WEB Technology 1

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Web development

Web development is the building and maintenance of websites; it’s the work that happens behind the scenes to make a website look great, work fast and perform well with a seamless user experience.

Web developers, or ‘devs’, do this by using a variety of coding languages. The languages they use depends on the types of tasks they are preforming and the platforms on which they are working.

Web development skills are in high demand worldwide and well paid too – making development a great career option. It is one of the easiest accessible higher paid fields as you do not need a traditional university degree to become qualified.

Front End Development

- Frontend development refers to that area of web development that focuses on what the users see on their end. It involves transforming the code built by backend developers into a graphical interface, making sure that the data is presented in an easy-to-read and -understand format.

- Without frontend development, all you would see on a website or web application are undecipherable codes (unless you're a developer, too, of course). But because of frontend developers, people with no coding background can easily understand and use web applications and websites. Everything you see when you visit Google Apps, Canva, Facebook, and other web applications are products of backend and frontend developers work together.

Web Technologies Involved in Frontend Development

1. HTML

HTML is the building block of websites. It is the programming language used to describe and mark content, so a browser displays it correctly. For example, an image on a blog post would appear as an <img> in HTML code, so browsers will know that they need to display an image.

2. CSS

CSS looks more like a set of instructions that control a webpage's style and structure than a programming language. It helps developers manage a website or web application's formatting, presentation, and layout. While HTML defines elements on a page, CSS dictates how users see the content. For instance, it controls the size, border, and alignment of an image in a blog post.

3. JavaScript

Frontend developers can already create websites using HTML and CSS. In fact, it wasn't until 1995 that JavaScript emerged. However, it is now difficult to imagine websites without JavaScript as it enables developers to make sites interactive. The programming language can change website content based on a user's action. Example, Selecting an answer and clicking "Vote" in a website would display the total number of votes for each option.

Back End Development

- Backend development is that area of web development that focuses on how a website or web application works. It is what happens behind the scenes, the same way that a restaurant's chef and his/her staff handles all orders without the customers sitting at their tables seeing them. Instead of cooking food, though, backend developers write codes that enable web browsers to communicate with databases and servers.

- The primary role of a backend developer is to ensure that end-users get the data or services they requested without a glitch and on time. As such, backend development requires a comprehensive set of programming skills and knowledge.

Backend Development Languages

- **Java:** Known as the king of all programming languages, Java is used to develop popular websites and web applications, including Netflix, Uber, Google Earth, and Tinder.
- **Ruby on Rails (RoR):** RoR has become a favorite among programmers as it makes the web development process a breeze. Developers used the language to create several reputable websites and applications such as Airbnb, Slideshare, Goodreads, Groupon, and Kickstarter.
- **Python:** Python is one of the most commonly used programming languages in the world. Aside from website development, it also figures in network programming, artificial intelligence (AI), and machine learning (ML). Among the web applications that use Python are Spotify, Dropbox, Google, Reddit, and Instagram.
- **PHP:** The advantage of PHP as a backend development programming language is that it is easy to learn. It also supports various content management systems (CMSs), such as WordPress and Joomla. PHP was also used to develop web applications, including Facebook, Wikipedia, Tumblr, MailChimp, and Flickr.

Web Browser

A software application used to access information on the World Wide Web is called a Web Browser. When a user requests some information, the web browser fetches the data from a web server and then displays the webpage on the user's screen.

Examples

- Google Chrome.
- Mozilla Firefox.
- Microsoft Edge.
- Internet Explorer.
- Safari.

Search Engine

A search engine is a web-based tool that enables users to locate information on the World Wide Web. Popular examples of search engines are Google, Yahoo!, and MSN Search. Search engines utilize automated software applications (referred to as robots, bots, or spiders) that travel along the Web, following links from page to page, site to site. The information gathered by the spiders is used to create a searchable index of the Web.

Search Engine Optimization (SEO)

Search engine optimization (SEO) is the process of improving the visibility of a website or webpage on a **search engine results page** (SERP) so as to make a company's website more *discoverable* (i.e., on the first page/s), thereby driving traffic and sales. Tedious, involving technical and business decisions, and not guaranteeing results—it nonetheless provides lasting benefits.

SEO often involves the concerted effort of multiple departments within an organization, including the design, marketing, and content production teams. While some SEO work entails business analysis (e.g., comparing one's content with competitors'), a sizeable part depends on the *ranking algorithms* of various search engines, which may change with time. Nevertheless, a rule of thumb is that websites and webpages with higher-quality content, more external referral links, and more user engagement will rank higher on an SERP.

Web Technology

- You probably know that computers don't communicate with each other the way that people do. Instead, computers require codes, or directions. These binary codes and commands allow computers to process needed information. Every second, billions upon billions of ones and zeros are processed in order to provide you with the information you need.
- So what does that have to do with your ability to post your latest pictures online? Everything.
- The methods by which computers communicate with each other through the use of markup languages and multimedia packages is known as **web technology**. In the past few decades, web technology has undergone a dramatic transition, from a few marked up web pages to the ability to do very specific work on a network without interruption. Let's look at some examples of web technology.

Internet

he Internet is a global wide area network that connects computer systems across the world. It includes several high-bandwidth data lines that comprise the Internet "backbone." These lines are connected to major Internet hubs that distribute data to other locations, such as web servers and ISPs.

In order to connect to the Internet, you must have access to an Internet service provider (ISP), which acts as the middleman between you and the Internet. Most ISPs offer broadband Internet access via a cable, DSL, or fiber connection. When you connect to the Internet using a public Wi-Fi signal, the Wi-Fi router is still connected to an ISP that provides Internet access. Even cellular data towers must connect to an Internet service provider to provide connected devices with access to the Internet.

