

WEB TECHNOLOGY ASSIGNMENT

1.How does the Internet work?

The Internet is a network of networks. It works by using a technique called packet switching, and by relying on standardized networking protocols that all computers can interpret.

2. How does a browser work?

A web browser is software that retrieves and displays content from the World Wide Web. It interprets HTML, CSS, and JavaScript to render web pages as users interact with them. Browsers also manage user input, cookies, and cache to enhance user experience.

□ User Interface (UI):

The browser's user interface includes elements like the address bar, back/forward buttons, bookmarks menu, and other controls. It allows users to navigate the web and interact with browser features.

□ Browser Engine:

At the core of a browser is the browser engine, which manages the rendering of content on web pages. It interprets HTML and CSS code to display the content visually on the screen.

3.What is a Server?

- ❖ A server is a computer program or device that provides a service to another computer program and its user, also known as the client. In a data center, the physical computer that a server program runs on is also frequently referred to as a server. That machine might be a dedicated server or it might be used for other purposes.
- ❖ In the client/server programming model, a server program awaits and fulfills requests from client programs, which might be running in the same, or other computers. A given application in a computer might function as a client with requests for services from other programs and as a server of requests from other programs.

4. What are the types of servers available?

Servers can be categorized based on their function:

- **Web Server:** Hosts websites and serves web pages (e.g., Apache, Nginx).
- **Database Server:** Manages and provides access to databases (e.g., MySQL, PostgreSQL).
- **File Server:** Stores and manages files for network users (e.g., FTP servers).
- **Application Server:** Handles application operations and transactions (e.g., Tomcat, JBoss).

- **Mail Server:** Manages email communication (e.g., Exchange Server, Postfix).

5. What is SEO? Importance of SEO?

Search engine optimization (SEO) is the process of optimizing a business's website content, structure, and overall online presence. To improve its organic (unpaid) visibility in search engine results pages.

Importance of SEO:

SEO is important because it can improve your organic visibility in search engine results pages. Which can translate to more brand awareness and website traffic. Which ultimately leads to more sales.

- ✓ Better User Experience
- ✓ Builds Credibility and Trust
- ✓ Cost-Effective Marketing
- ✓ Long-term Results
- ✓ Targeted Traffic
- ✓ Competitive Advantage

6.What is Accessibility?

- The term accessibility describes something that can be accessed, entered, or reached with little or no obstacles. With computers, accessibility features allow those with disabilities to use the computer through assistive technologies.
- Developers may design computer software, websites, and other technologies to be more accessible to benefit all users. For example, a developer may think about those with poor eyesight when deciding on a font size, and choose a size that helps all users read.

7. What is Markup Language?

A markup language is a set of markup tags used to define the structure and presentation of text and other content on web pages. HTML (HyperText Markup Language) is the most common markup language used to create web pages.

8. What is HTML?

- 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 elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.

EXAMPLE:

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

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

OUTPUT:

My First Heading

My first paragraph.

9. What is a 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 a Rendering Engine? Share available rendering engines.

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.

- ✓ Google Chrome and Opera v.15+: **Blink**
- ✓ Internet Explorer: **Trident**
- ✓ Mozilla Firefox: **Gecko**
- ✓ Chrome for iOS and Safari: **WebKit**

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

- A JavaScript engine is a computer program that executes JavaScript code and converts it into computer understandable language.
- **List of JavaScript Engines:**

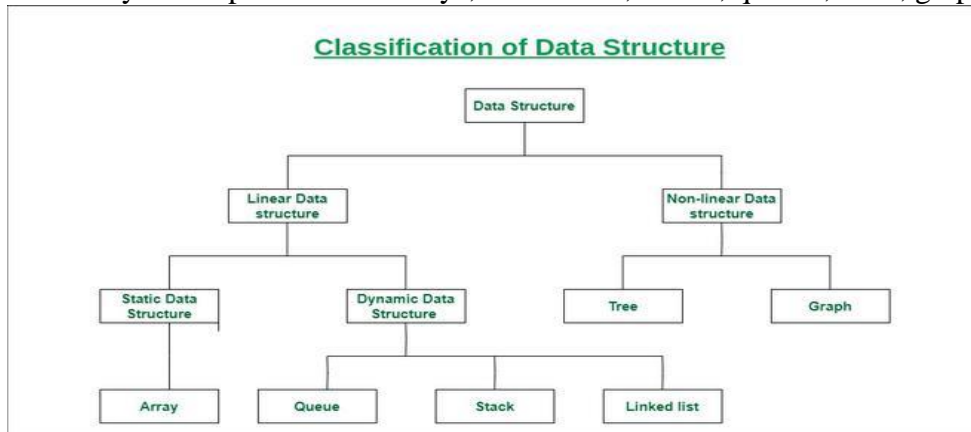
Browser	Name of Javascript Engine
Google Chrome	V8
Edge (Internet Explorer)	Chakra
Mozilla Firefox	Spider Monkey
Safari	Javascript Core Webkit

