

1/2 M.Tech. SECOND SEMESTER

CSCS2L1

WEB TECHNOLOGIES LAB

Credits: 2

Lecture: 4 periods/week

Internal assessment: 25 marks

Tutorial: --

Semester end examination: 50 marks

Objectives:

Create a fully functional website to develop an online book store

1. HyperText Markup Language (HTML) and Cascading Style Sheets (CSS) for laying out (formatting) pages that contain text, images and graphics.
2. Extensible Markup Languages (XML is used to store and transport data among webpages), a mechanism for defining new tag sets and interchanging data among web applications.
3. Client-side Programming using JavaScript for validating the data.
4. Creation of software components (objects used for client and server communication) using Beans.
5. Server-Side Programming using servlets are to generate static content and Java Server Pages are used to generate dynamic content.
6. Creating a pure Dynamic Web Application which retrieves the data from Database according to the client request using JDBC.

Learning Outcomes:

Upon completion of the lab course, the student will be able to

1. Create a website statically or dynamically.
2. Get knowledge on displaying and decorating the contents in a webpage.
3. Learn the concepts of store and transport the data among webpages.
4. Create objects with which the client can communicate with server.
5. Generate static or dynamic content according to the client's request.
6. Provide User Authentication by using cookies.
7. Perform back end operations using JDBC.

Hardware and Software required:

- 1.) A working computer system with either Windows or Linux
- 2.) A web browser either IE or firefox
- 3.) Tomcat web server and Apache web server
- 4.) XML editor like Altova Xml-spy [www.Altova.com/XMLSpy – free] , Stylusstudio , etc.,
5.) Database either Mysql or Oracle
- 6.) JVM(Java virtual machine) must be installed on your system
- 7.BDK(Bean development kit) must be also be installed

Week-1:

Design the following static web pages required for an online book store web site.

1) **HOME PAGE:**

The static home page must contain three **frames**.

Top frame : Logo and the college name and links to Home page, Login page, Registration page,Catalogue page and Cart page (the description of these pages will be given below).

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Left frame : At least four links for navigation, which will display the catalogue of respective links. For e.g.: When you click the link “CSE” the catalogue for CSE Books should be displayed in the Right frame.

Right frame: The *pages to the links in the left frame must be loaded here*. Initially this page contains description of the web site.

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Description of the Web Site			

Fig 1.1

2) LOGIN PAGE:

This page looks like below:

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Login : <input type="text"/> Password: <input type="text"/> <input type="button" value="Submit"/> <input type="button" value="Reset"/>			

3) CATALOGUE PAGE:

The catalogue page should contain the details of all the books available in the web site in a table.

The details should contain the following:

3. Snap shot of Cover Page.
4. Author Name.
5. Publisher.
6. Price.
7. Add to cart button.

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Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL		Book : XML Bible Author : Winston Publication : Wiely	\$ 40.5	
		Book : AI Author : S.Russel Publication : Princeton hall	\$ 63	
		Book : Java 2 Author : Watson Publication : BPB publications	\$ 35.5	
		Book : HTML in 24 hours Author : Sam Peter Publication : Sam publication	\$ 50	

Note: Week 2 contains the remaining pages and their description.

Week-2:

4) CART PAGE:

The cart page contains the details about the books which are added to the cart.

The cart page should look like this:

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Book name	Price	Quantity	Amount
	Java 2	\$35.5	2	\$70
	XML bible	\$40.5	1	\$40.5
	Total amount -			\$130.5

5) REGISTRATION PAGE:

Create a “*registration form*” with the following fields

- 1) Name (Text field)
- 2) Password (password field)
- 3) E-mail id (text field)
- 4) Phone number (text field)
- 5) Sex (radio button)
- 6) Date of birth (3 select boxes)
- 7) Languages known (check boxes – English, Telugu, Hindi, Tamil)
- 8) Address (text area)

WEEK 3:

VALIDATION:

Write *JavaScript* to validate the following fields of the above registration page.

1. Name (Name should contains alphabets and the length should not be less than 6 characters).
2. Password (Password should not be less than 6 characters length).
3. E-mail id (should not contain any invalid and must follow the standard pattern name@domain.com)
4. Phone number (Phone number should contain 10 digits only).

Note: You can also validate the login page with these parameters.

Week-4:

Design a web page using **CSS (Cascading Style Sheets)** which includes the following:

- 1) Use different font, styles:

In the style definition you define how each selector should work (font, color etc.).

Then, in the body of your pages, you refer to these selectors to activate the styles.