The Internet provides different online services. Some examples include:

- Web – a collection of billions of webpages that you can view with a web browser
- Email – the most common method of sending and receiving messages online
- Social media – websites and apps that allow people to share comments, photos, and videos
- Online gaming – games that allow people to play with and against each other over the Internet
- Software updates – operating system and application updates can typically downloaded from the Internet

Advantages of Internet

1. **Communication Forum –**
   The speed of communication becomes faster which is obtained through the web. Families and friends can confine touch easily. The platform for products like SKYPE allows for holding a video conference with anyone within the world who also has access.
2. **Abundant Information –**
   Anyone can find information on almost any imaginable subject. Plenty of resources are often found through the program in minutes.
3. **Inexhaustible Education –**
   For instance, students can gain readily available help for his or her homework online.
4. **Entertainment for everybody –**
   Most folks love using our laptops, smartphones, and, tablets. The web is that the big reason behind us spending such a lot of time on these gadgets.
5. **Online Services and E-commerce –**
   Many services of emails, online banking, online shopping, etc are there. Free mail to anyone is definitely accessible all around the world. E-commerce enables one in America to shop for things in Asia, Africa, or other areas within the world through some simple clicks of the mouse.
6. **Social network –**
   Social networking is the sharing of data with people across the planet. Aside from being an entertainment website, it's many uses.
7. **Learning –**
   The web has now become a neighborhood of education. Education like homeschooling is definitely administered using the web. Teachers can upload their teaching videos on the web

Disadvantages of Internet

1. **Internet Addiction Disorder –**
   Internet addiction is detrimental to not only fitness but also psychological state.

2. **Cyber Crime –**
   Hacker programs a virus which gets into the pc and ruins valuable data. Users' personal information like name, address, master card, bank details, and other information are often accessed by culprits when used on the web, leading to significant economic loss.

3. **Social Alienation –**
   Time spent online flies fast without consciousness. After getting attracted the user trapped into the trap, users are trapped by a "net", spending less time with people in the real world. Less interaction and face-to-face communication, actually, may end in a decrease in social abilities.

4. **Spam –**
   The unnecessary emails, advertisements, etc. are sometimes said to be spam because they need the power to hamper the system and make the users face many problems.

Content Management System (CMS)

A content management system, often abbreviated as **CMS**, is software that helps users create, manage, and modify content on a website without the need for specialized technical knowledge.

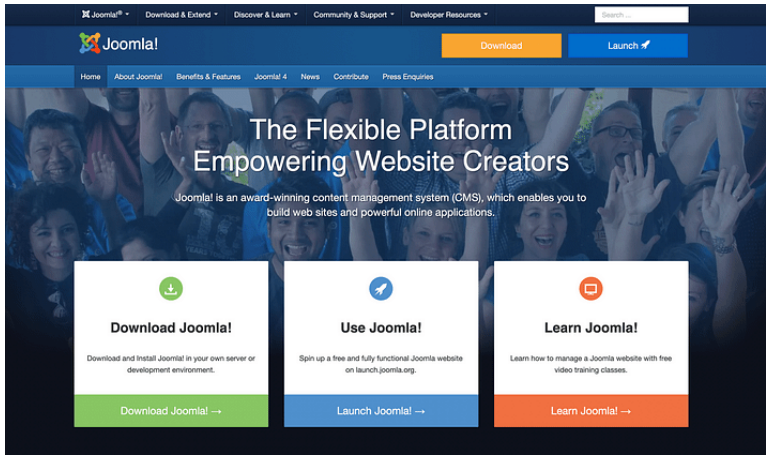
In simpler language, a content management system is a tool that helps you build a website without needing to write all the code from scratch (or even know how to code at all).

Instead of building your own system for creating web pages, storing images, and other functions, the content management system handles all that basic infrastructure stuff for you so that you can focus on more forward-facing parts of your website.

Beyond websites, you can also find content management systems for other functions – like document management.

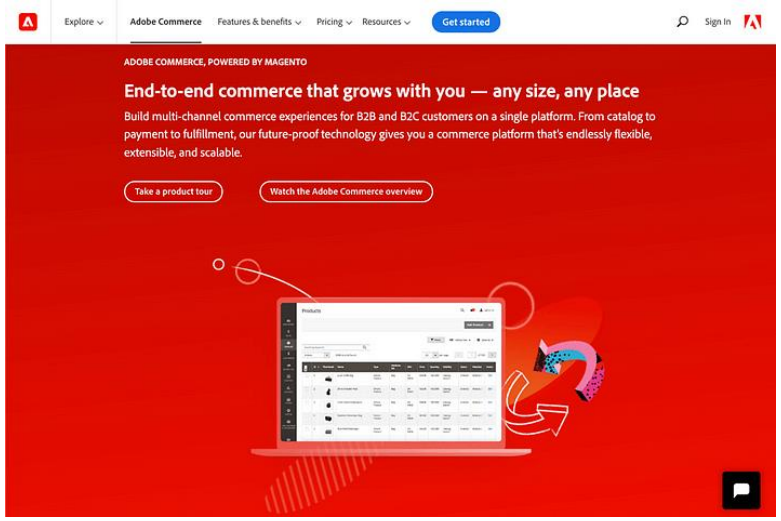
Content management system (CMS) examples

1. WordPress



2. Joomla

3. Drupal



4. Adobe Commerce Powered by Magento

Advantages of Using CMS in Website Development

1. Quick Development

CMS is a fastest tool to develop a web application including mobile friendliness. Using CMS, we can improve the speed of developing the websites.

2. Less Backend Coding

Content Management System provides a several plugins for developing the web applications. So that user has no need to do code at all.

3. Provide built-in Page Builder

A main goal of using CMS is time saving. CMS provide built-in visual page creator to create, manage or modify the content of the site. User has no need to manage site content with in-line editing or also can create reusable dynamic blocks and the ability to save the block-section and page layout as template to reuse in multiple sites.

4. Easy for non-technical Person

Anyone can use Content Management System for the basic functions like writing and publishing content, and adding media.

5. Security

CMS have best security features to secure the website's content and database from hackers. Author of the site can control the access to his site using permission base system.

6. SEO Friendly

CMS websites are SEO friendly because the implementation of SEO techniques is much simpler than HTML. There are some plugins available that directly support SEO on the website.

7. Improve Customer Services

CMS provide better customer services such as contact forms and live chat for any urgent enquiries and clear the issues regarding websites.

HTML

- HTML (Hypertext Markup Language) is a text-based approach to describing how content contained within an HTML file is structured. This markup tells a web browser how to display text, images and other forms of multimedia on a webpage.
- HTML is a formal recommendation by the World Wide Web Consortium (W3C) and is generally adhered to by all major web browsers, including both desktop and mobile web browsers. HTML5 is the latest version of the specification.

