1. How does the internet work?

An internet is a huge network of networks that helps us to connect millions of computers together. These computers that are connected to each other through the internet can interact with each other over the internet.The Internet operates on a technique called packet switching. In packet switching, the data that is transferred among the different computers on the internet are transmitted in the form of packets. These packets contain information about the error control mechanisms, the address of the destination, and also the sequence in which the packets are to be transmitted.
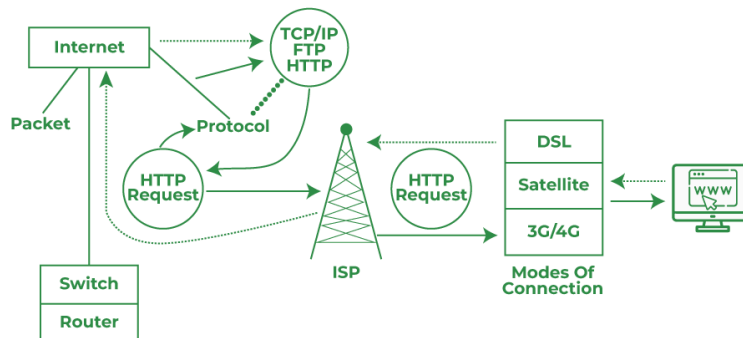
2. How does the browser work ?

A browser is a software application used to locate, retrieve and display content on the World Wide Web, including Web pages, images, video and other files. As a client/server model, the browser is the client run on a computer that contacts the Web server and requests information. The Web server sends the information back to the Web browser which displays the results on the computer or other Internet-enabled device that supports a browser.
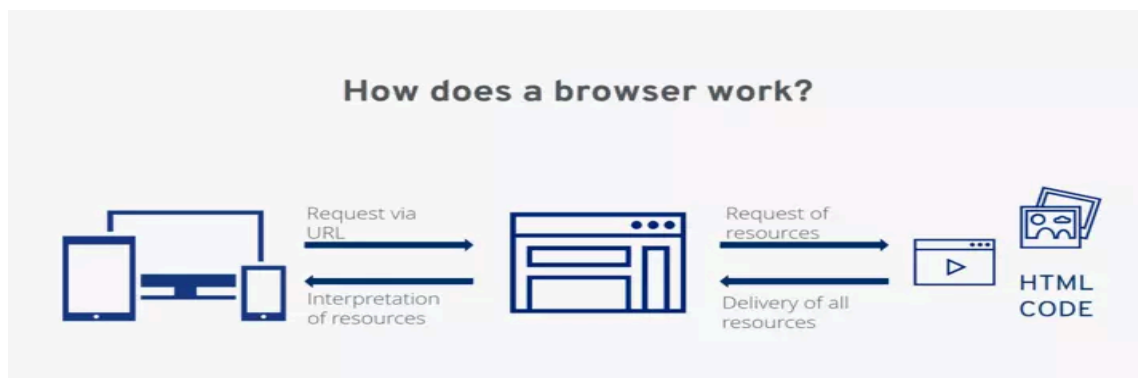
3.what is server?

A server is a computer or system that provides resources, data, services, or programs to other computers, known as clients, over a network. In theory, whenever computers share resources with client machines they are considered servers. There are many types of servers, including web servers, mail servers, and virtual servers.

4. What are the types of servers?

There are many types of servers that all perform different functions. Many networks contain one or more of the common server types:

File servers

File servers store and distribute files. Multiple clients or users may share files stored on a server. n. File server hardware can be designed to maximize read and write speeds to improve performance.

Print servers

Print servers allow for the management and distribution of printing functionality. Rather than attaching a printer to every workstation, a single print server can respond to printing requests from numerous clients.

Application servers

Application servers run applications in lieu of client computers running applications locally. Application servers often run resource-intensive applications that are shared by a large number of users.

DNS servers

The DNS system is a widely distributed database of names and other DNS servers, each of which can be used to request an otherwise unknown computer name. When a client needs the address of a system, it sends a DNS request with the name of the desired resource to a DNS server.

Web servers

Web servers respond to requests from browsers running on client computers for web pages, or other web-based services. Common web servers include Apache web servers, Microsoft Internet Information Services (IIS) servers and Nginx servers.

Database servers

The amount of data used by companies, users, and other services is staggering. Much of that data is stored in databases. Databases need to be accessible to multiple clients at any given time and can require extraordinary amounts of disk space.