For example:

```
<HTML>
<HEAD>
<style type="text/css">
B.headline {color:red; font-size:22px; font-family:arial; text-
decoration:underline}
</style>

</HEAD>

<BODY>
<b>This is normal bold</b><br>
Selector {cursor:value}

For example:

<html>
<head>
<style type="text/css">
.xlink {cursor:crosshair}
.hlink{cursor:help}
</style>
</head>
```

```
<body>
<b>
<a href="mypage.htm" class="xlink">CROSS LINK</a>
<br>
<a href="mypage.htm" class="hlink">HELP LINK</a>
</b>
</body>
</html>

<b class="headline">This is headline style bold</b>
</BODY>

</HTML>
```

- 2) Set a background image for both the page and single elements on the page.
You can define the background image for the page like this:

```
BODY {background-image:url(myimage.gif);}
```

- 3) Control the repetition of the image with the background-repeat property.
As background-repeat: repeat

Tiles the image until the entire page is filled, just like an ordinary background image in plain HTML.

- 4) Define styles for links as

```
A:link
A:visited
A:active
A:hover
```

Example:

```
<style type="text/css">
A:link {text-decoration: none}
A:visited {text-decoration: none}
A:active {text-decoration: none}
A:hover {text-decoration: underline; color: red;}
</style>
```

- 5) Work with layers:

For example:

LAYER 1 ON TOP:

```
<div style="position:relative; font-size:50px; z-index:2;">LAYER 1</div>
<div style="position:relative; top:-50; left:5; color:red; font-size:80px; z-
index:1">LAYER 2</div>
```

LAYER 2 ON TOP:

```
<div style="position:relative; font-size:50px; z-index:3;">LAYER 1</div>
<div style="position:relative; top:-50; left:5; color:red; font-size:80px; z-
index:4">LAYER 2</div>
```

- 6) Add a customized cursor:
Selector {cursor:value}

For example:

```
<html>
<head>
<style type="text/css">
.xlink {cursor:crosshair}
.hlink{cursor:help}
</style>
</head>

<body>
<b>
<a href="mypage.htm" class="xlink">CROSS LINK</a>
<br>
<a href="mypage.htm" class="hlink">HELP LINK</a>
</b>
</body>
</html>
```

Week-5:

Write an XML file which will display the Book information which includes the following:

- 1) Title of the book
- 2) Author Name
- 3) ISBN number
- 4) Publisher name
- 5) Edition
- 6) Price

Write a Document Type Definition (DTD) to validate the above XML file.

Display the XML file as follows.

The contents should be displayed in a table. The header of the table should be in color GREY. And the

Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns.

Use XML schemas XSL and CSS for the above purpose.

Note: Give at least for 4 books. It should be valid syntactically.

Hint: You can use some xml editors like XML-spy

Week-6:

VISUAL BEANS:

Create a simple visual bean with a area filled with a color.

The shape of the area depends on the property shape. If it is set to true then the shape of the area is Square and it is Circle, if it is false.

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The color of the area should be changed dynamically for every mouse click. The color should also be changed if we change the color in the “property window “.

Week-7:

- 1) Install TOMCAT web server and APACHE.

While installation assign port number 4040 to TOMCAT and 8080 to APACHE. Make sure that these ports are available i.e., no other process is using this port.

- 2) Access the above developed static web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root.

Access the pages by using the urls : <http://localhost:4040/rama/books.html> (for tomcat) <http://localhost:8080/books.html> (for Apache)

Week-8:

User Authentication:

Assume four users user1, user2, user3 and user4 having the passwords pwd1, pwd2, pwd3 and pwd4 respectively. Write a servlet for doing the following.

1. Create a Cookie and add these four user id's and passwords to this Cookie.
2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies.

If he is a valid user(i.e., user-name and password match) you should welcome him by name(user-name) else you should display “ You are not an authenticated user “.

Use init-parameters to do this. Store the user-names and passwords in the webinf.xml and access them in the servlet by using the `getInitParameters()` method.

Week-9:

Install a database (Mysql or Oracle).

Create a table which should contain at least the following fields: name, password, email-id, phone number(these should hold the data from the registration form).

Practice 'JDBC' connectivity.

Write a java program/servlet/JSP to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.

Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page (week2).

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Week-10:

Write a JSP which does the following job:

Insert the details of the 3 or 4 users who register with the web site (week9) by using registration

form. Authenticate the user when he submits the login form using the user name and password

from the database (similar to week8 instead of cookies).

Week-11:

Create tables in the database which contain the details of items (books in our case like Book name , Price, Quantity, Amount)) of each category. Modify your catalogue page (week 2)in such a way that you should connect to the database and extract data from the tables and display them in the catalogue page using JDBC.

Week-12:

HTTP is a stateless protocol. Session is required to maintain the state.

The user may add some items to cart from the catalog page. He can check the cart page for the

selected items. He may visit the catalogue again and select some more items. Here our interest is the selected items should be added to the old cart rather than a new cart. Multiple users can do the same thing at a time(i.e., from different systems in the LAN using the ip-address instead of localhost). This can be achieved through the use of sessions. Every user will have his own session which will be created after his successful login to the website. When the user logs out his session should get invalidated (by using the method `session.invalidate()`).

Modify your catalogue and cart JSP pages to achieve the above mentioned functionality using sessions.