

1. How internet works?

- The Internet is a vast, sprawling collection of networks that connect to each other. In fact, the word "Internet" could be said to come from this concept: *interconnected networks*.
- Since computers connect to each other within networks and these networks also all connect with each other, one computer can talk to another computer in a faraway network thanks to the Internet. This makes it possible to rapidly exchange information between computers across the world.
- Computers connect to each other and to the Internet via wires, cables, radio waves, and other types of networking infrastructure. All data sent over the Internet is translated into pulses of light or electricity, also called "bits," and then interpreted by the receiving computer. The wires, cables, and radio waves conduct these bits at the speed of light. The more bits that can pass over these wires and cables at once, the faster the Internet works.

2. How browser works?

- User Input: You type a web address (URL) or click on a link.
- Request: The browser sends a request to the web server where the website is hosted.
- Server Response: The server sends back the web page data.
- Rendering: The browser interprets the data (HTML, CSS, JavaScript) and displays the web page on your screen.
- Interaction: You can interact with the web page by clicking links, filling out forms, etc.
- Repeat: This process repeats for each new page you visit or interact with.

Behind the scenes, the browser handles details like converting the URL into an IP address, managing cookies, and ensuring security. But at a basic level, it's about requesting, receiving, and displaying web pages for you to use.

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.

Resource Provider: A server is like a specialized computer that stores data, files, or applications that other computers can access.

Service Provider: It offers specific services or functions, such as hosting websites, storing files, handling email, or running applications.

Communication Hub: Servers respond to requests from clients (like your computer or smartphone) by sending back the requested data or performing the requested action.

4. what are the types of server available?

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,

- web servers,
- mail servers,
- virtual servers
- print server

- File server
- Application server
- Dns server
- Database server
- Blade server

5. What is SEO? Importance of SEO?

SEO stands for “search engine optimization.”

In simple terms, SEO means the process of improving your website to increase its visibility in Google, Microsoft Bing, and other search engines whenever people search for:

- Products you sell.
- Services you provide.
- Information on topics in which you have deep expertise and/or experience.

The better visibility your pages have in search results, the more likely you are to be found and clicked on.

Ultimately, the goal of search engine optimization is to help attract website visitors who will become customers, clients or an audience that keeps coming back.

Importance:

- SEO is a critical marketing channel. First, and foremost: organic search delivers 53% of all website traffic.
- SEO is also incredibly important because the search engine results pages (or SERPs) are super competitive – filled with search features (and PPC ads).
- SERP features include:
 1. Featured snippets.
 2. Maps.
 3. Images.
 4. Videos.
 5. Top stories (news).
 6. People Also Ask.
 7. Carousels.

6. What is Accessibility?

The Web is an increasingly important resource in many aspects of life: education, employment, government, commerce, health care, recreation, and more.

It is essential that the Web be accessible in order to provide equal access and equal opportunity to people with diverse abilities, accessibility means that websites, tools, and technologies are designed and developed so that people with disabilities can use them.

More specifically, people can:

perceive, understand, navigate, and interact with the Web

- contribute to the Web

Web accessibility encompasses all disabilities that affect access to the Web, including:

- physical
- speech
- visual

7. What is Markup Language?

A markup language is a set of rules that defines how the layout and presentation of text and images should appear in a digital document. It allows structuring documents, adding formatting, and specifying how different elements should be displayed (or “rendered”) on webpages.

Formatting Instructions: Markup languages use tags or codes embedded within text to define how it should appear or behave.

Structure: They organize content into sections, headings, paragraphs, lists, and other elements to make it readable and structured.

Markup languages are essential for defining the layout, styling, and functionality of documents or data, making them understandable and usable by software and humans alike.

8. What is HTML?

- HTML stands for HyperText Markup Language. It is the standard language used to create and design web pages on the internet.
- HTML is a combination of Hypertext and Markup language.
- Hypertext defines the link between the web pages and Markup language defines the text document within the tag.
- Web browsers use HTML to interpret and display web pages correctly for users.

9. What is browser engine?

- A browser engine (also known as a layout engine or rendering engine) is a core software component of every major web browser.
- The primary job of a browser engine is to transform HTML documents and other resources of a web page into an interactive visual representation on a user's device.

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

Rendering Engine. As the name suggests, this component is responsible for rendering a specific web page requested by the user on their screen. It interprets HTML and XML documents along with images that are styled or formatted using CSS, and a final layout is generated, which is displayed on the user interface.

available rendering engine are,

Blink: Google's Blink engine is part of the Chromium project and is used in all Chromium-based browsers, including Microsoft Edge and non-Chromium browsers like Opera.

WebKit: The rendering engine developed by Apple and used in their devices, including iPhones, is WebKit.

Gecko: Gecko is an open-source rendering engine developed by Mozilla that powers the Firefox browser. It is known for its adherence to web standards and strict compatibility with various web technologies.

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

A JavaScript engine is a software component that executes JavaScript code. The first JavaScript engines were mere interpreters, but all relevant modern engines use just-in-time compilation for improved performance. JavaScript engines are typically developed by web browser vendors, and every major browser has one.