Virtual servers

The virtual server uses the virtual hardware as usual, and the hypervisor passes the actual computation and storage needs onto the real hardware beneath, which is shared among all the other virtual servers.

5. What is SEO? What is the importance of SEO?

SEO stands for "search engine optimization." It's the practice of increasing both the quality and quantity of website traffic, as well as exposure to your brand, through non-paid (also known as "organic") search engine results.

Why Is SEO Important?

SEO is important because it can help you get free targeted traffic from search engines. Search engines serve billions of users per day and if you want to get a portion of the traffic, your website should appear in the top positions for related searches.

SEO is important because:

Enhance User Experience (UX) –

Build Credibility With Users –

SEO Is Good For The Social Promotion of Your Website –.

SEO Is Important For The Smooth Running of a Big Website –

SEO Can Put You Ahead of The Competition –

6.what is accessibility?

Web accessibility is the process of designing your webpage to be accessible for all users, including those with disabilities, impairments, and restrictions. Creating a webpage that is accessible to all users involves the practice of implementing features that allow them to have the same experience that someone without limitations will have; this ensures that your content is accessible by all.

7.what is markup language?

To properly define this term — a markup language is a language that annotates text so that the computer can manipulate that text. Most markup languages are human-readable because the annotations are written in a way to distinguish them from the text itself. For example, with HTML, XML, and XHTML, the markup tags are < and > Any text that appears within one of those characters is considered part of the markup language and not part of the annotated text.

8.what is HTML?

Hypertext: text (often with embeds such as images, too) that is organized in order to connect related items

Markup: a style guide for typesetting anything to be printed in hardcopy or soft copy format

Language: a language that a computer system understands and uses to interpret commands.

HTML determines the structure of web pages. This structure alone is not enough to make a web page look good and interactive. So you'll use assisted technologies such as CSS and JavaScript to make your HTML beautiful and add interactivity, respectively.

9.what is the browser engine?

A web browser is a software application that lets you explore the internet. It retrieves and displays web pages, images, videos, and other content from web servers. Each piece of content has a unique address called a URL (Uniform Resource Locator), which tells the browse

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

A browser's rendering engine interprets the visual elements of a web page and displays them correctly, following the developer's intentions. It inputs HTML and CSS files and presents them accurately on the screen. Rendering engines are often called layout engines because they functionally read CSS files

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

The JavaScript Engine is an open-source computer program whose responsibility is to execute/run JavaScript. There are a lot of steps involved in executing the JavaScript Engine, but essentially executing JavaScript code is what an engine does. All modern browsers have their own version of the JavaScript Engine. But Google's V8 Engine is the most popular JavaScript Engine.

list of JavaScript Engines for major Internet browsers:

1. **V8** – JavaScript Engine developed by Google for Chrome
2. **SpiderMonkey** – The JavaScript Engine used by Mozilla Firefox
3. **JavaScriptCore** – Developed by Apple for Safari
4. **Rhino** – Managed by Mozilla Foundation for Firefox
5. **Chakra** – A JavaScript Engine for Microsoft Edge
6. **JerryScript** – A JavaScript Engine employed for the Internet of Things (IoT).

12. How does the website work?

A website is a collection of interlinked web pages accessed via the Internet. It delivers information, entertainment, or services to users through a web browser on computers or mobile devices

Once a visitor types your domain name into their browser's address bar, their computer sends a request to connect to the web server keeping your files. Before reaching the web server, the request passes through the DNS, which looks up the server's IP address

13. What is Data Structure?

A data structure is a group of data elements that provides the most straightforward way to store and perform various operations on computer data. A data structure is an effective technique to arrange data in a computer. The goal is to simplify various chores regarding space and time requirements.
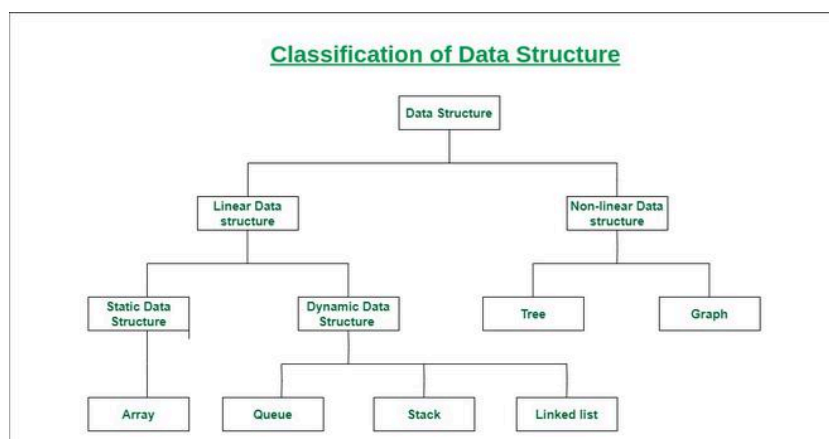
14. Explain Tree Data Structure?