In other words **HTML** stands for **HyperText Markup Language**. It is used to design web pages using a markup language. It is the combination of Hypertext and Markup language. Hypertext defines the link between the web pages. A markup language is used to define the text document within tag which defines the structure of web pages. It is a markup language that is used by the browser to manipulate text, images, and other content to display in the required format.

To understand "HTML" from front to back, let's look at each word that makes up the abbreviation:

- **Hypertext**: Hypertext is text which contains links to other texts. HyperText allows a user to click a link and be redirected to a new page referenced by that link.
- **Markup**: A computer language that consists of easily understood keywords, names, or tags that help format the overall view of a page and the data it contains. Some examples of a **markup language** are BBC, HTML, SGML, and XML.
- **Language**: a language that a computer system understands and uses to interpret commands.

Advantages

1. HTML is widely used.
2. Every browser supports HTML Language.
3. Easy to learn and use.
4. HTML is light weighted and fast to load.
5. Do not get to purchase any extra software because it’s by default in every window.
6. Easy to use
7. Loose syntax (although, being too flexible won’t suit standards).
8. HTML is easy enough to write
9. HTML is that it is easy to code even for novice programmers.
10. HTML also allows the utilization of templates, which makes designing a webpage easy.
11. Very useful for beginners in the web designing field.
12. HTML can be supported to each and every browser, if not supported to all the browsers.
13. HTML is built on almost every website, if not all websites.
14. HTML is increasingly used for data storage as like XML syntax.
15. Free – You need not buy any software.
16. HTML is present in every window by default so you not need to buy the software which cost too much.
17. HTML has many tag and attributes which can short your line of code.

Disadvantages

1. It cannot produce dynamic output alone, since it's a static language.
2. Making the structure of HTML documents becomes tough to understand.
3. Errors can be costly.
4. It is the time consuming as the time it consume to maintain on the colour scheme of a page and to make lists, tables and forms.
5. It can create only static and plain pages so if we'd like dynamic pages then HTML isn't useful.
6. Required to write a lot of code for just creating a simple webpage.
7. We have to check up the deprecated tags and confirm not to use them to appear because another language that works with HTML has replaced the first work of the tag, and hence the opposite language needs to be understood and learned.
8. Security features offered by HTML are limited.
9. If we need to write down long code for creating a webpage then it produces some complexity.
10. HTML can create only static and plain pages so if we'd like dynamic pages then HTML isn't useful.
11. I need to write down tons of code for creating an easy webpage.
12. Security features are not good at HTML.
13. If we'd like to write down long code for creating a webpage then it produces some complexity.
14.

Basic Format: It is the basic format of create a simple web page.

```
<!DOCTYPE html>
<html>

<head>
   <!-- Head section of website-->
   <title></title>
</head>

<body>
   <!-- Body section of website -->
</body>

</html>
```

Example

```
<!DOCTYPE html>
<html>

<head>
        <title>Simple Web Page</title>
</head>

<body>
        <h1>Welcome Students</h1>
        <p>A computer science classs</p>
</body>

</html>
```

<DOCTYPE! html>: This is the document type declaration (not technically a tag). It declares a document as being an HTML document. The doctype declaration is not case-sensitive.

<html>: This is called the HTML root element. All other elements are contained within it.

<head>: The head tag contains the “behind the scenes” elements for a webpage. Elements within the head aren’t visible on the front-end of a webpage. HTML elements used inside the <head> element include:

<style>

<title>

<base>

<script>

<meta>

<link>

<body>: The body tag is used to enclose all the visible content of a webpage. In other words, the body content is what the browser will show on the front-end.

An HTML document can be created using any text editor. Save the text file using .html or .htm. Once saved as an HTML document, the file can be opened as a webpage in the browser.

Note: Basic/built-in text editors are Notepad (Windows) and TextEdit (Macs). Basic text editors are entirely sufficient for when you’re just getting started. As you progress, there are many feature-rich text editors available which allow for greater function and flexibility.

Example: This example illustrates the basic structure of HTML code.

```
<!DOCTYPE html>
<html>
<head>
        <title>Demo Web Page</title>
</head>

<body>
        <h1>Computer class</h1>

<p>A computer science students is genius</p>

</body>
</html>
```

Web hosting is a service that allows organizations and individuals to post a website or web page onto the Internet. A web host, or web hosting service provider, is a business that provides the technologies and services needed for the website or webpage to be viewed in the Internet. Websites are hosted, or stored, on special computers called servers. When Internet users want to view your website, all they need to do is type your website address or domain into their browser. Their computer will then connect to your server and your webpages will be delivered to them through the browser.

Website publishing is the process of uploading content on the internet. It includes:

- uploading files
- updating web pages
- posting blogs

Website is published by uploading files on the remote server which is provided by the hosting company.

You need 3 ingredients to publish a website:

1. A **Domain** Name
2. A Web **Hosting** Service
3. A person (or team) to Design, Build and Publish the website

Your Domain Name

Your Domain Name should be unique in the world

Web Hosting

This is how your website is broadcast to the World Wide Web on the Internet - Click here to read What is Web Hosting?

