

2

UNIT

Web Page Designing

CONTENTS

- Part-1 :** Web Page Designing : 2-2D to 2-11D
HTML : List, Tables, Images
- Part-2 :** Frames 2-11D to 2-16D
- Part-3 :** Forms 2-16D to 2-20D
- Part-4 :** CSS 2-21D to 2-26D
- Part-5 :** Document Type 2-26D to 2-34D
Definition, XML : DTD
- Part-6 :** XML Schemas, Object 2-34D to 2-40D
Model, Presenting and
using XML using XML
Processors : DOM, and SAX,
Dynamic HTML

2-1 D (IT-5/CS-6)

2-2 D (IT-5/CS-6)

Web Page Designing

PART-1

Web Page Designing : HTML : List, Tables, Images.

Questions-Answers

Long Answer Type and Medium Answer Type Questions

Que 2.1. What is HTML ? Explain the structure of HTML.

Answer

1. HTML is the language interpreted by a browser. Web pages are also called HTML documents.
2. HTML is a set of special codes that can be embedded in text to add formatting and linking information.

Structure of a HTML program :

1. Every HTML program has a rigid structure.
2. The entire web page is enclosed within <HTML> - -</HTML> tags.
3. Within these tags two distinct sections are created using the <HEAD>- -</HEAD> tags and the <BODY>- -</BODY> tags.
4. An HTML document is divided in two parts :

a. Document head using HEAD tags :

- i. This HTML tag is used for the identification of the heading or title of HTML document.
- ii. All the information placed within the <HEAD>- -</HEAD> tags is not displayed in browser.
- iii. The HTML tags used in the head section are :

- a. Title tag
- b. Style tag

b. Document body using BODY tags :

- i. This tag is used for indicating the actual content of the HTML documents layout and structure.
- ii. The tags used to indicate the start and end of the main body of text information are :
<BODY>
:
</BODY>
- iii. The attributes that the <BODY> tag takes are : BGCOLOUR, BACKGROUND, TEXT etc.

Que 2.2. Define HTML tags. Also, explain different tags used for text formatting in HTML with example.

Answer

HTML tags :

- Tags are instructions that are embedded directly into the text of the document.
- HTML is specified as tags in an HTML document i.e., the web page.

HTML tags are of two types :

1. Paired tags :

- Paired tag is a combination of two tags, opening tag (``) and closing tag (``).
- The opening tag activates the effect and the closing tag turns the effect off.

For example : `<HTML>---</HTML>` tags.

2. Singular tags :

- Singular tag is a standalone tag.
- It does not have a closing tag.

For example : `
` tag is used for single line break.

Some of the tags used for text formatting in HTML are :

1. Title :

- An HTML document has a title that describes what the page is about. This can be achieved by using `TITLE` tag.
- Text included between the `<TITLE>----</TITLE>` tags are shown up in the title bar of the browser window.

For example :

`<TITLE> Quantum Page </TITLE>`

2. Footer :

- Certain information is needed to be placed at the foot of the HTML document like copyright information, contact details etc. This can be achieved by using `<ADDRESS>----</ADDRESS>` tags.
- This tag should ideally be placed immediately after the last line of the textual material of the web page.

For example :

`<ADDRESS> Copyright © QUANTUM PAGE PVT. LTD.
</ADDRESS>`

3. Paragraph breaks :

- `<P>` tag is used to break paragraph or skip one line between the previous line and new line.

2-4 D (IT-5/CS-6)

- `</P>` tag can be neglected at the end of paragraph.
- ALIGN attribute is used in `<P>` tag with three different values : CENTER, LEFT, RIGHT.

Example : `<P ALIGN = "LEFT">`

4. Line breaks :

- `
` tag is a standalone tag.
- `
` tag is used to move the text to start from a new line.
- Browsers recognize multiple consecutive `
` tags.

Example : `<P> For further details contact us at
 QUANTUM PAGE PVT. LTD.
 GHAZIABAD
 UTTAR PRADESH</P>`

Output : For further details contact us at
QUANTUM PAGE PVT. LTD.
GHAZIABAD
UTTAR PRADESH

5. `<DIV>` tag :

- `<DIV>` tag specifies a particular section in a HTML document.
- The possible attribute values for DIV tag are same as paragraph attributes.

Example : `<DIV ALIGN = "LEFT">`
text
`</DIV>`

Que 2.3. Describe tags used for styling in HTML with example.

Answer

Tags used for styling in HTML are :

1. Heading styles :

- HTML supports six different levels of headings.
- The highest level header format is `<H1>` and the lowest level is `<H6>`.

Example : `<BODY>`

`<H1> This is first level heading. <H1>`
`<H2> This is second level heading. <H2>`
`<H3> This is third level heading. <H3>`
`<H4> This is fourth level heading. <H4>`
`<H5> This is fifth level heading. <H5>`
`<H6> This is sixth level heading. <H6>`

</BODY>

Output :

This is first level heading.
 This is second level heading.
 This is third level heading.
 This is fourth level heading.
 This is fifth level heading.
 This is sixth level heading.

2. Drawing lines :

- The tag <HR> draws lines and horizontal rules.
- This tag draws a horizontal line across the whole page, wherever specified.
- The attributes to the <HR> tag are :
 - ALIGN** : This attribute specifies the alignment of the horizontal rule. It can have three values as left, right and center.
 - SIZE** : Changes the height of the horizontal rule.
 - WIDTH** : Sets the width of the horizontal rule.

3. Text styles : For text styling we use three different tags :

- Bold** : Displays text in boldface style. The tags used are ----- .
- Italic** : Displays text in italic. The tags used are <I> ----- </I>.
- Underline** : Displays text as underlined. The tags used are <U> ----- </U>.

For example : <BODY>

```
<B> Welcome to Quantum Page. </B>
<I> Welcome to Quantum Page. </I>
<U> Welcome to Quantum Page. </U>
</BODY>
```

Output :

Welcome to Quantum Page.
Welcome to Quantum Page.
Welcome to Quantum Page.

4. Center : <CENTER> - - - </CENTER> tags are used to center everything found between tags, text, lists, images, rules, tables or any other page element.**Example :** <CENTER> Welcome to Quantum Page! </CENTER>**Output :** Welcome to Quantum Page!**5. Font setting tags :**

- All text specified within the tags and will appear in the browser. The style of the text depends on the attributes of the .
- The attributes are :
 - FACE** : Sets the font to the specified font family.
 - SIZE** : Sets the size of the text. SIZE can take values between 1 and 7. The default size used is 3.
 - COLOUR** : Sets the colour of the text. COLOUR can be written in an English language colour name or in hexadecimal triplet form.

Example :

Welcome to Quantum Publication.

Que 2.4. What is list in HTML ? What are the different types of lists in HTML ? Give an example of each type.**Answer**

Lists are used to present the list of information in well formed and semantic way.

Types of list are :**1. Unordered list :**

- An unordered list starts with the tag and ends with .
- Each list item starts with the tag .
- The attributes that can be specified with : TYPE with three values as FILLROUND, CIRCLE, SQUARE. The value of attribute changes the style of the bullet.
- It is not necessary to use tag for ending the list.

