Assignment – 1

1. How Internet Works?

Ans: Internet uses packet switching technique to transmit the data. Thus, the data to be sent is divided into packets and the data is sent in the form of packets only. Internet uses protocols called Internet Protocol (IP) and Transmission Control Protocol (TCP) to tansmit data from one computer to another.

2. How Web Browser Works?

Ans: The browser goes to the Domain Name System server, also known as DNS server, to translate the domain name into an IP address to locate the server where the web site is hosted. then sends a request to the server using the Hypertext Transfer Protocol, also known as HTTP, asking it to send a copy of the website. Usually, a website is a collection of HTML, CSS, JavaScript files, images, and more.
The browser uses a piece of software called a rendering engine to translate the HTML into text and images. So for example, if in the HTML there is a hyperlink for an image, the browser will use that link, or URL, to access the image and display it on the website.

3. What is Server?

Ans: A server is a hardware device or software that processes requests sent over a network and replies to them. A client is the device that submits a request and waits for a response from the server. The computer system that accepts requests for online files and transmits those files to the client is referred to as a "server" in the context of the Internet.

4. What are the types of server available?

Ans: 1.Web Server

2. Database Server

3. Email Server

4. DNS Server

5. File Server

6. FTP Server

7. DHCP Server

8. NTP Server

9. Print Server

10. Cloud Server.

5. What is SEO? Importance of SEO?

Ans: Search Engine Optimization helps in increasing the online visibility of a website in the organic (that means unpaid!) results of a search engine. In modern times, SEO is extremely important as it helps the website grow by optimizing the website content and the keywords.

Importance of SEO:

SEO is important for brands as it's a highly effective way to improve your brand's visibility through search, drive more traffic to your website, establish your brand as a trusted authority in your industry, sustainably and reliably grow your business, and much more.

Web Traffic

To put it simply—if potential customers can't find your website, you miss out on sales opportunities. SEO increases your organic search engine traffic, in turn increasing the number of visitors your website sees each day.

Trustworthy

The better optimized your site is, the higher you'll appear on search engines like Google and Bing. While ranking higher on Google is appealing to all brands because of increased visibility, a secondary benefit is the trust you gain with potential customers.

User Experience

A well-optimized website clearly communicates what product or service is being offered, shows how to obtain it, and answers any questions surrounding it. User experience is a major ranking factor for Google.

Growth

There's no doubt about it—SEO carries a lot of importance for the growth of your brand. As we mentioned above, the higher you rank on a search engine for a variety of high-volume keywords, the more organic (aka non-paid) web traffic your site will receive. It's as simple as that.

6. What is Accessibility?

Ans: When websites and web tools are properly designed and coded, people with disabilities can use them. However, currently many sites and tools are developed with accessibility barriers that make them difficult or impossible for some people to use. a person with a disability is afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and equally integrated manner, with substantially equivalent ease of use.

7. What is Markup Language?

Ans: A markup language is a system of annotating a document to describe its structure and presentation. It uses tags or codes to define elements such as headings, paragraphs, lists, images, links, and more.

8. What is HTML?

Ans: HTML stands for Hyper Text Markup Language. HTML is the standard markup language for creating Web pages. HTML describes the structure of a Web page. HTML consists of a series of elements. HTML elements tell the browser how to display the content.

HTML is the universal markup language for the Web. HTML lets you format text, add graphics, create links, input forms, frames and tables, etc., and save it all in a text file that any browser can read and display.

9. What is browser engine?

Ans: Whenever the user pass some URL from the User Interface the browse engine receives the URL and it sends the request to the networking component which handles the communication with the web server and retrives the HTML document and other resources like images, videos, text, stylesheets, script etc.

10. What is rendering engine? share the available rendering engine?

Ans:A rendering engine is software that draws text and images on the screen. The engine draws structured text from a document (often HTML), and formats it properly based on the given style declarations (often given in CSS).

Rendering engines are like superchargers for websites, making them load faster and smoother. by default it can parse html, xml, and images. It uses different plugins and/or extensions to display other type of data such as flash, PDF, etc.

11. What is JavaScript Engine? Share the available JavaScript Engine?Purpose of JS Engine?

JavaScript is a scripting language and is not directly understood by computer but the browsers have inbuilt JavaScript engine which help them to understand and interpret JavaScript codes. These engines help to convert our JavaScript program into computer-understandable language.

- V8 from Google is the most used JavaScript engine. Google Chrome and the many other Chromium-based browsers use it, as do applications built with CEF, Electron, or any other framework that embeds Chromium. Other uses include the Node. js and Deno runtime systems.