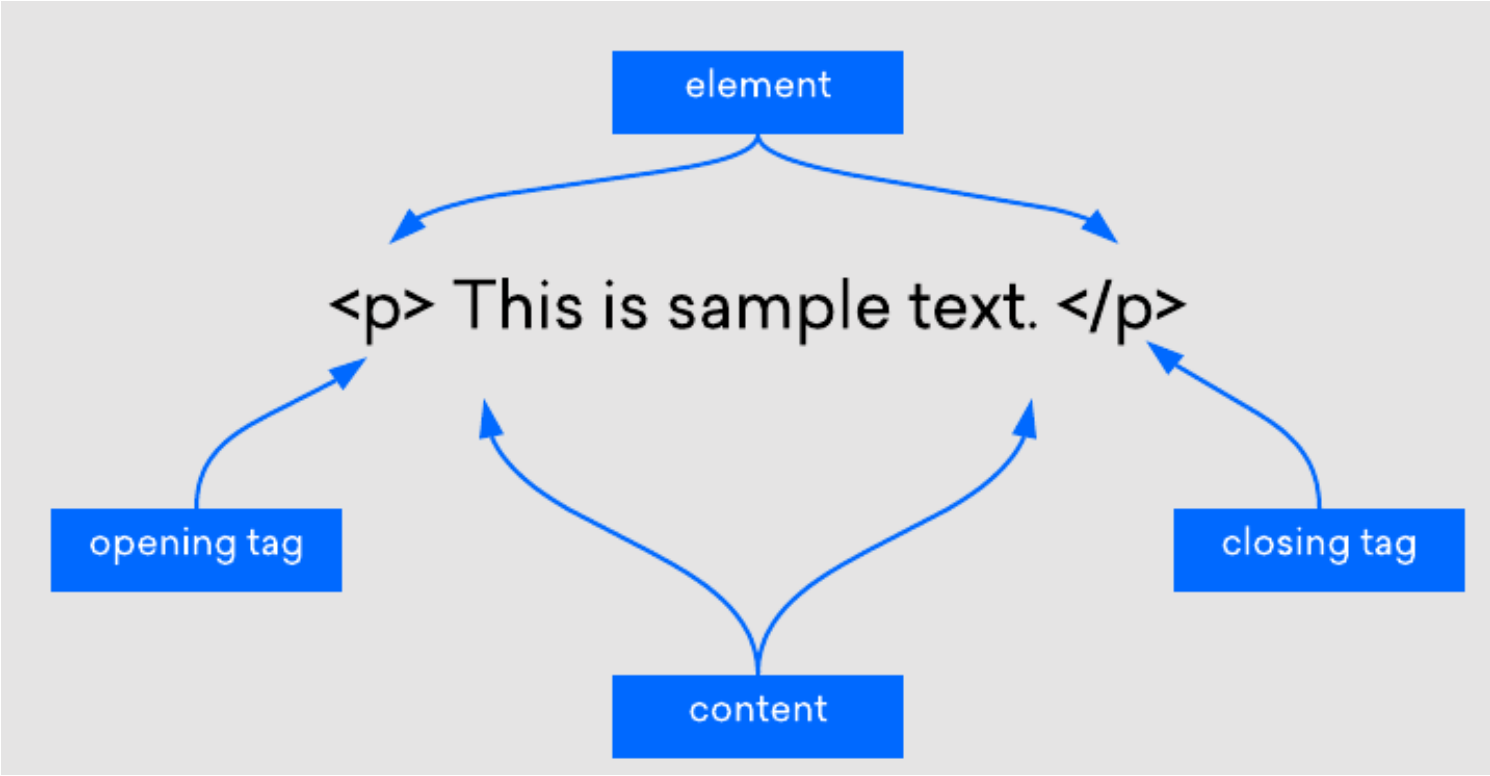
Design, Build and Publish your Website

There are basically three ways a website can be published:

1. By a professional web designing company
2. By freelance individuals
3. By yourself

HTML ELEMENT

- An HTML element is a component of an HTML document that tells a web browser how to structure and interpret a part of the HTML document. HTML elements can contain formatting instructions, semantic meaning, and content.
- For example, HTML elements are used to denote document parts such as headers, paragraphs, and footers and to embed content such such as hyperlinks, text, and images.



HTML TAGS

An HTML tag is a piece of markup language used to indicate the beginning and end of an HTML element in an HTML document.

As part of an HTML element, HTML tags help web browsers convert HTML documents into web pages. For example, the <p> tag is used to organize text content into paragraph elements and the <img> tag is used to embed image elements.

Many tags, though not all, use an opening tag and closing tag to wrap around the content that they are used to modify. Closing tags are denoted with a backslash like this: </tag_name>. HTML tags are not visible in the browser.

HTML Attribute

An HTML attribute is a piece of markup language used to adjust the behavior or display of an HTML element. For example, attributes can be used to change the color, size, or functionality of HTML elements.

Attributes are used by including them in an opening HTML tag:

<tag_name attribute_name="value">Content</tag_name>

An attribute includes the attribute name followed by an equals sign (=) and a value wrapped in quotes. Note that values are often declared by using a value name and value. For example, the style attribute can be used to change the font-size value name to the value of 40px:

<tag_name style="font-size:40px">This text content will be sized to 40 pixels by the web browser.</tag_

Types of tags in HTML

The types of tags in HTML are categorized on the basis of their appearance. Some tags comes in pairs and others are single.

There are two types of tags in HTML that are used by the Website Designers:

1. Paired Tags (Opening and Closing Tags)
2. Unpaired Tags (Singular Tag)

Paired Tags - Opening and Closing Tags

Paired tags are a set of two tags with the same name. In each Paired tag set, one is an opening tag, and the other one is the closing tag. The closing tag has a / slash, it means that the tag is closed now.

It is necessary to close a paired tag; otherwise, it can result in the malfunctioning of the website. When the content is written within paired tags, then it ensures that the effect of those tags would be limited to only the content between them.

Look at the list of some paired tags in HTML below. Notice that each tag has a closing tag with a slash(/) before the name of the tag.

Syntax: <tag> Content </tag>

List of some paired tags in HTML:

Open Tag	Close Tag
<html>	</html>
<table>	</table>
<form>	</form>
<head>	</head>

Unpaired Tags - Singular Tags

Unpaired tags are single tags with no closing tag. These tags are also called Singular Tags. These are also called non-container tags because they do not contain any content.

It is recommended to close the unpaired/singular tags also. But unfortunately, we do not have the closing tag for those.

Some Unpaired Tags are:

Open Tag
<hr>
<meta>
<input>

Basic HTML Tags

1. <html></html>

This is the root element tag. It designates that everything between these brackets contains HTML code.

2. <head></head>

This tag distinguishes the head of the web page from the content. This is where you put Javascript code or give ‘meta’ information about the web site.

3. <title></title>

Have you noticed that browser tabs contain text that gives you an overview of the website? That text is written as the site’s title with this tag.

4. <body></body>

The body tag specifies the actual content of the website.

5. <h1></h1>

This is a heading tag, which creates a title by making text bigger and making it bold. There are six heading tags: h1, h2, h3, h4, h5, h6, in descending order of size.

**6. **

This tag specifies that a given section is supposed to be its own paragraph. Browsers usually insert blank spaces between paragraphs, making the text easier to read.

7. <a>

This tag let’s us create a link with its ‘href’ attribute, like so:

Click here.