Example : Quantum Series is also available for :

```
<UL TYPE = "FILLROUND">
<LI> Computer Science
<LI> Information Technology
<LI> MCA
<LI> Electronics
<LI> Mechanical
<LI> Civil
</UL>
```

Output : Quantum Series is also available for :

- Computer Science
- Information Technology
- MCA
- Electronics
- Mechanical
- Civil

2. Ordered list :

- i. An ordered list starts with the tag and ends with .
- ii. Each list items start with the tag .
- iii. The attributes that can be specified with are :
 - a. **TYPE** : It can have five values which are 1, A, a, I, i.
 - b. **START** : It can be set of any numerical value.
 - c. **VALUE** : It is used for changing the numbering sequence in the middle of ordered list.

Example : Quantum series for Information technology include :

```
<OL TYPE = "A" START = "3">
<LI> Software Engineering
<LI> Web Technology
<LI> DBMS
<LI> Computer Organization
</OL>
```

Output : Quantum series for Information technology include :

3. Software Engineering
4. Web Technology
5. DBMS
6. Computer Organization

3. Definition list :

- i. A definition list is a list of terms and corresponding definitions.
- ii. Definition list values appear within <DL> and </DL> tags.
- iii. Definition lists consist of two parts :
 - a. Definition Term <DT>
 - b. Definition Description <DD>

Example : <DL>

```
<DT> DBMS
<DD> Database Management System
<DT> CO
<DD> Computer Organization
```

Output : </DL>

DBMS

Database Management System
CO

Computer Organization

Que 2.5. Explain the table tag with its attributes in detail.

Answer

All table related tags are included between the <TABLE> - - - - - </TABLE> tags.

1. **Table row :** Rows of a table is described between the <TR> - - <TR> tags. Table rows are of two types :
 - a. **Header rows :** A table header row is defined using <TH> - - <TH> tags. Header row in a table is that which spans across columns of table and give the information stored in it.
 - b. **Data rows :** Data cells placed in the horizontal plane creates a data row. There could be single or multiple data cells. Data cells are the columns in a table.
2. **Table data :** Table data tags used for displaying data in table data cells using <TD> - - - - </TD> tags. These tags must be needed inside the <TR> - - - - </TR> tags.
3. **Table caption :**
 - a. The title of a table in the HTML document is done using table caption.
 - b. Table headings are called captions. Captions are given to the table by using the <CAPTION> - - - - </CAPTION> tags.
 - c. This tag has attribute ALIGN with two values TOP and BOTTOM.
4. The attributes that can be included in the <TABLE> tag are :
 - a. **ALIGN :** Horizontal alignment is controlled by the ALIGN attribute. It can be set to LEFT, CENTER or RIGHT.
 - b. **BORDER :** Controls the border to be placed around the table. The border thickness is specified in pixels.
 - c. **CELL PADDING :** Controls the distance between the data in a cell and the boundaries of the cell.
 - d. **CELL SPACING :** Controls the spacing between adjacent cells.
 - e. **COLSPAN :** Width of the cell in terms of number of columns is used when a cell occupies more than one column.
 - f. **ROWSPAN :** Height of the cell in terms of rows is used when a cell occupies more than one row.

Que 2.6. How do you make an image clickable in HTML ? Illustrate with an example.

OR

Explain image in HTML.

Answer

1. HTML accepts many picture file formats such as .png, .gif and .jpg (.jpeg) etc.
2. To add an image to web page we used the tag, which takes the name of the image file as an attribute, also control the height, width, border etc.
3. The tag takes the following attributes :
 - a. **ALT** : Indicates the text to be displayed in case the browser is unable to display the image specified in the SRC attribute.
 - b. **SRC** : Specifies the location and name of the image file.
 - c. **WIDTH** : Specifies the width of the image in pixels.
 - d. **HEIGHT** : Specifies the height of the image in pixels.
 - e. **ALIGN** : The ALIGN attribute allows us to position an image relative to the line of text. All graphical web browsers recognize these values TOP, MIDDLE and BOTTOM.
 - f. **BORDER** : Specifies the size of the border to place around the image.

Creating an image link :

We can also make a clickable link (image displayed with border) indicating that it is a hyperlink.

Example :

This tells the web browser that the image file "QUANTUM.GIF" is clickable, and any click on the image should be directed to the home page i.e., QUANTUM.HTML.

Que 2.7. Create an html page named as "Table.html" to display your class time table.

- i. Provide the title as Time Table.
- ii. Provide various colour options to the cells (Highlight the lab hours and elective hours with different colours).

AKTU 2018-19, Marks 07

Answer

hyperlink.html :

<html><body>

```
<a href="Pagelink.html">Different Tags</a><br>
<br><a href="table.html">Time Table</a><br>
</body></html>
```

Table.html :

```
<th>Thursday</th>
<td>IT302</td><td>IT0304</td>
<td COLSPAN=2><center>PD0302</td>
<td COLSPAN=3 bgcolor="cyan"><center>IT0320/IT0322</td>
</tr>
<tr>
<th>Friday</th>
<td>IT0308</td><td>IT0306</td>
<td>IT0308</td><td>IT0302</td>
<td COLSPAN=2 bgcolor="red"><center>ELECTIVE - I</td>
<td></td>
</tr></tbody></table></body>
```

PART-2*Frames.***Questions-Answers****Long Answer Type and Medium Answer Type Questions**

Que 2.8. Explain frames in HTML with example.

Answer

1. The HTML frame is a powerful feature that enables a web page to be broken into different unique sections, that although related and operate independent of each other.
2. Each 'frame' can be loaded with a different document and hence, allow multiple HTML documents to be seen concurrently.

Following two tags are used in HTML for frame :

a. **<FRAMESET> tag :**

1. The splitting of a browser screen into frames is accomplished with the **<FRAMESET>** and **</FRAMESET>** tags embedded into the HTML document.
2. The **<FRAMESET> ... </FRAMESET>** tags require one of the following two attributes depending on whether the screen has to be divided into rows or columns.
 - a. **Rows :**
 - i. This attribute is used to divide the screen into multiple rows.
 - ii. It can be set equal to a list of values, depending on the required size of each row.

- iii. The values can be number of pixels, expressed as a percentage of the screen resolution and the symbol *, which indicates the remaining space.
- b. **Cols :**
- i. This attribute is used to divide the screen into multiple columns.
 - ii. It can be set equal to a list of values, depending on the required size of each column.
 - iii. The values can be numbers of pixels, expressed as a percentage of the screen resolution and the symbol *, which indicates the remaining space.
- b. **<FRAME> tag :**
- 1. Once the browser screen is divided into rows and columns, each unique section defined can be loaded with different HTML documents.
 - 2. This is achieved by using the <FRAME> tag, which takes the following attributes :
 - a. **Src = "url"** : Indicates the URL of the document to be loaded into the frame.
 - b. **MarginHeight = "n"** : Specifies the amount of white space to be left at the top and bottom of the frame.
 - c. **MarginWidth = "n"** : Specifies the amount of white space to be left along the sides of the frame.
 - d. **Name = "name"** : Gives the frame a unique name so it can be targeted by other documents. The name given must begin with an alphanumeric character.
 - e. **Noresize** : Disables the frames resizing capability.
 - f. **Scrolling** : Controls the appearance of horizontal and vertical scrollbars in a frame. This takes the values YES/NO/AUTO.

