the reader
Browser Compatibility	The site is equally effective with both of the recommended browsers — Microsoft Internet Explorer & Mozilla Firefox/Chrome — on		The site has some difficulty with one of the recommended browsers— Microsoft Internet Explorer & Mozilla	The site is not effective in at least one of the recommended browsers— Microsoft Internet

	both the Macintosh & Windows / Linux (Fedora) OS		Firefox/Chrome — on both the Macintosh & Windows / Linux (Fedora) OS	Explorer & Mozilla Firefox/Chrome — on both the Macintosh & Windows / Linux (Fedora) OS
Writing Mechanism	The text has no errors in grammar, capitalization, punctuation & spelling		The text has some errors in grammar, capitalization, punctuation & spelling	The text has many errors in grammar, capitalization, punctuation & spelling
Speed Web Pages Load	The graphics on each page are small in byte–size & optimized by providing image height & width attributes & pages download quickly for the intended audience	Some graphics on each page are small in byte–size & optimized by providing image height & width attributes & some pages download quickly for the intended audience		Graphics are not small in byte–size & not optimized by providing image height & width attributes & pages do not download quickly for the intended audience
Color Choices	Colors of background, fonts, unvisited & visited links form a pleasing palette, do not detract from the content & are consistent across pages	Colors of background , fonts, unvisited & visited links do not detract from the content & are consistent across pages	Colors of background, fonts, unvisited & visited links do not detract from the content	Colors of background, fonts, unvisited & visited links make the content hard to read/ otherwise distract the reader
Fonts	The fonts are consistent, easy to read & point size varies appropriately for headings & text. Use of font styles (italic, bold, underline) is used consistently & improves readability	The fonts are consistent, easy to read & point size varies appropriately for headings & text	The fonts are consistent & point size varies appropriately for headings & text	A wide variety of fonts, styles & point sizes were used.
Coding Validation	There are no errors in the HTML, CSS / other coding on the site as found by me/ an online validator	There are 1–3 coding errors on the site as found by me / an online validator	There are 4–5 coding errors on the site as found by me / an online validator	There are more than 6 coding errors on the site as found by me / an online validator
Cascading Style Sheet	Student uses a style sheet to define attributes (along with some inline style), which makes all pages attractive looking & consistent	Student uses a style sheet, however there is some inconsistencies in relation to the styles on each page in the web site	Student uses a style sheet, however, it is not consistent on all pages, which disrupts consistency of pages within the web site	Student fails to use a style sheet within the pages of the web site
Images (Accessibility)	All images, especially those that are used for navigation, have an ALT tag that describes the image & its link so people who are visually impaired can use the Web site well	All images used for navigation have an ALT tag that describes the image & where it links to so people who are visually impaired can use the Web site well	Most images used for navigation have an ALT tag that describes the image & where it links to so people who are visually impaired can use the Web site well	The needs of visually impaired Internet users are ignored
Learning of Material	The student has an exceptional understanding of the material included in the site and where to find additional information.	The student has a good understanding of the material included in the site. Can easily answer questions about the content & procedures	The student has a fair understanding of the material included in the site. Can easily answer most questions	Student did not appear to learn much from this project. Cannot answer most questions about the

	Can easily answer questions about the content & procedures used to make the web site	used to make the web site	about the content & procedures used to make the web site	content & the procedures used to make the web site
CSS Elements & With all Properties and Correct Syntax– Stated in #1 of the Directions with required specifications				

Oral Questionnaire :

- Compare HTML with XML
- What is the difference between form get and form post?
- What is the importance of the HTML DOCTYPE?
- What is web application ?
- What is markup language ?
- What is DOM document & XPath ?
- Can we have empty XML tag ?
- Can we replace HTML with XML ?

Extra Assignments for practice :

1) Create a specimen of a corporate web page . Divide the browser screen into two frames . The frame on the left will be a menu consisting of hyperlinks . Clinking on any one of these links will lead to a new page , which must open in the target frame , which is on RHS .

2) Design following frame :

<table>
<tr><td rowspan="2">Content of Frame 1</td><td>Content of Frame 3</td></tr>
<tr><td rowspan="2">Content of Frame 4</td></tr>
<tr><td>Content of Frame 2</td></tr>
<tr><td></td><td>Content of Frame 5</td></tr>
</table>

Solution :

```
<html>
<head>      <title> Nested frames </title>      </head>
<frameset   cols = " 40% " , * >   <framset   rows = " 50% " , * >
      <frame      src = "frame1.html"/>      <frame      src = "frame2.html/>"
</frameset>
<frameset   rows = " 20% " , " 35% " , *>
      <frame      src = "frame3.html"/>      <frame      src = "frame4.html"/>
      <frame      src = "frame5.html"/>      </frameset>   </frameset>   </html>
```

3) Design following table which includes caption , border , cellpadding & cellspacing

NAME	MARKS		
	PowerBuilder	VisualBasic	Developer2000
Shilpa	21	45	30
Vaishali	26	30	40

Answer =

```
< HTML >
<HEAD>   <TITLE>Working With Table</TITLE>          </HEAD>
<BODY BGCOLOR=LIGHTGREY>
<B>Specifing ROWSPAN and COLSPAN Attributes !</B>          <BR><BR><BR><BR>
<CENTER>    <TABLE BORDER=1 WIDTH=50% ALIGN=CENTER>
<TR>            <TH ROWSPAN=2>NAME            <TH COLSPAN=3>MARKS            </TR>
<TR>  <TH>PowerBuilder            <TH>VisualBasic            <TH>Developer2000  </TR>
<TR ALIGN=CENTER>       <TD> Shilpa   <TD> 21        <TD> 45        <TD> 30        </TR>
<TR ALIGN=CENTER>       <TD> Vaishali          <TD> 26        <TD> 30        <TD> 40
</TR>
<CAPTION ALIGN=bottom><B><BR>Mark Sheet</B></CAPTION>    </TABLE>
</CENTER>   </BODY>       </HTML>
```

4) Create a document with two links to an external document . The first link should lead to the beginning of the external document . The second link should lead to a particular section in the external document . In the external document specify a link that will lead to a particular section within it .

5) XML design

6) Design a Web page for CYBERSHOP INC, using style sheets with the following Specifications : i. Define a style class '.Maxx' with the attributes viz; font – size , color , font – weight & font – family i. Use the defined Style class wherever the text ' CYBERSHOP INC ' appears on the web document i. Use unordered listing giving the list of services offered by CYBERSHOP INC v. Define three segments using <DIV> … </DIV> tags with background colors Blue , Green & Goldenrod positioned accordingly with the some text .	<html> <head> <title>Cybershop Inc</title> <style type="text/css"> ul{List-style:square} .MAXX{Font-Size:26pt;Color:green;Font-weight:BOLD;Font-family:CURSIVE} </style> <body bgcolor="pink"> <P CLASS="MAXX">CYBERSHOP INC</P> Chatting Printing Hacking class Ebusiness <b> Chat Print Hacking class <b> </body>

Conclusion