8. <img></img>

The ‘image’ tag is how you insert images into a web page.

**9. **

Div tags group multiple pieces of content into a single container, which allows you to do things like apply separate styling to just that content

**10. **

Span is like a smaller version of div, used to style or interact with inline content. You could add just a couple of words to a particular class (Text) which, again, is great for styling and making the content more responsive.

HTML Comment Tag

With comments you can place notifications and reminders in your HTML code. It is not the part of code.

```
<!DOCTYPE html>
<html>
<body>

<!-- This is a comment -->
<p>This is a paragraph.</p>
<!-- Comments are not displayed in the browser -->

</body>
</html>
```

```
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>This is a Heading</h1>
<p>This is a paragraph.</p>
<div class="myDiv">
  <h2>This is a heading in a div element</h2>
  <p>This is some text in a div element.</p>
</div>

<img src="img_girl.jpg" alt="Girl in a jacket" width="500" height="600">
<a href="http://nimesh.techdebugger.com/">Download notes</a>

</body>
</html>
```

Background color in HTML

```
<!DOCTYPE html>
 <html>
<head>
<title>HTML Backgorund Color</title>
</head>
 <body style="background-color:grey;">
<h1>Products</h1>
<p>We have developed more than 10 products till now.</p>
 </body>
</html>
```

Background image in HTML

```
<!DOCTYPE html>
<html>
<head>
<style>
body {
  background-image: url("bg1.jpg");
  background-color: #cccccc;
}
</style>
</head>
<body>
    <p>Document Body</p>
</body>
</html>
```

Heading in HTML

HTML headings are titles or subtitles that you want to display on a webpage. H1 is the biggest in size and Smallest is the H6

```
<!DOCTYPE html>
<html>
<body>

<h1>Heading 1</h1>
<h2>Heading 2</h2>
<h3>Heading 3</h3>
<h4>Heading 4</h4>
<h5>Heading 5</h5>
<h6>Heading 6</h6>

</body>
</html>
```

HTML align attribute

align

The purpose of the HTML align attribute is to specify the alignment of data and the justification of text in a cell of a table.

Supported elements

HTML align attribute supports col, colgroup, tbody, td, tfoot, th, thead, tr elements.

Usage of align attribute for any other HTML elements is deprecated. You must use CSS for those.

Syntax

<ElementName align="value" >.....</ElementName>

Where ElementName is any supported element.

Type of value

Type of value of HTML align attribute is predefined.

Values

Name	Description
left	Left align data, left justify text.
center	Center align data, center justify text.
right	Right align data, right justify text.
justify	Double justify text.
char	If used, text is aligned around a specific character.

Default value

The default value of HTML align attribute is left.

```
<!DOCTYPE html>
<html>
  <head>
    <title>HTML Document</title>
  </head>

  <body>
    <h1>Tutorial</h1>
    <p style="text-align:center;">Learn for free</p>
  </body>
</html>
```

HTML Tag

The tag in HTML plays an important role in the web page to create an attractive and readable web page. The font tag is used to change the color, size, and style of a text. The base font tag is used to set all the text to the same size, color and face.

Syntax:

 Content

```
<!DOCTYPE html>
<html>

<body>
        <h2>Computer  Class</h2>

        <!--Normal paragraph tag-->

<p>Hello Geeks!.</p>



        <!--font tag-->
        <font size="5"> Welcome to class </font>
</body>

</html>
```

```
<!DOCTYPE html>
<html>
<head>
<title>
        HTML font face Attribute
</title>
</head>

<body>
<font size="6"
face="verdana"
color="green">
Nimesh Shiwakoti
</font>
<br>
<font size="6"
face="arial"
color="#008000">
Nimesh Shiwakoti
</font>
<br>
<font size="6"
color="rgb(128, 128, 0)">
Nimesh Shiwakoti
</font>
</body>

</html>
```

Using big

This example uses the obsolete <big> element to increase the size of some text.

HTML

```
<p>
  This is the first sentence. <big>This whole
  sentence is in bigger letters.</big>
</p>
```

Using small

This example uses the obsolete <small> element to increase the size of some text.

HTML

```
<p>This is some normal text.</p>
<p><small>This is some smaller text.</small></p>
```

HTML <basefont> tag

HTML <basefont> tag was used to specify the default value of font-size, color, and font-family for all content written within an HTML document.

(Not Supported in HTML5)

<basefont color="blue" size="5" face="arial">

```
<!DOCTYPE html>
<html>
<head>
<title>Basefont tag</title>
 <basefont color="blue" size="5" face="arial">
</head>
<body>
<h2>Example of Basefont tag</h2>
<p>The basefornt tag is not supported in HTML5 use CSS to style the document
</p>
</body>
</html>
```

HTML Paragraphs

The ** ** tag in HTML defines a paragraph. These have both opening and closing tags. So anything mentioned within ** ** and ** ** is treated as a paragraph. Most browsers read a line as a paragraph even if we don’t use the closing tag i.e, , but this may raise unexpected results. So, it is both a good convention, and we **must** use the closing tag.

 Content

```
<!DOCTYPE html>
<html>

<body>
        <h2>Welcome </h2>

        <!-- Use of <p> tag -->
        <p>A computer science ClaSS.</p>

</body>

</html>
```

HTML <br> tag

The **
 tag** in **HTML** document is used to create a line break in a text.

It is generally used in poem or address where the division of line is necessary. It is an empty tag, which means it does not need a company of end tag. If you place the <br> tag in the HTML code, then it works the same as pressing the enter key in a word processor.

Text **
** Text

<!DOCTYPE HTML>

<html>

<head>

<title>

Example of BR tag

</title>

</head>

<body>

** **If you want to break a line **
** in a paragraph, **
** use the BR ele ment in **
** your HTML document. ** **

</body>

</html>

HTML Text Formatting

HTML Formatting is a process of formatting text for better look and feel. HTML provides us ability to format text without using CSS. There are many formatting tags in HTML. These tags are used to make text bold, italicized, or underlined. There are almost 14 options available that how text appears in HTML.

