

Lab 1: Basic Web page

1.1 Objective

- To familiar with basic HTML elements.
- To create simple web page using HTML elements.

1.2 Practice code

- Open a text editor (`gedit` or `vi`) and create a new file.

- `$gedit yourName.html` or
 - `$vi yourName.html`

- Save the file using

- `cntl + s` key or using `save` button of menubar, if you are using `gedit` or
 - Press `esc` key then `:` then `wq`, if you are using `vi` editor.

- Write the basic structure of an HTML document.

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4     <title>My First Webpage</title>
5 </head>
6 <body>
7 <!-- Your content will go here -->
8 </body>
9 </html>
```

- Add a Heading: Inside the `<body>` tag, add a heading using the `<h1>` tag.

```
1 <body>
2 <h1>Welcome to My First Webpage</h1>
3 </body>
```

- Add a Paragraph: Below the heading, add a paragraph using the `<p>` tag.

```
1 <body>
2 ...
3 <p>This is a paragraph of text on my first webpage.</p>
```

- Add an Image: Find an image online or use one you have, and add it using the `` tag. Set the `src` attribute to the URL or path of the image, and add an `alt` attribute for accessibility.

```
1 <body>
2 ...
3 
```

- Add a Link: Add a hyperlink using the `<a>` tag. Set the href attribute to the URL you want to link to.

```
1 <body>
2 ...
3 <p>Visit <a href="https://www.example.com">this link</a> for more
  information</p>
```

- Add a List: Add an unordered list using the `` tag and list items using the `` tag.

```
1 <body>
2 ...
3   <ul>
4     <li>First item</li>
5     <li>Second item</li>
6     <li>Third item</li>
7   </ul>
```

- Add a Table: Add a table using the `<table>`, `<tr>`, `<th>`, and `<td>` tags.

```
1 <body>
2 ...
3   <table border="1">
4     <tr>
5       <th>Header 1</th>
6       <th>Header 2</th>
7     </tr>
8     <tr>
9       <td>Data 1</td>
10      <td>Data 2</td>
11    </tr>
12    <tr>
13      <td>Data 3</td>
14      <td>Data 4</td>
15    </tr>
16  </table>
```

- Save your yourName.html file.
- Open the file in web browser **by double-clicking it**.

Lab 2: HTML elements

2.1 Practice code

2.1.1 Elements associated with text level semantics

- `<a>` : If the `a` element has an `href` attribute, then it represents a hyperlink (a hypertext anchor) labeled by its contents, otherwise it represents a placeholder. It belongs to flow, phrasing, interactive (if `href` attribute exists) and Palpable content category.

- `` : Represents stress emphasis of its contents. The placement of stress emphasis changes the meaning of the sentence.

```
1 <p><em>IIITians</em> are warrior by birth</p>
2 <p>IIITians are <em>warrior</em> by birth</p>
3 <p><em>IIITians are <em>warrior</em> by birth</em></p>
```

- `` : Represents strong importance, seriousness, or urgency for its contents. The relative level of importance of a piece of content is given by its number of ancestor strong elements; each strong element increases the importance of its contents. Changing the importance of a piece of text with the strong element does not change the meaning of the sentence.

```
1 <p><strong>Warning.</strong> Using of gets() inside your C program is
  dangerous.
2 <strong><strong>gets() may lead to buffer overflow problem</strong></
  strong> </p>
```

- `<small>` : Represents side comments featuring disclaimers, caveats, legal restrictions, or copyrights. Small print is also sometimes used for attribution, or for satisfying licensing requirements. It does not “de-emphasize” or lower the importance of text emphasized by the `` element.

```
1 <dl>
2   <dt> HB6 </dt>
3   <dd> 4 Beds <small>[Rooms with one fan]</small></dd>
4   <dt> HB3 </dt>
5   <dd>3 Beds <small>[Rooms with old furnitures]</small></dd>
6 </dl>
```

- `<s>` : Represents contents that are no longer accurate or no longer relevant.