For example :

```
<HTML>
<FRAMESET Rows = "30%, *">
: Divides the screen into 2 rows, one occupying 30% of the
screen, and other occupying the remaining space.
<FRAMESET Cols = "50%, 50%">
: Divide the first row into 2 equal columns, each 50% of the
screen.
<FRAME Src = "File1.html">
: Loads the 1st frame with File1.html
```

Web Technology

```

<FRAME Src = "File2.html">
: Loads the 2nd frame with File2.html
</FRAMESET>
<FRAMESET Cols = "50%, 50%">
: Divides the second row into 2 equal columns, 50% of the
screen.
<FRAME Src = "File3.html">
: Loads the 1st frame with File3.html.
<FRAME Src = "File4.html">
: Loads the 2nd frame with File4.html.
</FRAMESET>
</FRAMESET>
</HTML>

```

Que 2.9. Write HTML code to develop a web page having two frames that divide the page into two equal rows and divides the first row into equal columns. Fill each with the different background colour.

Answer

```

<html>
<FRAME ROWS = "50%, 50%">
<FRAMESET COLS = "50%, 50%">
<FRAME SRC = "File 1.html" > </FRAME>
<FRAME SRC = "File 2.html" > </FRAME>
</FRAMESET>
<FRAME SRC = "File 3.html" > </FRAME>
</FRAMESET>
</html>

```

For background colour :

For File 1.html :

```

⇒ <html>
<body BGCOLOR = "RED">
</body>
</html>

```

For File 2.html :

```
⇒ <html>
<body BGCOLOR = "GREEN">
</body>
</html>
```

For File 3.html :

```
⇒ <html>
<body BGCOLOR = "BLUE">
</body>
</html>
```

Que 2.10. Discuss how frames play a big role in advertising on web. What roles do form play in making web page dynamic ?

AKTU 2018-19, Marks 07**Answer****Role of frames in advertising on web :**

1. A frame is a part of a web page or browser window which displays content independent of its container, with the ability to load content independently.
2. Frames play a big role in advertising on web by allowing the following advantages :
 - a. Content can be loaded and navigated independently.
 - b. Simple maintenance of content shared across all or most pages.
 - c. Reducing the amount of bandwidth needed.
 - d. Allowing several pieces of information to be viewed side by side.
3. All the above advantages helps in reducing the advertising budget and the audience can view the intended information easily.

Roles of form in making web page dynamic :

1. In hidden frame technique we could hide or minimise the size of frame.
2. The hidden frame is loaded with a web page that contains a form, and JavaScript is used to dynamically fill out the form making the web page dynamic.

Que 2.11. Using a frameset, create an HTML document like following.

Header.html	
Menu.html	Output.html

Also host it as a web page on any server.

Answer

Frameset.html :

```
<!DOCTYPE html>
<html>
<frameset rows="25%,*">
  <frame src="Header.htm">
<frameset cols="50%,50%">
  <frame src="Menu.htm">
  <frame src="Output.htm">
</frameset>
</frameset>
</html>
```

Node.js :

```
var http = require('http');
var url = require('url');
var fs = require('fs');
var server = http.createServer(function(request, response) {
  var path = url.parse(request.url).pathname;
  switch (path) {
    case '/':
      response.writeHead(200, {
        'Content-Type': 'text/plain'
      });
      response.write("This is Test Message.");
      response.end();
      break;
    case '/frameset.html':
      fs.readFile(__dirname + path, function(error, data) {
        if (error) {
          response.writeHead(404);
          response.write(error);
          response.end();
        } else {
          response.writeHead(200, {
            'Content-Type': 'text/html'
          });
          response.write(data);
          response.end();
        }
      });
      break;
  }
});
```

```

default:
response.writeHead(404);
response.write("opps this does not exist - 404");
response.end();
break;
}
});
server.listen(8082);

```

PART-3*Forms.***Questions-Answers****Long Answer Type and Medium Answer Type Questions**

Que 2.12. Discuss forms in HTML. Explain various input items used in HTML forms.

Answer

1. All the input elements should be enclosed within the opening <FORM> and closing </FORM> tags like this :

<FORM> The input elements go here </FORM>

2. The following are the important attributes for the form tag :

a. **ACTION :** This attribute is used to specify where the form data is to be sent to the server after submission of the form.

b. **METHOD :**

- This attribute specifies how to send form data.
- The form data can be sent as URL variables (with method = "GET") or as HTTP post transaction (with method = "POST").

Various input items in HTML forms are :

1. **Text input :**

a. Text input is used to collect single line of text from the user like name, e-mail address etc.

b. A text input item can be defined like this :

<INPUT TYPE="text" NAME="FirstName">

2. Submit button :

- a. After entering the data, the user presses the submit button which triggers the browser to send the data to the server.
- b. We can add a submit button to the form using the 'submit' input type.
- c. We can add a submit button to our HTML form using the following code :

```
<INPUT TYPE="submit" NAME="name" VALUE="Submit">
```

3. Checkbox :

- a. Checkbox is used to select or deselect the multiple option from a set of options.
- b. If we specify CHECKED, the checkbox will be checked by default.

4. Radio button :

- a. Radio buttons are used for selecting one item from multiple available choices.
- b. When the user selects a button in the set, all other buttons in the set are deselected.
- c. The individual button in a set is created using input type "radio".

5. Dropdown list :

- a. <SELECT> tag is used to create a dropdown list.
- b. We can create a list using the <SELECT> </SELECT> tag and the items in the list using the <OPTION> tag.

6. Password input :

- a. Login screens usually have a password field where the user enters his password. We can create a password field by using the input type PASSWORD.
- b. A password field can be created using the following code :

```
<INPUT TYPE="PASSWORD" NAME="pwd">
```

7. Uploading a file :

- a. Some HTML form allows the user to upload a file.
- b. The input type FILE lets the user to upload a file to the server.
- c. Here is the syntax of FILE input type :

```
<INPUT TYPE="FILE" NAME="name" VALUE="filename">
```

8. Reset the form :

- a. The input type RESET can be used to reset the form.
- b. When the user presses the reset button, all the elements in the form are reset to their default values.

Que 2.13. | Design a HTML form for a railway reservation system.