Element name	Description
<b>	This is a physical tag, which is used to bold the text written between it.
	This is a logical tag, which tells the browser that the text is important.
<i>	This is a physical tag which is used to make text italic.
	This is a logical tag which is used to display content in italic.
<mark>	This tag is used to highlight text.
<u>	This tag is used to underline text written between it.
<tt>	This tag is used to appear a text in teletype. (not supported in HTML5)
<strike>	This tag is used to draw a strikethrough on a section of text. (Not supported in HTML5)
<sup>	It displays the content slightly above the normal line.
<sub>	It displays the content slightly below the normal line.
<del>	This tag is used to display the deleted content.
<ins>	This tag displays the content which is added
<big>	This tag is used to increase the font size by one conventional unit.
<small>	This tag is used to decrease the font size by one unit from base font size.

```
<!DOCTYPE html>
<html>
<body>
<p><b>This text is bold</b></p>
<p><i>This text is italic</i></p>
<p><u>this text is underlined</u>
<strong>This text is important!</strong>
<p>This is<sub> subscript</sub> and <sup>superscript</sup></p>
<em>This text is emphasized</em>
<p>Do not forget to buy <mark>milk</mark> today.</p>
<p>Do not forget to buy <mark>milk</mark> today.</p>
<p>My favorite color is <del>blue</del> <ins>red</ins>.</p>
<small>This is some smaller text.</small>
<big>is some smaller text.</big>
</body>
</html>
```

HTML <blockquote> Tag

The <blockquote> tag in HTML is used to display the long quotations (a section that is quoted from another source). It changes the alignment to make it unique from others. It contains both opening and closing tags. In blockquote tag, we can use elements like heading, list, paragraph, etc.

Syntax: <blockquote> Contents... </blockquote>

```
<!DOCTYPE html>
<html>
<head>
        <title>Blockquote tag</title>
</head>
<body>
        <h2>Example of blockquote tag</h2>
        <p>A Great Motivational Quote :</p>
  <blockquote cite="https://www.brainyquote.com/authors/erin_cummings">
  <p>
         At the end of the day, you are solely responsible for your success and your failure. And the sooner you realize that, you accept that, and integrate that into your work ethic, you will start being successful. As long as you blame others for the reason you aren't where you want to be, you will always be a failure.
        </p>
  </blockquote>
<cite>Erin Cummings</cite>
</body>
</html>
```

HTML <pre> Tag

The <pre> tag in HTML is used to define the block of preformatted text which preserves the text spaces, line breaks, tabs, and other formatting characters which are ignored by web browsers. Text in the <pre> element is displayed in a fixed-width font, but it can be changed using CSS. The <pre> tag requires a starting and end tag.

Syntax: <pre> Contents... </pre>

```
<!DOCTYPE html>
<html>

  <head>
    <title>HTML pre Tag</title>
  </head>

  <body>
    <pre>
          This text is
      in a fixed-pitch
          font, and it preserves
      both    spaces and line breaks
    </pre>
  </body>

</html
```

Unordered and Ordered Lists in HTML

- Lists are used to store data or information in web pages in ordered or unordered form. HTML supports several types of list elements that can be included in the <BODY>tag of the document. These elements may also be nested, i.e, the onset of elements can be embedded within another. There are three types of list are available in HTML:
- Unordered List
- Ordered List

List Item tag

List item tag is used to define each item of a list. Once we define list items with the <li> tag, the list appears in Web browsers in the bulleted form (by default). It is used inside both ordered and unordered list.

Syntax: content

Ordered list

An ordered list defines a list of items in which the order of the items are matters. An ordered list is also called a number list. The ordering is given by a numbering scheme, using Arabic numbers, letters, roman numerals. Or in other words, ordered list tag is used to create ordered list.

Syntax: content

```
<html>
<head>
        <title>ordered list</title>
</head>
<body>
        <h1>Example of ordered list in default</h1>
        <ol >
                <li>Sachin</li>
                <li>Manoj</li>
                <li>Parth</li>
                <li>sujay</li>
                <li>Amraditya</li>
        </ol>
</body>
</html>
```

```
<html>
<head>
        <title>ordered list</title>
</head>
<body>
        <h1>Example of ordered list whose type = "A"</h1>
        <ol type="A">
                <li>Sachin</li>
                <li>Manoj</li>
        </ol>
        <h1>Example of reverse ordered list</h1>
        <ol reversed>
                <li>Parth</li>
                <li>sujay</li>
        </ol>
        <h1>Example of ordered list start from 10</h1>
        <ol start = "10">
                <li>Pushpa</li>
                <li>Purvi</li>
        </ol>
</body>
</html>
```

Unordered list

An unordered list defines a list of items in which the order of the items does not. Or in other words, unordered list tag is used to create a unordered list. It is also known as bulleted list. In unordered list each element in the list is defined using <li> tag.

Syntax: content

```
<html>
<head>
        <title>unordered list</title>
</head>
<body>
        <h1>Example of unordered list in default</h1>
        <ul>
                <li>Sachin</li>
                <li>Manoj</li>
                <li>Parth</li>
                <li>sujay</li>
                <li>Amraditya</li>
        </ul>
</body>
</html>
```

```
<html>
<head>
	<title>unordered list</title>
</head>
<body>
	<h2>Example of unordered list in circle</h2>
	<ul style="list-style-type:circle;">
		<li>sachin</li>
		<li>manoj</li>
	</ul>
	<h2>Example of unordered list in disk</h2>
	<ul style="list-style-type:disk;">
		<li>Priya</li>
		<li>Mohit</li>
	</ul>
	<h2>Example of unordered list in square</h2>
	<ul style="list-style-type:square;">
		<li>Pinky</li>
		<li>Punam</li>
	</ul>
	<h2>Example of unordered list in none</h2>
	<ul style="list-style-type:none;">
		<li>Mukti</li>
		<li>Dhama</li>
	</ul>
</body>
</html>
```

Description list

Description list is a list in which each term contain its description. This tag contain <dt> and <dd> tag.

<dt></dt>: This tag is used to define the name or term

<dd><dd>: this tag is used to describe the term.

Syntax:<dl> content </dl>

```
<html>
<head>
        <title>Description list</title>
</head>
<body>
        <h2>Example of description list</h2>
        <dl>
                <dt>Python:</dt>
                <dd>It is a programming language</dd>
                <dt>C++:</dt>
                <dd>It is also a programming language</dd>
        </dl>

</body>
</html>
```

HTML <address> Tag

The <address> tag in HTML indicates the contact information of a person or an organization. If <address> tag is used inside the <body> tag then it represents the contact information of the document and if the <address> tag is used inside the <article> tag, then it represents the contact information of the article. The text inside the <address> tag will display in italic format. Some browsers add a line break before and after the address element.

