

1. What is World Wide Web?
 - A. World Wide Web is a global information system consisting of web pages linked with each other using hyperlinks. By using these links, we can navigate from one page on a website to another. This linking of web pages creates the effect of an infinite web of information that we navigate daily.
2. Explain the functional differences between web application's front end and back end.
 - A. Front End:
 - Front End of a website is that part of the website with which the user interacts directly and has a visual appearance.
 - It is also known as the presentation layer.
 - It is built using mainly 3 components: HTML, CSS, JavaScript.
 - HTML provides the basic structure of any website, CSS is used to apply some styles to the webpage and JavaScript is used to make the webpage more dynamic and interactive.
 - Back End:
 - Back End of any website mainly deals with logic rather than the appearance.
 - That means any procedures which take place behind the scene, on the server side.
 - Back End developer mainly deals with databases, logic and servers.
 - Various languages are used to create back-end applications such as JavaScript, Python, Java, PHP.
 - To process and deliver data to the user, various databases are used with these languages such as: MongoDB, MySQL, Oracle, PostgreSQL.
3. Describe what occurs on the back end during a web interaction using the "Google query example".
 - A. This whole process occurs as below:
 - User Sends a Query: User types a query into Google's search bar and hits Enter. This query is sent from the user's device, typically through an internet browser, to Google's servers.
 - Request Routing: Once the query leaves the user's device, it typically passes through the user's local network's router, which directs it towards the appropriate destination on the internet. This may involve multiple hops through various routers and networks before reaching Google's servers.
 - Reaching Google's Servers: The query eventually arrives at one of Google's many data centres distributed around the world.
 - Query Processing: Once the query reaches a search server, Google's search engine algorithms come into action. These algorithms are responsible for parsing the query, understanding its intent, and retrieving relevant search results from Google's massive index of web pages.
 - Generating Search Results: Once the search server has determined the most relevant web pages for the query, it generates the search results page that the user sees in their browser.
 - Response Delivery: Finally, the search results page is sent back to the user's device through the same network route it came from.

- Displaying Results: User's internet browser receives the search results page from Google's servers and renders it to see.

4. What is MERN Stack?

- A. Stack means collection of technologies that are used together to create web application. There are many web development stacks to create web application. One of the most popular is MERN stack which uses JavaScript in web development.

MERN stack uses following technologies:

- MongoDB: A non-relational database that stores data as documents or objects. It provides JSON based data storage approach.
- Express : A web framework that simplifies server-side web development using Node.js.
- React: A JavaScript library which offers powerful toolset for building dynamic user interfaces on both client and server side.
- Node.js: A runtime environment which allows JavaScript to be use in both browsers as well as in servers.

MERN stack enables developers to build highly efficient web applications.