AKTU 2016-17, Marks 10

Answer

```

<html>
<head>
<script type = "text/JavaScript" src = "validate.js"></script>
</head>
<body>
<form action = "#" name = "RailwayReservationSystem"
onsubmit = "return(validate( ));">
<table cellpadding = "2" width = "20%" bgcolor = "99FFFF"
align = "center" cellspacing = "2">
<tr>
<td colspan = "2">
<center><font size = "4"><b>Railway Reservation System</b></font>
</center>
</td>
</tr>
<tr>
<td>From</td>
<td><input type = "text" name = "from" id = "from"
size = "30"></td>
</tr>
<tr>
<td>To</td>
<td><input type = "text" name = "to" id = "to" size = "30"></td>
</tr>
<tr>
<td>Train No/Name</td>
<td><input type = "text" name = "trainno"
id = "trainno" size = "30"></td>
</tr>
<tr>
<td>Class</td>
<td><select name = "Class">
<option value = "-1" selected>Select</option>
<option value = "SL">SL</option>
<option value = "3A">3A</option>
<option value = "2A">2A</option>
<option value = "1A">1A</option>
</select></td>

```

```
</tr>
<tr>
<td>No. of seats</td>
<td><Select name = "No. of seats">
<option value = "-1" selected>Select</option>
<option value = "1">1</option>
<option value = "2">2</option>
<option value = "3">3</option>
</select></td>
</tr>
<tr><td>Passenger</td>
<tr><td>Age</td></tr>
<tr><td>Gender</td></tr>
</tr>
<td><input type = "text" name = "P1" size = "30"></td>
<td><input type = "text" name = "age" size = "2"></td>
<td><Select name = "gender">
<option value = "M">M</option>
<option value = "F">F</option></select>
</td></tr>
<tr>
<td><input type = "text" name = "P2" size = "30"></td>
<td><input type = "text" name = "age" size = "2"></td>
<td><Select name = "gender">
<option value = "M">M</option>
<option value = "F">F</option></select>
</td></tr>
<tr>
<td><input type = "text" name = "P3" size = "30"></td>
<td><input type = "text" name = "age" size = "2"></td>
<td><Select name = "gender">
<option value = "M">M</option>
<option value = "F">F</option></select>
</td></tr>
<tr>
<td>Address</td>
<td><input type = "text" name = "address" id = "address" size = "50"></td>
</tr>
<tr>
<td>Payment Mode</td>
<td><input type = "radio" name = "Paymentmode" value = "Credit/Debit Card">Credit/Debit Card
```

```

<input type = "radio" name = "Paymentmode" value = "Wallet/UPI">Wallet
UPI</td>
<td><input type="radio" name="Paymentmode" value="netbanking">Net
Banking</td>
</tr>
<tr>
<td>Mobile No. </td>
<td><input type = "text" name = "mobileno" id = "mobileno."
size = "30"></td>
</tr>
<tr>
<td><input type = "reset"></td>
<td colspan = "2"><input type = "submit" value = "Submit Form"> </td>
<td>
<input type="Cancel" value="Cancel">
</td>
</tr>
</table>
</form>
</body>
</html>

```

Output :

Railway Reservation System

From	<input type="text"/>	
To	<input type="text"/>	
Train No./Name	<input type="text"/>	
Class	Select	<input type="button" value="▼"/>
No. of seats	Select	<input type="button" value="▼"/>
Passenger name	Age	Gender
<input type="text"/> <input type="text"/> <input type="text"/>		
<input type="text"/> <input type="text"/> <input type="text"/>		
<input type="text"/>		
Payment mode		
<input type="radio"/> Credit/Debt Card <input type="radio"/> Wallet/UPI <input type="radio"/> Net Banking		
Mobile No.	<input type="text"/>	
<input type="button" value="Reset"/> <input type="button" value="Submit Form"/> <input type="button" value="Cancel"/>		

PART-4

CSS.

Questions-Answers**Long Answer Type and Medium Answer Type Questions**

Que 2.14. What do you mean by Cascading Style sheet (CSS) ?
 What are the advantages and features of CSS ?

Answer

1. Cascading Style Sheet or CSS enables us to separate the content of HTML documents from the presentation.
2. A single file or a small group of files could define the presentation format for the entire website. Thus, any format or presentation changes across the website would be controlled through these CSS files.
3. To define styles, we use the <style> element.
4. To define properties for the documents, we specify the attributes for the document tags within the <style>.
5. When defining the style for a template HTML file, the style element is placed within the document <head> and not in the <body>.

Advantages of CSS :

1. To make the web page attractive.
2. Faster download of web page.
3. Increase visual appearance of web page.

Que 2.15. Explain the features of CSS.

Answer**Various features of CSS are :**

1. **Cascading :**
 - a. This is the capability provided by CSS to allow style information from several sources to be blended together.
 - b. The cascade defines an ordered sequence of style sheets where rules in later sheets have greater precedence than earlier ones.
 - c. By storing these separately, style sheets can be reused.

2. Flexible placement of style information :

- a. Placing style sheets in separate files makes them easy to reuse.
- b. To make it easier to manage style on a site basis, this specification describes how to use HTTP headers to set the style sheets to be applied to a document.

3. Media dependencies :

- a. HTML allows authors to specify documents in a media-independent way.
- b. This allows users to access web pages using a wide variety of devices and media.
- c. This allows user agents to avoid retrieving in appropriate style sheets.

Que 2.16. What is CSS ? What are different ways to create them ?

Explain with example.

AKTU 2017-18, Marks 10

Answer

CSS : Refer Q. 2.14, Page 2-21D, Unit-2.

Different types of CSS :

1. Inline CSS :

- a. An inline CSS is used to apply a unique style to a single HTML element.
- b. An inline CSS uses the style attribute of an HTML element.

For example : Following example sets the text color of the `<h1>` element to blue :

`<h1 style="color:blue;">This is a Blue Heading</h1>`

2. Internal CSS :

- a. An internal CSS is used to define a style for a single HTML page.
- b. An internal CSS is defined in the `<head>` section of an HTML page, within a `<style>` element.

For example :

```
<!DOCTYPE html>
<html>
<head>
<style>
body {background-color : powderblue;}
h1 {color : blue;}
p {color : red;}
</style>
</head>
```

```
<body>
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
</body>
</html>
```

3. External CSS :

- a. An external style sheet is used to define the style for many HTML pages.
- b. An external style sheet is used to change the look of an entire website.
- c. To use an external style sheet we add a link in the <head> section of the HTML page.

For example :

```
<!DOCTYPE html>
<html>
<head>
<link rel="stylesheet" href="styles.css">
</head>
<body>
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
</body>
</html>
```

Que 2.17. What do you mean by CSS ? Write a CSS rule that makes all the text 2.5 times larger than the base font of the system. Mention how can you integrate CSS on a web page ?

AKTU 2018-19, Marks 07

Answer

CSS and its integration on a web page : Refer Q. 2.16, Page 2-22D,
Unit-2.

Program :

```
<HTML><HEAD><STYLE>
H1 {colour: red; font-family: arial; font-size: 2.50 em}
</STYLE></HEAD><BODY>
<H1> This is the H1 element </H1>
</BODY></HTML>
```

Que 2.18. Describe the role and importance of CSS in web designing. Also differentiate Class and Id in CSS.

Answer

Role of CSS :

1. It allows us to develop the overall look of our website.
2. It allows us to position and reposition the components of a web page with relative ease.
3. It allows us to alter and control the every aspect of layout in a web page.