Syntax: <address> Address... </address>

```
<!DOCTYPE html>
<html>
<body>
        <!-- address tag starts from here -->
        <address>
                Organization Name: GeeksforGeeks <br>
                Web Site:
                <a href=
"https://www.geeksforgeeks.org/about/contact-us/">
                GeeksforGeeks</a><br>
                visit us:<br>
                GeeksforGeeks<br>
                710-B, Advant Navis Business Park, <br>
                Sector-142, Noida Uttar Pradesh – 201305
        </address>
        <!-- address tag ends here -->
</body>
</html>
```

Linking in HTML

A link is specified using HTML tag <a>. This tag is called anchor tag and anything between the opening <a> tag and the closing tag becomes part of the link and a user can click that part to reach to the linked document. Following is the simple syntax to use <a> tag.

Link Text

Anchor tag

The HTML **anchor tag** defines a hyperlink that links one page to another page. It can create hyperlink to other web page as well as files, location, or any URL. The "href" attribute is the most important attribute of the HTML a tag. and which links to destination page or URL.

href attribute of HTML anchor tag

The href attribute is used to define the address of the file to be linked. In other words, it points out the destination page.

The syntax of HTML anchor tag is given below.

 Link Text The HTML anchor tag defines a hyperlink that links one page to another page. It can create hyperlink to other web page as well as files, location, or any URL. The "href" attribute is the most important attribute of the HTML a tag. and which links to destination page or URL.

href attribute of HTML anchor tag

The href attribute is used to define the address of the file to be linked. In other words, it points out the destination page.

The syntax of HTML anchor tag is given below.

 Link Text

```
<!DOCTYPE html>
<html>

  <head>
    <title>Hyperlink Example</title>
  </head>

  <body>
    <p>Click following link</p>
    <a href = "https://www.tutorialspoint.com" target = "_self">Tutorials Point</a>
<p><a href=“abc.jpg">Image link</a></p>

  </body>

</html>
```

The target Attribute

We have used **target** attribute in our previous example. This attribute is used to specify the location where linked document is opened. Following are the possible options −

Sr.No	Option & Description
1	**_blank** Opens the linked document in a new window or tab.
2	**_self** Opens the linked document in the same frame.
3	**_parent** Opens the linked document in the parent frame.
4	**_top** Opens the linked document in the full body of the window.
5	**targetframe** Opens the linked document in a named *targetframe*.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Hyperlink Example</title>
    <base href = "https://www.tutorialspoint.com/">
  </head>

  <body>
    <p>Click any of the following links</p>
    <a href = "/html/index.htm" target = "_blank">Opens in New</a> |
    <a href = "/html/index.htm" target = "_self">Opens in Self</a> |
    <a href = "/html/index.htm" target = "_parent">Opens in Parent</a> |
    <a href = "/html/index.htm" target = "_top">Opens in Body</a>
  </body>

</html>
```

links to sections on the same page in HTML

Hyperlinks are utilized by a web browser to move from one page to another. However, you can also move to a different area on the same page. The following sections show users how to link to the top, bottom, or a specific section on a web page. Choose a method from the following list, or explore both options.

```
<html>  <head>    <title>Title of the document</title>
    <style>
    .main-content {
     font-size:40px;
      height: 100vh;
      text-align: justify;
    }    </style>  </head>
  <body>
    <h2 id=“top">Lorem Ipsum</h2>
    <p class="main-content">
      Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum. It is a long established fact that a reader will be distracted by the readable content of a page when looking at its layout. The point of using Lorem Ipsum is that it has a more-or-less normal distribution of letters, as opposed to using 'Content here, content here', making it look like readable English.
    </p>
    <p>Go to the
      <a href="#Lorem_Ipsum">top</a>.
    </p>  </body></html>
```

HTML Table

The HTML tables allow web authors to arrange data like text, images, links, other tables, etc. into rows and columns of cells.

The HTML tables are created using the **<table>** tag in which the **<tr>** tag is used to create table rows and **<td>** tag is used to create data cells. The elements under <td> are regular and left aligned by default. **<th> tag** defines a header cell that can appear in the first row of an HTML table.

```
<!DOCTYPE html>
<html>
<style>
table, th, td {
  border:1px solid black;
}
</style>
<body>

<h2>A basic HTML table</h2>

<table style="width:100%" border="1px solid black";>
 <tr>
  <th>Company</th>
  <th>Contact</th>
  <th>Country</th>
 </tr>
 <tr>
  <td>Alfreds Futterkiste</td>
  <td>Maria Anders</td>
  <td>Germany</td>
 </tr>
 <tr>
  <td>Centro comercial Moctezuma</td>
  <td>Francisco Chang</td>
  <td>Mexico</td>
 </tr>
</table>

<p>To undestand the example better, we have added borders to the table.</p>

</body>
</html>
```

HTML Forms

An **HTML form** is *a section of a document* which contains controls such as text fields, password fields, checkboxes, radio buttons, submit button, menus etc.

An HTML form facilitates the user to enter data that is to be sent to the server for processing such as name, email address, password, phone number, etc. .

HTML forms are required if you want to collect some data from of the site visitor.

For example: If a user want to purchase some items on internet, he/she must fill the form such as shipping address and credit/debit card details so that item can be sent to the given address.

HTML Form Syntax

<form action="server url" method="get|post"**>**

//input controls e.g. textfield, textarea, radiobutton, button

</form>

HTML Form Tags

Tag	Description
<form>	It defines an HTML form to enter inputs by the used side.
<input>	It defines an input control.
<textarea>	It defines a multi-line input control.
<label>	It defines a label for an input element.
<fieldset>	It groups the related element in a form.
<legend>	It defines a caption for a <fieldset> element.
<select>	It defines a drop-down list.
<optgroup>	It defines a group of related options in a drop-down list.
<option>	It defines an option in a drop-down list.
<button>	It defines a clickable button.

The <input> Element

The HTML <input> element is the most used form element.

An <input> element can be displayed in many ways, depending on the type attribute.

Here are some examples:

Type	Description
<input type="text">	Displays a single-line text input field
<input type="radio">	Displays a radio button (for selecting one of many choices)
<input type="checkbox">	Displays a checkbox (for selecting zero or more of many choices)
<input type="submit">	Displays a submit button (for submitting the form)
<input type="button">	Displays a clickable button

Text Fields

The <input type="text"> defines a single-line input field for text input.