```
1 <p>Last date of submission: <s> July 05, 2024 </s> August 05, 2024</p>
```

- `<cite>` : Represents the title of a work (e.g. a book, a paper, an essay, a poem, a score, a song, a script, a film, a TV show, a game, a sculpture, a painting, a theatre production, a play, an opera, a musical, an exhibition, a legal case report, a computer program, etc.). This can be a work that is being quoted or referenced in detail

```
1 <p>Like the cartoon <cite>Tom and Jerry</cite> created in 1940 by
  William Hanna and Joseph Barbera.</p>
```

- `<q>` : Defines a short quotation. It is perfect for including inline quotes within text.
- `<dfn>` : Used to define terms. it helps in creating documents that are both readable and informative, especially for technical or specialized terms where clarity is important.

```
1 <p>A <dfn><abbr title="Hypertext Markup Language">HTML</abbr></dfn> a
  markup language used to create webpages.</p>
```

- `<abbr>` : Used to mark an abbreviated term. The `title` attribute provides the full form, which may be displayed as a tooltip in some browsers when the user hovers over the abbreviation.

- `<data>` : Used to represent machine-readable form of content `value` attribute

```
1 <p>The price of the book is <data value="350.30">Three Hundred Fifty
  Rupees and Thirty Paisa</data>.</p>
```

- `<time>` : Used to represent a specific time or date. It can include a `datetime` attribute to provide a machine-readable version of the date or time, which is useful for web applications and can improve accessibility and search engine optimization

2.1.2 Elements associated with tabulating data

The `<table>` element is used to present tabular data in the form of rows and columns. To define a row of cells in a table, the `<tr>` element is used, while `<th>` and `<td>` element is used to define cell data in table header and table body part.

Course name	Course code	Credit	Semester
Web Technology	CS-2015	3	III
Signal and Systems	EC-2014	3	III
Mathematics-III	MA-2014	4	III

```
1 <table>
2   <tr>
3     <th>Course name</th>
4     <th>Course code</th>
5     <th>Credit</th>
6     <th>Semester</th>
7   </tr>
8   <tr>
9     <td>Web Technology</td>
10    <td>CS-2015</td>
11    <td>3</td>
12    <td>III</td>
13  </tr>
14
15  <tr>
16    <td>Signal and Systems</td>
17    <td>EC-2014</td>
18    <td>3</td>
19    <td>III</td>
20  </tr>
21
22  <tr>
23    <td>Mathematics-III</td>
24    <td>MA-2014</td>
25    <td>4</td>
```

```

26     <td>III</td>
27   </tr>
28 </table>

```

The `<caption>` element specifies the caption of a table, providing the table an accessible description. The `<caption>` must be the first child of its parent `<table>` element.

```

1 <table>
2   <caption>Description of the table</caption>
3   <tr>   .... </tr>
4 </table>

```

Semantic section of a table

The `<thead>`, `<tbody>`, and `<tfoot>` elements are used to structure a table into semantic sections.

- The `<thead>` element encapsulates a set of table rows (`<tr>` elements), indicating that they comprise the head of a table with information about the table's columns. `<thead>` is placed after any `<caption>` and `<colgroup>` elements, but before any `<tbody>`, `<tfoot>`, and `<tr>` elements.
- `<th>` element defines a cell as the header of a group of table cells and may be used as a child of the `<tr>` element
- `<tbody>` element encapsulates a set of table rows, indicating that they comprise the body of a table's data.
- A `<table>` may have multiple `<tbody>` but only one `<thead>`
- `<tfoot>` element encapsulates a set of table rows, indicating that they comprise the foot of a table with information about the table's columns. This is usually a summary of the columns

2.1.3 Elements used for Proofreading

Marking changes with strikethrough, deleting, inserting and highlighting texts

- `<s>`: Renders text with a strikethrough, or a line through it. Used to represent things that are no longer valid.