Importance of CSS :

1. It helps in quick loading of web pages.
2. It helps in saving bandwidth.
3. It helps in customization of web pages.
3. It provides complete consistency to the web pages.

Difference :

S.No.	Class selector	Id selector
1.	Class can be used to identify more than one element.	Id can be used to identify one element.
2.	In CSS a class selector is a name preceded by a full stop (".")	In CSS an Id selector is a name preceded by a hash character ("#").
3.	Syntax : .class_selector_name {property : value;}	Syntax : #id.selector-name {property : value;}

Que 2.19. Explain CSS. What are the CSS frameworks? Explain in brief. What are the different ways of using the stylesheet? Write a CSS rule that makes all the text 2.5 times larger than the base font of the system.

AKTU 2019-20, Marks 07

Answer

CSS : Refer Q. 2.14, Page 2-21D, Unit-2.

CSS frameworks :

A CSS framework is a library allowing web design for easier, more standards-compliant using the Cascading Style Sheets language. Bootstrap, Foundation, Bulma, UIkit, Semantic UI are some of the CSS frameworks.

Different ways of using stylesheet : Refer Q. 2.16, Page 2-22D, Unit-2.
Program : Refer Q. 2.17, Page 2-23D, Unit-2.

Que 2.20. Explain the properties and uses of CSS.

Answer

Properties of CSS are :

1. Font properties :

- a. **Font-family :** Denotes font of the text.
- b. **Font-size :** Denotes the size of the text.
- c. **Font-style :** Denotes the style of the text i.e., normal, bold, italic etc.
- d. **Font-weight :** Denotes the weight or darkness of the font.

2. Text properties :

- a. **Word-spacing :** Denotes the space between words.
- b. **Vertical-align :** Denotes the vertical positioning of the text and images, with respect to the baseline.
- c. **Text-align :** Specifies the alignment of the text. The possible values are center, justify etc.
- d. **Text-transform :** Denotes the transformation of text. The possible values are capitalize uppercase, lowercase etc.
- e. **Text-decorate :** Denotes the text decoration. The standard values for this property include blink, line-through, overline, underline etc.

3. Colour and background properties :

- a. **Colour :** Used to set the colour of the text.
- b. **Background-colour :** This property set an element background colour.
- c. **Background-image :** Associates a background image with an element.
- d. **Background-position :** Specifies how a background image is positioned.

4. Box properties :

- a. **Margin-properties :** The individual margins for a block element can be set using margin-top, margin-right, margin-bottom, or margin-left.
- b. **Border properties :**
 - i. **Border-style**
 - ii. **Border-width**
 - iii. **Border-colour**

Uses of CSS :

1. CSS is used in the Web document for presentation purpose.
2. It is used to separate the Web content from the Web presentation.
3. It is used to enhance the features of Web pages like formatting styles.
4. CSS helps in faster downloading of the pages.

PART-5*Document Type Definition, XML ; DTD.***Questions-Answers****Long Answer Type and Medium Answer Type Questions**

Que 2.21. Discuss various types of DTDs (Document Type Definition) in XML. Which type of DTD is preferable and why ?

OR

What is DTD ? Explain various types of DTDs.

Answer

1. A Document Type Definition (DTD) defines the basic building blocks of an XML document.
2. It defines the document structure with a list of various elements and attributes.
3. A DTD can be declared inline inside an XML document, or as an external reference.

Types of DTD :

1. **Internal DTD declaration :** If the DTD is declared inside the XML file, it should be wrapped in a DOCTYPE definition with the following syntax :
`<!DOCTYPE root-element [element-declarations]>`
2. **External DTD declaration :** If the DTD is declared in an external file, it should be wrapped in a DOCTYPE definition with the following syntax :
`<!DOCTYPE root-element SYSTEM "filename">`

External DTD is preferable because :
 They can be used in more than one document. So, it is easy to change in one external DTD rather than changing in all internal DTD file.

Que 2.22. What is DTD ? What are the differences between external and internal DTD ? Use suitable example.

Answer

DTD : Refer Q. 2.21, Page 2-26D, Unit-2.

Difference :

S. No.	External DTD	Internal DTD
1.	In external DTD, elements are declared outside the XML files.	In internal DTD, elements are declared within the XML files.
2.	The syntax for external DTD is : <pre><!DOCTYPE root-element SYSTEM "file-name"></pre> where file-name is the file with .dtd extension.	The syntax for internal DTD is : <pre><!DOCTYPE root-element [element-declarations]></pre> where root-element is the name of root element and element-declarations is where we declare the elements.
3.	To reference it as external DTD, standalone attribute in the XML declaration must be set as no. This means, declaration includes information from the external source.	To reference it as internal DTD, standalone attribute in XML declaration must be set to yes. This means the declaration works independent of external source.

Example of internal DTD :

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<!DOCTYPE address [
<!ELEMENT address (name,company,phone)>
<!ELEMENT name (#PCDATA)>
<!ELEMENT company (#PCDATA)>
<!ELEMENT phone (#PCDATA)> ]>
<address>
<name>Pratibha </name>
<company>Quantum</company>
<phone>(011) 123-4567</phone>
</address>
```

Example of external DTD :

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<!DOCTYPE address SYSTEM "address.dtd">
<address>
```

```

<name>Prabha Patil</name>
<company>Quantum</company>
<phone>(011) 123-4567</phone>
</address>

```

The content of the DTD file address.dtd are as shown :

```

<!ELEMENT address (name,company,phone)>
<!ELEMENT name (#PCDATA)>
<!ELEMENT company (#PCDATA)>
<!ELEMENT phone (#PCDATA)>

```

Que 2.23. Explain the role of DTD in XML and also describe its types with an example. AKTU 2017-18, Marks 05

Answer

Role of DTD :

1. The role of a DTD is to define the legal building blocks of an XML document.
2. It defines the document structure with a list of legal elements.
3. A DTD can be declared inline in our XML document, or as an external reference.

Types of DTD : Refer Q. 2.21, Page 2-26D, Unit-2.

Que 2.24. What is XML ? Discuss the significance of XML. How is XML different from HTML ? Explain the process of XML parsing. How are they useful ? AKTU 2015-16, Marks 10 AKTU 2016-17, Marks 15

Answer

1. XML is a markup language for documents containing structured information which contains both content and some indication of the role of content.
2. Extensible Markup Language, abbreviated as XML, describes a class of data objects called XML documents and partially describes the behaviour of computer programs which process them.
3. XML documents are made up of storage units called entities, which contain either parsed or unparsed data.

Significance of XML :

1. XML can store and organize just about any kind of information in a form according to our needs.

2. With its clear, simple syntax and unambiguous structure, XML is easy to read and parse.
3. XML is easily combined with stylesheets to create formatted documents in any style.

Difference between XML and HTML :

S. No.	XML	HTML
1.	XML is designed to describe data and to focus on what data is about.	HTML is designed to display data and to focus on how data looks like.
2.	XML is about describing information.	HTML is about displaying information.
3.	XML tags are not predefined.	HTML tags are predefined.
4.	In XML, data is stored in separate XML file.	In HTML, data is stored inside the HTML tags.