A tree is a non-linear abstract data type with a hierarchy-based structure. It consists of nodes (where the data is stored) that are connected via links. The tree data structure stems from a single node called a root node and has subtrees connected to the root.

Path − Path refers to the sequence of nodes along the edges of a tree.
Root − The node at the top of the tree is called root. There is only one root per tree and one path from the root node to any node.
Parent − Any node except the root node has one edge upward to a node called parent.

Child − The node below a given node connected by its edge downward is called its child node.

Leaf − The node which does not have any child node is called the leaf node.

Subtree − Subtree represents the descendants of a node.

Visiting − Visiting refers to checking the value of a node when control is on the node.

Traversing − Traversing means passing through nodes in a specific order.

Levels − Level of a node represents the generation of a node. If the root node is at level 0, then its next child node is at level 1, its grandchild is at level 2, and so on.

Keys − Key represents a value of a node based on which a search operation is to be carried out for a node.
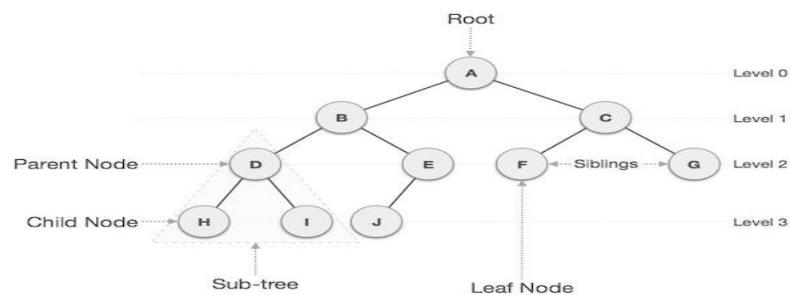
15. What is a user agent? share the list and its purpose?

A user agent is a piece of software that retrieves, renders, and facilitates interaction between end users and website content. Its role is to be the mediator that communicates end-user requests to the server.

Purpose of User Agents:

1. Content Negotiation: Servers use the user agent string to determine the capabilities of the client (such as browser type, version, operating system) to provide content that is compatible and optimized for that client.

2. Browser Compatibility: Websites may adjust their layout, features, or functionality based on the user agent to ensure a consistent and user-friendly experience across different browsers and devices.

 3. Analytics and Logging: User agent strings can be used by website administrators for analytics purposes to track browser usage statistics, device types, and operating systems of visitors.

4. Security: User agents can also play a role in security, helping servers identify potentially malicious requests or patterns based on unusual or unexpected user agents.

16. What is Hypertest?

Hypertext refers to a word, phrase or chunk of text that can be linked to another document or text. Hypertext covers both textual hyperlinks and graphical ones it is one of the key concepts that makes the Internet work. Without hypertext, following a link on a topic to a related article on that topic – one of the primary means of navigating the Web – would be impossible.

17. What are HTML Tags?

HTML tags are the keywords on a web page that define how your web browser must format and display your web page.Almost all tags contain two parts, an opening, and a closing tag. For example, <html> is the opening tag and </html> is the closing tag. Note that the closing tag has the same text as the opening tag, but has an additional forward-slash (/) character. There are a total of 100 HTML tags. We will divide them into categories and discuss the important ones in this article.

Here's a list of some essential HTML tags and their functions:

- **<!DOCTYPE html>**: Declares the HTML version.
- **<html>**: Wraps the entire HTML document.
- **<head>**: Contains metadata like title, character set, styles, and scripts.
- **<title>**: Sets the document title.
- **<body>**: Contains the main content of the HTML document.
- **<h1> to <h6>**: Define headings, where <h1> is the largest and <h6> is the smallest.
- **<p>**: Represents paragraphs of text.
- **<a>**: Creates hyperlinks, linking to another document or resource.
- **<img>**: Embeds images.
- ** and **: Define unordered and ordered lists.
- **<li>**: Represents list items within <ul> or <ol>.
- **<div>**: Groups content for styling or layout purposes.
- **<span>**: Applies styles to inline elements.
- **
**: Inserts a line break within text.
- **<hr>**: Represents a horizontal rule or line.
- **<strong> and <em>**: Emphasise text with strong and emphasised importance, respectively.
- **<input>**: Creates input fields for forms.