```

1 Due date: <s>July 18, 2024</s> July 20, 2024

```

- ``: Represents a range of text that has been deleted from a document. This can be used when rendering track changes or source code diff information.
- `<ins>`: Represents a range of text that has been added to a document.

```

1 Due date: <del>July 18, 2024</del>
2 <ins cite="https://abc.in">July 20, 2024</ins>

```

- `<mark>`: Used to highlight texts

```

1 Due date: <del>July 18, 2024</del> <mark>July 20, 2024</mark>

```

2.1.4 User defined I/O

- `<input>` is used to create interactive controls for web-based forms in order to accept data from the user; a wide variety of types of input data and control widgets are available, depending on the device and user agent.

```

1 <form oninput="result.value=parseInt(a.value)+parseInt(b.value)">
2   <input type="range" id="b" name="b" value="50" /> +
3   <input type="number" id="a" name="a" value="10" /> =
4   <output name="result" for="a b">60</output>
5 </form>

```

- `<output>`: A container element into which a site or app can inject/display the results of a calculation or the outcome of a user action.

```

1 <form oninput="result.value=parseInt(a.value)+parseInt(b.value)">
2   <input type="range" id="b" name="b" value="50" /> +
3   <input type="number" id="a" name="a" value="10" /> =
4   <output name="result" for="a b">60</output>
5 </form>

```

- `<samp>`: Used to enclose inline text which represents sample output from a computer program.

```

1 Got a message while I was trying to boot my system
2 <p><samp>Hard disk not found <br>Press F1 to continue</samp></p>

```

2.1.5 Displaying formatted text

- `<pre>`: Represents preformatted text which is to be presented exactly as written in the HTML file. The text is typically rendered using a monospaced font. White-space and new-line inside this element are displayed as written. It is a block-level element, i.e. its default display value is block.

```

1 <pre>
2 #include<stdio.h>
3
4 int bcd(int x, int y) {
5     while (y != 0) {
6         int z = x & y;
7         x = x ^ y;
8         y = z << 1;
9     }
10    return x;
11 }
12
13 int abc(int x, int y) {
14     int z = 0;
15     while (y > 0) {
16         if (y & 1) {
17             z = bcd(z, x);
18         }
19         x = x << 1;
20         y = y >> 1;
21     }
22     return z;
23 }
24
25 int main() {
26     int a, b;
27     scanf("%d %d", &a, &b);
28     printf("%d %d %d", a, b, abc(a, b));
29     return 0;
30 }</pre>

```

```

31
32 Another example:
33 <pre role="img" aria-label="ASCII image of a bat">
34 -----
35 ~-.         \  | \_--/ | /         .--
36      ~-.      \ /  o o  \ /      .--
37      />        \ \  W  //        <
38      /-        / ~----\
39      /-        |       |
40      ~-.      |       |
41      ;        \       /
42      /---     / \     \ \     ---\
43      ~-.    /  \  /  \  .--
44      V      /   \  V
45 </pre>

```

- `<code>`: Displays a single phrase of code or line of code styled in a fashion intended to indicate that the text is a short fragment of computer code.

```
1 To print "hi" in C use <code>printf("Hi");</code>
```

- `<kbd>` Represents a span of inline text denoting textual user input from a keyboard, voice input, or any other text entry device.

```
1 Press <kbd>Ctrl</kbd> + <kbd>s</kbd> to save your file.
```

- `<pre>` displays block of pre-formatted text preserving whitespace and line breaks. `<code>` displays inline code/pre-formatted-text within a sentence. `<kbd>`, while `<code>` displays keyboard input instructions, showing how to represent keys the user should press.

- `<details>`: Creates a disclosure widget where information is visible only when the widget is toggled into an open state. A summary or label must be provided using the
- `<summary>`: Specifies a summary, caption, or legend for a `<details>` element's disclosure box. Clicking the `<summary>` element toggles the state of the parent `<details>` element open and closed.