Process of XML parsing :

```

<?xml version = "1.0" encoding = "ISO-8859-1" ?>
<bookstore>
  <book category="cooking">
    <title lang="en">Khana Khazana</title>
    <author>Sanjeev Kapoor</author>
    <year>2015</year>
    <price>30.00</price>
  </book>
  <book category="children">
    <title lang="en">Harry Potter</title>
    <author>J K. Rowling</author>
    <year>2015</year>
    <price>29.99</price>
  </book>
  <book category="web" cover="paperback">
    <title lang="en">Learning XML</title>
    <author>Erik T. Ray</author>
    <year>2013</year>
    <price>39.95</price>
  </book>
</bookstore>

```

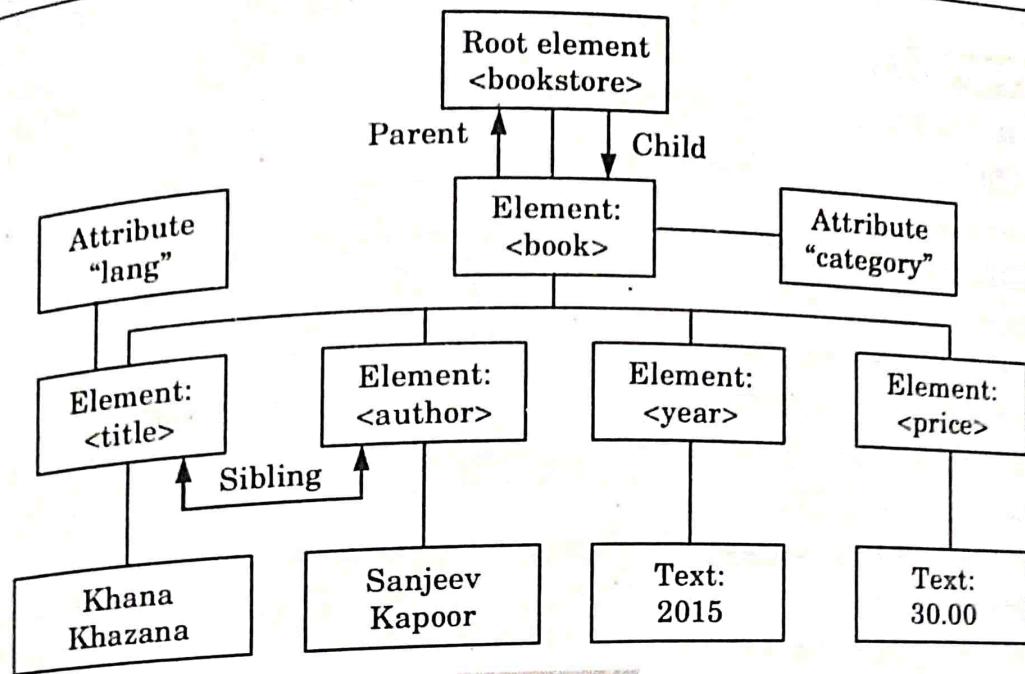


Fig. 2.24.1.

XML parser is useful in :

1. Loading the elements of XML document.
2. Accessing the elements of XML document.
3. Deleting the elements of XML document.
4. Changing the elements of XML document.

Que 2.25. What is XML ? Create a XML document of 10 students of final CSE. Add their roll number, marks obtained in 5 subjects, total marks and percentage. Save this XML document at the server, write a program that accepts student's roll number as input and returns the students marks, total percentage by taking student information for XML document.

AKTU 2018-19, Marks 07

OR

Discuss DTD. How the DTD is different from XSD ? Demonstrate to create a XML document of 10 students of third year. Add their roll numbers, marks obtained in 5 subjects, total marks and percentage and validate using DTD.

AKTU 2019-20, Marks 07

OR

Discuss XML. Which technology is used to define the structure of XML document ? Explain and demonstrate with an example.

AKTU 2019-20, Marks 07

Answer

XML : Refer Q. 2.24, Page 2-28D, Unit-2.

DTD : Refer Q. 2.21, Page 2-26D, Unit-2.

Program :

XML document :

Student.XML

```
<?xml version = "1.0"?>
<!DOCTYPE STUDENTS SYSTEM "E:\XML1\STUDENT.dtd">
<STUDENTS><STUDENT><STUDENTDATA>
<Roll_No> 001</Roll_No>
<NAME> RAM</NAME>
<Marks>
<Marks 1> 70 </Marks 1>
<Marks 2> 80 </Marks 2>
<Marks 3> 50 </Marks 3>
<Marks 4> 60 </Marks 4>
<Marks 5> 70 </Marks 5>
<Total> 330 </Total>
<Percentage> 66.0 </Percentage>
</Marks>
</STUDENTDATA></STUDENT></STUDENTS>
```

NOTE : Write the above code (bold part only) nine times again to enter the details of rest of the nine students.

Student.dtd

```
<?xml version "1.0"?>
<!ELEMENT STUDENTS (STUDENT*)>
<!ELEMENT STUDENT (STUDENTDATA*)>
<!ELEMENT STUDENTDATA (Roll_No, Name, Marks, Total, Percentage)>
<!ELEMENT Roll_No (#PCDATA)>
<!ELEMENT NAME (#PCDATA)>
<!ELEMENT Marks (#PCDATA)>
<!ELEMENT Total (#PCDATA)>
<!ELEMENT Percentage (#PCDATA)>
Student.html
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"E:\XML 1\STUDENT.dtd">
<html>
```

```

<head COLOUR:RED><h1 style = "color : red">
<MARQUEE DIRECTION = "RIGHT"><CENTER> COLLEGE OF
ENGINEERING AND TECHNOLOGY <CENTER> <MARQUEE></H1>
<title> STUDENT DETAILS DISPLAY <title>
</head>
<body style = "background-colour : PINK"> <H2 STYLE = "COLOUR:
BLUE"> <MARQUEE> <CENTER> DEPARTMENT OF COMPUTER
SCIENCE
<CENTER> </MARQUEE><BR></H2>
<MARQUEE DIRECTION = "DOWN"><H3 STYLE = "COLOR :
GREEN"><CENTER> FINAL CS STUDENTS DETAILS <CENTER> <
<THEAD><TR>
<TH> Roll_No </TH><TH> NAME </TH><TH> Marks 1 </TH>
<TH> Marks 2 </TH><TH> Marks 3 </TH><TH> Marks 4 </TH>
<TH> Marks 5 </TH><TH> Total </TH><TH>Percentage </TH>
</TR>
</THEAD>
<TFOOT><TR>
<TH COLSPAN = "4"> STUDENT CATALOG</TH>
</TFOOT>
<TR>
<TD> 001 </TD><TD> RAM </TD>
<TD> Marks 1 : 70 </TD><TD> Marks 2 : 80 </TD>
<TD> Marks 3 : 50 </TD><TD> Marks 4 : 60 </TD>
<TD> Marks 5 : 70 </TD><TD> 330 </TD><TD> 66.0 </TD>
</TR>
</TABLE></CENTER></body></html>

```

Difference :

S.No.	DTD	XSD
1.	DTD is a set of markup declarations that define a document type for an SGML.	XSD specifies how to describe the elements in an XML document formally.
2.	DTD stands for Document Type Definition.	XSD stands for XML Schema Definition.
3.	DTD provides less control over the XML structure.	XSD provides more control over the XML structure.
4.	DTD does not support data types.	XSD supports data types.