```
<form>
  <label for="fname">First name:</label><br>
  <input type="text" id="fname" name="fname"><br>
  <label for="lname">Last name:</label><br>
  <input type="text" id="lname" name="lname">
</form>
```

The <label> Element

The <label> tag defines a label for many form elements.

The <label> element is useful for screen-reader users, because the screen-reader will read out loud the label when the user focus on the input element.

The <label> element also help users who have difficulty clicking on very small regions (such as radio buttons or checkboxes) - because when the user clicks the text within the <label> element, it toggles the radio button/checkbox.

The for attribute of the <label> tag should be equal to the id attribute of the <input> element to bind them together.

Radio Buttons

The <input type="radio"> defines a radio button.
Radio buttons let a user select ONE of a limited number of choices.

```
<p>Choose your favorite Web language:</p>

<form>
  <input type="radio" id="html" name="fav_language" value="HTML">
  <label for="html">HTML</label><br>
  <input type="radio" id="css" name="fav_language" value="CSS">
  <label for="css">CSS</label><br>
  <input type="radio" id="javascript" name="fav_language" value="JavaScript">
  <label for="javascript">JavaScript</label>
</form>
```

Checkboxes

The <input type="checkbox"> defines a checkbox.

Checkboxes let a user select ZERO or MORE options of a limited number of choices.

```
<form>
  <input type="checkbox" id="vehicle1" name="vehicle1" value="Bike">
  <label for="vehicle1"> I have a bike</label><br>
  <input type="checkbox" id="vehicle2" name="vehicle2" value="Car">
  <label for="vehicle2"> I have a car</label><br>
  <input type="checkbox" id="vehicle3" name="vehicle3" value="Boat">
  <label for="vehicle3"> I have a boat</label>
</form>
```

The Submit Button

The <input type="submit"> defines a button for submitting the form data to a form-handler.

The form-handler is typically a file on the server with a script for processing input data.

The form-handler is specified in the form's action attribute. <form action="/action_page.php">

```
  <label for="fname">First name:</label><br>
  <input type="text" id="fname" name="fname" value="John"><br>
  <label for="lname">Last name:</label><br>
  <input type="text" id="lname" name="lname" value="Doe"><br><br>
  <input type="submit" value="Submit">
</form>
```

The Name Attribute for <input>

If the name attribute is omitted, the value of the input field will not be sent at all.

```
<form action="/action_page.php">
  <label for="fname">First name:</label><br>
  <input type="text" id="fname" value="John"><br><br>
  <input type="submit" value="Submit">
</form>
```

media element tags introduced by HTML5

HTML5 introduced 5 most popular media element tags i.e. <audio>, <video>, <source>, <embed>, <track>. This media element tags changed the entire development using HTML.

Media Tags:

<audio>: It is an inline element that is used to embed sound files into a web page.

<video>: It is used to embed video files into a web page.

<source>: It is used to attach multimedia files like audio, video, and pictures.

<embed>: It is used for embedding external applications which are generally multimedia content like audio or video into an HTML document.

<track>: It specifies text tracks for media components audio and video.

<audio> Tag: It is a useful tag if you want to add audio such as songs, or any sound files into your webpage.

Syntax:

```
<audio>
 <source src="sample.mp3" type="audio/mpeg">
</audio>
```

<video>: It is a standard way to embed a video into your web page.

Syntax:

<video src="" controls> </video>

<embed>: It is used as a container for embedding plug-ins such as flash animations.

Syntax:

<embed attributes>

<source>: As you can observe that <audio>, <video> elements contain the <source> element, the <source> tag is used to attach multimedia files.

Syntax:

<source src="" type="">

  ...

</source>

<track>: It is used to specify subtitles, caption files, or different files containing text, that ought to be visible once the media is taking part in it.Thus it is a simple sectors for the <audio> and <video> elements.

Syntax:

<track Attribute>

Canvas Graphics

The HTML <canvas> element is used to draw graphics on a web page.

The graphic to the left is created with <canvas>. It shows four elements: a red rectangle, a gradient rectangle, a multicolor rectangle, and a multicolor text.

The HTML <canvas> element is used to draw graphics via JavaScript.

The <canvas> element is only a container for graphics. You must use JavaScript to actually draw the graphics.

Canvas has several methods for drawing paths, boxes, circles, text, and adding images.

```
<!DOCTYPE html>
<html>
<body>

<canvas id="myCanvas" width="200" height="100" style="border:1px solid #000000;">
Your browser does not support the HTML canvas tag.
</canvas>

</body>
</html>
```

Adding JavaScript

```
<!DOCTYPE html>
<html>
<body>

<canvas id="myCanvas" width="200" height="100" style="border:1px solid #d3d3d3;">
Your browser does not support the HTML canvas tag.</canvas>

<script>
var c = document.getElementById("myCanvas");
var ctx = c.getContext("2d");
ctx.moveTo(0,0);
ctx.lineTo(200,100);
ctx.stroke();
</script>

</body>
</html>
```

HTML SVG

The **HTML SVG** is an acronym which stands for Scalable Vector Graphics. The HTML <svg> element is a container for SVG graphics. SVG has several methods for drawing paths, boxes, circles, text, and graphic images.

```
<!DOCTYPE html>
<html>
<body>
<svg width="100" height="100">
  <circle cx="50" cy="50" r="40"
  stroke="green" stroke-width="4" fill="yellow" />
Sorry, your browser does not support inline SVG.
</svg>
</body>
</html>
```

SVG Star

```
<!DOCTYPE html>
<html>
<body>

<svg width="300" height="200">
  <polygon points="100,10 40,198 190,78 10,78 160,198"
  style="fill:lime;stroke:purple;stroke-width:5;fill-rule:evenodd;" />
Sorry, your browser does not support inline SVG.
</svg>

</body>
</html>
```

Concept of domain name and web hosting