```

1 <details open>
2 <summary>Chapter 1: Introduction to HTML5</summary>
3 <ol>
4     <li>Introduction to markup language</li>
5     <li>Structure of HTML5 document</li>
6     <li>Content model</li>
7 </ol>
8 </details>

```

- `<dialog>`: Represents a modal or non-modal dialog box, such as a dismissible alert, inspector, or subwindow.

```

1 <dialog open>
2 Greetings, one and all present in the hall!
3 </dialog>

```

- `<caption>`: Used as the first child of the `<table>`, with text content similar to a title to describe the table data.

```

1 <table>
2 <caption>Student details</caption>
3 <tr>
4     <th>Name</th>
5     <th>Roll number</th>
6     <th>Hostel room number</th>

```

```

7   </tr>
8   <tr>
9       <td>Abc Kumar</td>
10      <td>21010195</td>
11      <td>102</td>
12   </tr>
13 </table>

```

- `<ruby>` element represents small annotations that are rendered above, below, or next to base text along with `<rt>` and `<rp>`. The `<rt>` element specifies the ruby text component of a ruby annotation. The `<rp>` element is used to provide fall-back parentheses for browsers that do not support display of ruby annotations.

```
1 <ruby>angry<rp>(</rp><rt>ang-gree</rt><rp></rp></ruby>
```

- Visual representation of a value
 - `<progress>`: Indicator showing the completion progress of a task, typically displayed as a progress bar.

```

1 <label for="file">Copy progress:</label>
2 <progress id="file" max="100" value="70">70%</progress>

```

- `<meter>`: Represents a scalar value within a known range, typically used for displaying a measurement, such as disk usage, progress, or any other quantity that can be represented as a fraction of a whole.

```

1 <label for="fuel">Battery level:</label>
2 <meter id="fuel" min="0" max="100" low="30" high="65" optimum="70"
  value="50">50%</meter>

```

- `<progress>` indicates the progress of a task that primarily uses value and max attribute, while `<meter>` represents a measurement within a range. `<meter>` uses value, min, max, low, high, and optimum.

2.2 Problem statement

Create an HTML page that displays the Time table of IIIT Manipur for this semester shared by the office of the Academic Section along with the following instructions.

1. Clicking/hovering on the course code will display course name, instructor name and credit against the course.
2. Cells should be merged into one, if values of the consecutive cells (either in top-to-bottom or left-to-right) are same.

2.3 Submission instruction

You are free to use any programming language if not prescribed. Software/tool(s) used to implement the lab-work and report should not be proprietary in nature. Perform your lab-assignment and prepare report using free-and-open source software/tool. Lab manual and assignment will be uploaded in the Google classroom only.

- Open Google classroom (Lab assignment section) and upload your lab files **on or before coming Saturday 11:59 PM**. Do not upload archive file.

- Demonstrate each point in separate sections of the web page. Submit all related files including the `.html`, `.css` and `images` along with screenshot of the browser. The screen shot will be considered copied if name of the web-browser and system-time is not distinct/vivid in submitted screen-shot.
- Strictly adhere the following file naming convention, while naming your lab-assignment-files. The basic syntax is:
 - `YourRollNumber-labNumber-optionalFileDetails.fileExtension`
 - For example:
 - * `210101095-lab-1.html` or
 - * `210101095-lab-1-table-1.html` or
 - * `210101095-lab-2.css` or
 - * `210101095-lab-3-screenshot.png` or
 - * `210101095-lab-4-Img1.jpg` and so on...
- **Submissions will not be considered for evaluation and will award zero marks, if**
 - Lab-work is not submitted
 - Submission received after the deadline
 - Submitted documents are not following the above naming convention.
 - Submitted documents are found copied including your friends
 - Submitted screenshot does not contain browser name and system-time