DTD is used to define the structure of XML documents.

Que 2.26. What are XML parsers ? Explain the types of parsers with their advantages and disadvantages.

AKTU 2018-19, Marks 07

Answer

XML parser :

1. An XML parser is a software library or package that provides interfaces for client applications to work with an XML document.
2. The XML Parser is designed to read the XML and create a way for programs to use XML.
3. XML parser validates the document and check that the document is well formatted.

There are two types of XML Parsers :

1. DOM :

- a. The Document Object Model (DOM) is a platform-independent and language-independent standard object model for representing HTML or XML and related formats.
- b. The DOM defines a standard for accessing documents like XML and HTML.

Advantages :

- i. It supports both read and write operations and the API is very simple to use.
- ii. It is preferred when random access to widely separated parts of a document is required.

Disadvantages :

- i. It is memory inefficient.
- ii. It is comparatively slower than other parsers.

2. SAX :

- a. SAX stands for Simple API for XML and works directly with an XML.
- b. SAX is an event-driven API that allows us to interpret a web file that uses XML.
- c. SAX takes the control of event specifies by the programmer and handles the situation.

Advantages :

- i. It is simple and memory efficient.
- ii. It is very fast and works for huge documents.

Disadvantages :

- i. It is event based so its API is less intuitive.
- ii. Clients never know the full information because the data is broken into pieces.

Que 2.27. "Document Type Definition (DTD) in XML is necessary", justify the statement with suitable example. Under which conditions which DTD is more preferable ?

Answer

"Document Type Definition (DTD) in XML is necessary":

1. The main purpose of Document Type Definition is to define the structure of an XML document.
2. It contains a list of legal elements and defines the structure with the help of them.
3. DTD provides less control on XML structure.
4. With DTD, independent groups of people can agree to use a common DTD for interchanging data.

Example : Refer Q. 2.22, Page 2-26D, Unit-2.

External DTD is preferable in following conditions :

1. If we want to use same DTD in more than one XML file.
2. When we define DTD for particular kind of data and then use it in different XML file.

Internal DTD is preferable only when we want to use the DTD for a particular XML file only.

PART-6

XML Schemas, Object Model, Presenting and using XML using XML Processors : DOM, and SAX, Dynamic HTML.

Questions-Answers

Long Answer Type and Medium Answer Type Questions

Que 2.28. What is XML schema ? Compare XML schema and XML DTD.

OR

What is DTD ? Also explain its differences with XML schema.

AKTU 2017-18, Marks 10

Answer

1. XML schema is an XML based alternative to Document Type Definition (DTD).
2. The goal or purpose of XML schema is to define the building blocks of an XML document.
3. XML schema syntax is well-formed XML, making it possible to use XML tools to edit it.
4. The XML schema language is called as XML Schema Definition (XSD) language.
5. XML schema defines elements, attributes, child elements, order of child elements, number of child elements and whether an element is empty or can include text.
6. It also defines default values, fixed values and data types for elements and attributes.

DTD : Refer Q. 2.21, Page 2-26D, Unit-2.

Comparison of XML schema and XML DTD :

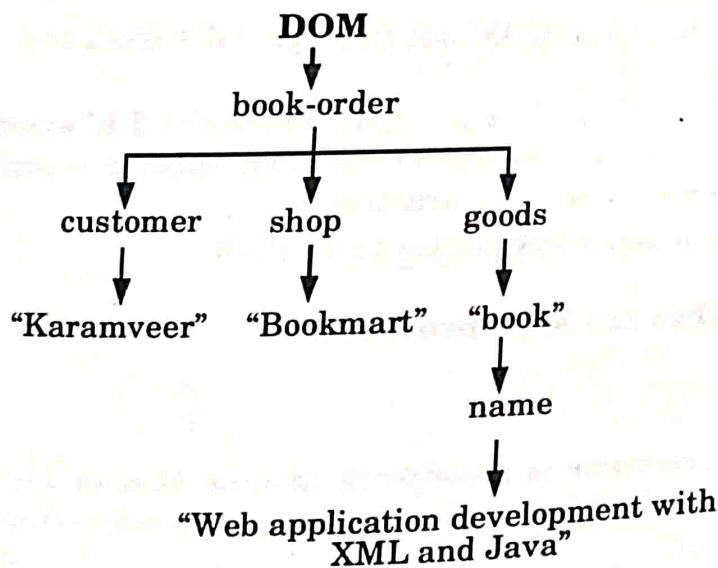
S. No.	XML schema	XML DTD
1.	The XML schema provides a means for defining the structure, content and semantics of XML documents.	The XML DTD points to markup declarations that provide a grammar for a class of documents.
2.	XML schema supports data types.	XML DTD does not support data types.
3.	XML schema is simple to learn.	XML DTD is not simple to learn.
4.	It provides more control on XML structure.	DTD provides less control on XML structure.
5.	It uses an XML-based syntax.	DTD uses a unique syntax.
6.	Example : <XS : element name="note"> <XS : ComplexType> <XS: sequence > <XS: element name "to" type="XS: String"/> <XS: element name "from" type="XS: string"/> <XS:element name="heading" type="XS:string"/>	Example : <!DOCTYPE not [<!ELEMENT not (to, from, heading, body)><!Element to (#PCDATA)><!Element from (#PCDATA)><! Element heading (?)><!Element body (#PCDATA)]>

Que 2.29. Define HTML DOM.**AKTU 2017-18, Marks 05****Answer**

1. The Document Object Model (DOM) is a platform-independent and language-independent standard object model for representing HTML or XML and related formats.
2. The DOM is a W3C (World Wide Web consortium) standard.
3. The DOM defines a standard for accessing documents like XML and HTML.
4. It allows programs and scripts to dynamically access and update the content, structure, and style of document.

Example :

```
<? xml version = "1.0"?>
<book-order>
<customer> Karamveer </customer>
<shop> Bookmart </shop>
<goods>
<book>
<name> "Web application development with XML and Java"
</name>
</book>
</goods>
</book-order>
```

**Fig. 2.29.1.****Que 2.30. Explain COM and DCOM in detail.****AKTU 2016-17, Marks 10****OR****Write a short note on COM/DCOM.****AKTU 2015-16, Marks 05**

Answer

COM :

1. The Component Object Model (COM) is a software architecture that allows applications to be built from binary software components.
2. COM is the underlying architecture that forms the foundation for higher-level software services.
3. It is used to enable inter-process communication and dynamic object creation in a large range of programming languages.
4. In a component based system, components interact with each other by calling methods and passing data.
5. COM ensures that there is a standard method of interaction between the components.
6. All the COM objects need to follow these standards when providing the functionality.