- Chrome

- Firefox
- E-browser
- Safari

12. How website works?

Computers connected to the internet are called **clients** and **servers**. A simplified diagram of how they interact might look like this:

- Clients are the typical web user's internet-connected devices (for example, your computer connected to your Wi-Fi, or your phone connected to your mobile network) and web-accessing software available on those devices (usually a web browser like Firefox or Chrome).
- Servers are computers that store webpages, sites, or apps. When a client device wants to access a webpage, a copy of the webpage is downloaded from the server onto the client machine to be displayed in the user's web browser.

13. What is Data Structure?

A data structure is a specialized format for organizing, processing, retrieving and storing data. There are several basic and advanced types of data structures, all designed to arrange data to suit a specific purpose. Data structures make it easy for users to access and work with the data they need in appropriate ways.

14. Explain Tree Data Structure?

Tree data structure is a specialized data structure to store data in hierarchical manner. It is used to organize and store data in the computer to be used more effectively. It consists of a central node, structural nodes, and sub-nodes, which are connected via edges.

A tree data structure is defined as a collection of objects or entities known as nodes that are linked together to represent or simulate hierarchy. A tree data structure is a non-linear data structure because it does not store in a sequential manner.

15. What is user agent? share the list and its purpose?

The user agent information included in HTTP requests tells the server what type of application is sending the request, what operating system is being used, and what versions of the software involved are in play. This information is crucial to ensure that the correct data is sent in a compatible format.

Firefox: The user agent string of a Firefox browser typically begins with "**Mozilla/5.0**" followed by details of the platform and the version of its rendering engine, Gecko.

Chrome: ChromeBrowser also share the introductory "**Mozilla/5.0**" token, but add specific details about their rendering engine Blink.

Opera: Opera, known for its innovative approach, uses a similar structure to Chrome, but adds the "**OPR**" indicator to differentiate yourself.

Edge: The Microsoft Edge Browser which is based on the Blink engine, uses the "**Edg**" token in its user agent string to differentiate itself from other browsers.

16. What is Hypertest?

HyperTest tests a user-flow, across the sequence of steps an actual user will take in using the application via its API calls.

HyperTest is a no-code test automation tool that regresses all your APIs by auto-generating integration tests using your network traffic, also giving a way to reproduce these failures inside actual user-journeys.

17. What is HTML Tags?

HTML tags are used to define the structure and content of an HTML document. They enclose content and determine the type of element represented.

For example,

- `<p>` tags indicate a paragraph element,
- `<div>` tags define a division or container
- `<a>` tags create hyperlinks.

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.
- Example,
- `id` attribute specifies a unique id for an HTML element. The value of the `id` attribute must be unique within the HTML document.

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 represent visible components on a web page, such as text, images, or buttons, while others denote different sections of the page or provide meta-information about the document. In the code itself, HTML elements are created with tags.

20. How do convert elements to tree?

Using Nested Lists: Use `` (unordered list) and `` (list item) elements to create a hierarchical tree structure:

```
<ul>
```

```
  <li>Root
```

```
    <ul>
```

```
      <li>Child 1</li>
```

```
      <li>Child 2</li>
```

```
      <li>Child 3
```

```
        <ul>
```

```
          <li>Grandchild 1</li>
```

```
          <li>Grandchild 2</li>
```


Using Nested <div> Elements: Use nested <div> elements with CSS for styling to visually represent a tree structure:

```
<div class="tree">
```

```
  <div>Root
```

```
    <div>Child 1</div>
```

```
    <div>Child 2</div>
```

```
    <div>Child 3
```

```
      <div>Grandchild 1</div>
```

```
      <div>Grandchild 2</div>
```

```
    </div>
```

```
  </div>
```

```
</div>
```

Using <table> (for tabular data with hierarchy): Use <table>, <tr> (table row), and <td> (table data) elements to represent hierarchical data in a tabular format.

21. What is DOCTYPE?

is to specify the version of HTML being used in the document and to ensure that the browser renders the webpage in standards mode. The doctype declaration is placed at the very beginning of an HTML document, before the `` tag.

The <!DOCTYPE> declaration represents the document type, and helps browsers to display web pages correctly. It must only appear once, at the top of the page (before any HTML tags). The <!DOCTYPE> declaration is not case sensitive.

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

Navigate to the web page and

1. select File, Save Page As... or right-click and select Save Page As... Select or create a new folder to save the file, images, and associated items from the web page.
2. Enter a file name and select Web Page, complete (*. htm;*.)

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

charset = character set utf-8 is character encoding capable of encoding all characters on the web. It replaced ascii as the default character encoding. Because it is the default all modern browsers will use utf-8 without being explicitly told to do so. It remains in meta data as a common good practice.

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!

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.

Metadata helps to identify, locate, and classify books, DVDs, magazines, and other objects in the library's collection

25. Explain Web Application Architecture?

The web application architecture is a structural design that explains the interconnection between various components such as applications, databases, and middleware systems and their interaction with each other. It helps establish a communication channel between the server and the client.

Website architecture is the hierarchical structure of your website pages. This structure is reflected through internal linking. Your website's structure should help users easily find information and help search engine crawlers understand the relationship between different pages