- **<form>**: Wraps form elements for user input.

- **<table>, <tr>, <td>, <th>**: Constructs tables, rows, and cells for tabular data.

- **<iframe>**: Embeds external content, like a webpage or video, within the current document.

18. What is HTML Attributes?

HTML attributes are special words used inside the opening tag to control the element's behaviour. HTML attributes are a modifier of a *HTML element type*. An attribute either modifies the default functionality of an element type or provides functionality to certain element types unable to function correctly without them. In HTML syntax, an attribute is added to a *HTML start tag*

Attribute	Description
alt	Specifies an alternative text for an image
disabled	Specifies that an input element should be disabled
href	Specifies the URL (web address) for a link
id	Specifies a unique id for an element
src	Specifies the URL (web address) for an image
style	Specifies an inline CSS style for an element
title	Specifies extra information about an element (displayed as a tool tip)
value	Specifies the value (text content) for an input element.

19. What is HTML Elements?

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. Although HTML can be used to provide formatting instructions, HTML standards strongly encourage using CSS for this purpose instead.

20. How do convert elements to tree?

Converting elements into a tree structure typically involves defining a hierarchical relationship among the elements. Here's a general approach to convert elements (presumably data elements) into a tree:

1. **Define the Tree Structure:**
   - Decide on the structure of your tree. A tree consists of nodes where each node can have children (sub-nodes). Typically, you have a root node from which all other nodes stem.
2. **Identify Parent-Child Relationships:**
   - Determine how each element relates to others. For example, in a file system, folders can contain files and other folders, establishing a parent-child relationship.
3. **Choose a Representation:**
   - Decide how to represent nodes and relationships. This could be through classes (if using object-oriented programming) or data structures like dictionaries or arrays.
4. **Implement the Tree Construction:**
   - Depending on your chosen representation, construct the tree. Start with the root node and recursively or iteratively add child nodes as per their relationships.

21. What is DOCTYPE?

   1. DOCTYPE is the first piece of code to write in HTML5 to inform a browser that the document being rendered is an HTML document.

   2. <!doctype html>, <!Doctype HTML> or <!DOCTYPE HTML> all are the same because the doctype keyword is **not** case-sensitive.

   3. *Is DOCTYPE declaration considered as HTML Tag?*

      Ans — The declaration is not an HTML tag. It is "information" to the browser about what document type to expect.

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

   - On the main menu, click **File > Save**.
   - On the HTML editor toolbar, click the **Save** icon .
   - Press CTRL+S.
   - Right-click within the HTML document, click **File > Save**

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

HTML Charset is also called HTML Character Sets or HTML Encoding. It is used to display an HTML page properly and correctly because for displaying anything correctly, a web browser must know which character set (character encoding) to use.

It is also important in html forms because when you input text into text boxes on sites or social media platforms, it has to be encoded carefully. If this information is unavailable for any reason, the incorrect mapping could lead to the loss of vital information.

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

Metadata is defined as the information that describes and explains data. It provides context with details such as the source, type, owner, and relationships to other data sets. So, it can help you understand the relevance of a particular data set and guide you on how to use it. In a nutshell: Metadata is a cornerstone of a modern enterprise data stack.

The use of metadata on web pages can be very important. The metadata contains descriptions of the page's contents, as well as keywords linked to the content. This metadata is often displayed in search results by search engines, meaning its accuracy and details could influence whether or not a user decides to visit a site. This information is usually expressed in the form of meta tags.

25. Explain Web Application Architecture

A **web application architecture** is a model of interaction between web application components. The specific kind of architecture for web applications strictly depends on the way application logic will be allocated among client and server sides.

 a web application architecture comprises three core components:

1) Web Browser: The browser, client-side, or front-end component is the key component that interacts with the user, receives the input, and manages the presentation logic while controlling user interactions with the application. User inputs are validated as well if required.

2) Web Server: The web server, also known as the backend or server-side component, handles the business logic and processes the user requests by routing the requests to the right component and managing the entire application operations. It can run and oversee requests from a wide variety of clients.

3) Database Server: The database server provides the required data for the application. It handles data-related tasks. In a multi-tiered architecture, database servers can manage business logic with the help of stored procedures.