DCOM :

1. DCOM (Distributed Component Object Model) is a set of Microsoft concepts and program interfaces in which client program objects can request services from server program objects on other computers in a network.
2. DCOM is based on the Component Object Model (COM), which provides a set of interfaces allowing clients and servers to communicate within the same computer.
3. DCOM is a model as COM but it is specially designed for distributed application.
4. DCOM, which originally was called "Network OLE" extends Microsoft's COM, and provides the communication substrate under Microsoft's COM+ application server infrastructure.
5. DCOM was a major competitor to CORBA.

Que 2.31. | What are XML processors ?

Answer

1. An XML processor is a software module that is used to read XML documents and provide application programs with access to their content and structure.
2. XML processors are written in Java. Some are validating processors, while others are non-validating.
3. When reading an XML document, a validating processor checks the validity constraints and the well-formed constraints defined in XML 1.0 recommendation.
4. A validating XML processor is one of the most robust and faithful implementation of XML processor.
5. The validating processor XML for Java is a Java class library.

Que 2.32. Explain the term SAX with suitable example.

Answer

1. SAX stands for Simple API for XML and works directly with an XML.
2. SAX is an event-driven API that allows us to interpret a web file that uses XML.
3. SAX takes the control of event specifies by the programmer and handles the situation.
4. SAX is a simpler interface than DOM and is appropriate where many or very large files are to be processed.
5. It also helps in manipulating the data content.
6. SAX is faster and uses less memory than DOM.

Example :

```
<?xml version = "1.0"?>
<book-order>
  <customer> Karamveer </customer>
  <shop> Bookmart </shop>
  <goods>
    <book>
      <name> Web application development
      with XML and Java </name>
    </book>
  </goods>
</book-order>
```

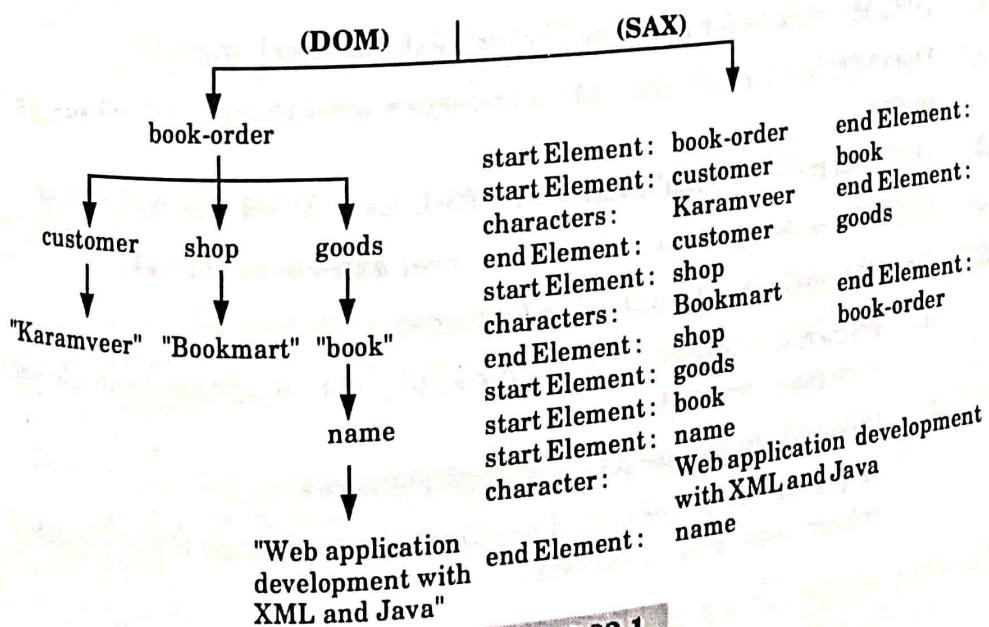


Fig. 2.32.1.

Que 2.33. Explain XML processing with SAX.

Answer

1. SAX (Simple API for XML) is a serial access parser API for XML.
2. SAX provides a mechanism for reading data from an XML document.
3. A parser which implements SAX (*i.e.* a SAX parser) functions as a stream parser with an event-driven API.
4. The user defines a number of callback methods that will be called when events occur during parsing.
5. The SAX events include :
 - a. XML text nodes
 - b. XML element nodes
 - c. XML processing instructions
 - d. XML comments
6. Events are triggered when each of these XML features are encountered and again when the end of them is encountered.
7. XML attributes are provided as part of the data passed to element events.
8. SAX parsing is unidirectional *i.e.*, previously parsed data cannot be re-read without starting the parsing operation again.

Que 2.34. What is DHTML ? Write difference between HTML and DHTML.

Answer

1. DHTML stands for Dynamic Hyper Text Markup Language.
2. DHTML is a combination of technologies used to create dynamic web pages.
3. DHTML means a combination of HTML, CSS, DOM and JavaScript.
4. DHTML is designed to enhance the user experience on web.
5. DHTML includes the following features :
 - a. Dynamic content, which allows the user to dynamically change web page content.
 - b. Dynamic positioning of web page elements.
 - c. Dynamic style, which allows the user to change the web page's colour, font, size or content.

Difference :

S. No.	HTML	DHTML
1.	HTML is used to create static web pages.	DHTML is used to create dynamic web pages.
2.	HTML consists of simple HTML tags.	DHTML is made up of HTML tags, Cascading Style Sheets (CSS) and JavaScript.
3.	HTML does not allow to alter the text and graphics on the web page unless web page gets changed.	DHTML allows to alter the text and graphics of the web page without changing the entire web page.
4.	HTML web pages are simple but less interactive.	DHTML web pages are complex but more interactive.

VERY IMPORTANT QUESTIONS

Following questions are very important. These questions may be asked in your SESSIONALS as well as UNIVERSITY EXAMINATION.

Q. 1. What is list in HTML ? What are the different types of lists in HTML ? Give an example of each type.

Ans: Refer Q. 2.4.

Q. 2. Explain the table tag with its attributes in detail.

Ans: Refer Q. 2.5.

Q. 3. Explain frames in HTML with example.

Ans: Refer Q. 2.8.

Q. 4. Discuss how frames play a big role in advertising on web.

Ans: Refer Q. 2.10.

Q. 5. Discuss forms in HTML. Explain various input items used in HTML forms.

Ans: Refer Q. 2.12.

Q. 6. What is CSS ? What are different ways to create them ? Explain with example.

Web Technology

Ans. Refer Q. 2.16.

**Q. 7. Describe the role and importance of CSS in web designing.
Also differentiate Class and Id in CSS.**

Ans. Refer Q. 2.18.

**Q. 8. Explain the role of DTD in XML and also describe its types
with an example.**

Ans. Refer Q. 2.23.

**Q. 9. What is XML ? Discuss the significance of XML. How is XML
different from HTML ? Explain the process of XML parsing.
How are they useful ?**

Ans. Refer Q. 2.24.

**Q. 10. What are XML parsers ? Explain the types of parsers with
their advantages and disadvantages.**

Ans. Refer Q. 2.26.

**Q. 11. What is XML schema ? Compare XML schema and XML
DTD.**

Ans. Refer Q. 2.28.