12.How does a 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 webserver keeping your files. Before reaching the web server, the request passes through the DNS, which looks up the server's IP address.

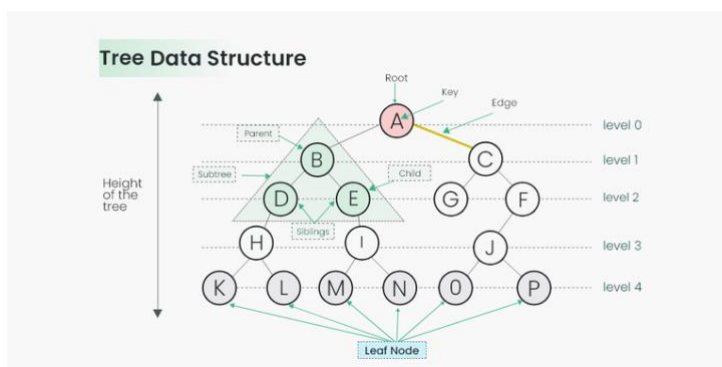
13. What is Data Structure?

A data structure is a way of organizing and storing data so that it can be accessed and used efficiently. Examples include arrays, linked lists, stacks, queues, trees, graphs, etc.



14. Explain Tree Data Structure.

Tree Data Structure is a non-linear data structure in which a collection of elements known as nodes are connected to each other via edges such that there exists exactly one path between any two nodes.



15. What is a User Agent? Share the list and its purpose?

A user agent is a string of text that is sent by a web browser to a web server to identify itself and provide information about the browser's capabilities. The User Agent string can include information such as the browser type and version, the operating system, and the device type.

- **Web browsers**
- **Mobile apps**
- **Desktop applications**
- **Bots and crawlers**
- **Internet of Things (IoT) devices**

16. What is Hypertext?

Hypertext is text displayed on a computer or other electronic device with references (hyperlinks) to other text that the reader can immediately access.

17. What are HTML Tags?

HTML (HyperText Markup Language) is the standard markup language used to create the structure and layout of web pages. HTML documents consist of a series of elements, and these elements are defined using HTML tags.



18. What are HTML Attributes?

- All HTML elements can have **attributes**
- Attributes provide **additional information** about elements
- Attributes are always specified in **the start tag**
- Attributes usually come in name/value pairs like: **name="value"**

19. What are HTML Elements?

An **HTML Element** is a collection of start and end tags with the content inserted between them. HTML elements are building blocks of web pages, representing different types of content such as **headings, paragraphs, links, and images**.

Syntax:

```
<tagname > Contents... </tagname>
```

20. How do you convert elements to a tree?

A tree view represents a hierarchical view of information, where each item can have a number of subitems.

Click on the arrow(s) to open or close the tree branches.

21. What is a DOCTYPE?

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 an HTML file?

HTML files can be saved in various ways:

- **Locally on a computer:** Save from a text editor or browser.
- **Remotely on a server:** Upload via FTP or file manager in a hosting service.

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

Charset (character set) specifies the encoding standard used to represent characters in an HTML document. It ensures that text is displayed correctly, especially when dealing with international characters and different languages.

24. What is metadata? What is its purpose?

Metadata provides information about other data. In the context of web pages, metadata includes tags in the <head> section of HTML documents that describe the page's content, keywords, authorship, etc. It helps search engines and browsers understand and categorize the page.

25.Explain Web Application Architecture.

Web Application Architecture refers to the structure or framework of a web application. It typically includes:

- **Client-side:** User interface and interaction (HTML, CSS, JavaScript).
- **Server-side:** Processing logic, database operations (application servers, databases).
- **Networking:** Communication protocols (HTTP, WebSocket).
- **Data storage:** Persistence layers (databases, file systems).

Architectures can vary from simple client-server setups to more complex models like MVC (Model-View-Controller) or microservices architectures.