Purpose of JS Engine's are:

1. JavaScript is a scripting language used to develop web pages.
2. Developed in Netscape.
3. JS allows developers to create a dynamic and interactive web page to interact with visitors and execute complex actions.
4. It also enables users to load content into a document without reloading the entire page.

12. How website works?

Ans: A user requests a website by entering the URL or clicking a link. A server processes the request and retrieves the necessary files and data. The server sends the data back to the user's browser.

Clients can request resources from a server on the internet using HTTP requests. The contents of the website are then transmitted to the user.

13. What is Data Structure?

Ans: A data structure is a format for organizing, processing, retrieving and storing data so it can be easily accessed and effectively used.

Data structures are essential for two main reasons: they make the code more efficient, and they make the code easier to understand. When it comes to efficiency, data structures help the computer to run the code faster by organizing the data in a way that is easy for the computer to process.

14. Explain the Tree Data structure?

Ans: Tree data structure is a non-linear data structure because it does not store in a sequential manner. It is a hierarchical structure as elements in a Tree are arranged in multiple levels. In the Tree data structure, the topmost node is known as a root node. Each node contains some data, and data can be of any type.

15. What is user agent? Share the list and it's purpose?

Ans: The User-Agent (UA) string is contained in the HTTP headers and is intended to identify devices requesting online content. The User-Agent tells the server what the visiting device is (among many other things) and this information can be used to determine what content to return.

User Agent list's are:

- **Android**
- **Iphone**
- **Windows**
- **Tablets**
- **Desktops**
- **Firefox**
- **Microsoft Edge**
- **Opera**
- **Web browser**

Purpose:

On the Web, a user agent is a software agent responsible for retrieving and facilitating end-user interaction with Web content.

16. What is Hypertext?

Ans: Hypertext is a method of structuring and linking digital documents, allowing users to quickly and easily navigate between related pieces of information.

It acts as a backbone of WWW (World Wide Web) and allows users to jump from one piece of information to another related piece of information. The jump

can be within the same document or to a completely different document that user wants to know about.

17. What is HTML Tags?

Ans: HTML is primarily used to develop web pages and web applications that run on web browsers like Chrome, Firefox, and Internet Explorer. HTML tags are keywords present on a web page that define how your web browser must format and display the contentsust format and display the contents.

Basic HTML Tags are:

Head Tag :

The head tag <head> contains all the elements describing the document.

Title Tag :

The title tag <title> specifies the HTML page title, which is shown in the browser's title bar.

Body Tag :

The body tag <body> is where you insert your web page's content.

Paragraph Tag :

A paragraph tag <p> is used to define a paragraph on a web page.

Heading Tag :

The HTML heading tag is used to define the heading of the HTML document. The <h1> tag defines the most important tag, and <h6> defines the least.

18. What is HTML Attributes?

Ans: 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.

19. What is HTML Elements?

Ans. Elements are the building blocks of HTML that describe the structure and content of a web page. They are the "Markup" part of HyperText Markup Language (HTML). HTML syntax uses the angle brackets (">" and ">") to hold the name of an HTML element.

20. How to convert elements into tree?

Ans. We will insert the first element present in the array as the root node at level 0 in the tree and start traversing the array and for every node, we will insert both children left and right in the tree.

21. What is DOCTYPE?

Ans: All HTML documents must start with a <!DOCTYPE> declaration. The declaration is not an HTML tag. It is an "information" to the browser about what document type to expect.

22. What are the ways we can save the html file?

Ans:

- Navigate to the web page, right-click on the page and select Save as...
- Select or create a new folder to save the file, images, and associated items from the web page.
- Enter a file name and select Webpage, Complete (*. htm;*html) for the Save as type.
- Click the Save button.

23. What is charset? Why we need to use this?

Ans: The charset attribute specifies the character encoding for the HTML document. The HTML5 specification encourages web developers to use the UTF-8 character set, which covers almost all of the characters and symbols in the world!.

Meta charset="utf-8" is an HTML tag that makes it possible to use emojis and other characters that aren't in the traditional ASCII character set on your webpage. If you don't use the tag, then you will need to look up HTML entities to manually insert an emoji or other character.

24. What is meta data? What is the purpose of it?

Ans: Metadata is data (information) about data. <meta> tags always go inside the <head> element, and are typically used to specify character set, page description, keywords, author of the document, and viewport settings.

Meta tags in HTML serve as important pieces of information for search engines. They are used to HTML elements and communicate the content of a

website for search engines. Website metadata includes page titles, descriptions, keywords, and more to help search engines crawl and rank web pages.

25. Explain the web application architecture?

Ans: Web application architecture defines the interactions between applications, middleware systems and databases to ensure multiple applications can work together. When a user types in a URL and taps "Go," the browser will find the Internet-facing computer the website lives on and requests that particular page.