MERN Stack Assignment 4

1. What exactly is a MERN stack, and what does it imply?
Ans.
MERN is a full-stack, following the traditional 3-tier architectural pattern, including the front-end display tier, application tier, and database tier.

MERN stands for MongoDB, Express, React, Node, after the four key technologies that make up the stack.

- MongoDB - document database
- Express(.js) - Node.js web framework
- React(.js) - a client-side JavaScript framework
- Node(.js) - the premier JavaScript web server

The front-end display tier (React.js), Express and Node make up the middle (application) tier,.database tier (MongoDB) is the ideal approach to working with JavaScript and JSON, all the way through.

2. What exactly is REACT JS, and how does it work?
Ans.
The top tier of the MERN stack is React.js, the declarative JavaScript library for creating dynamic client-side applications. It's 'V' in MVC responsible for the view layer of the application. React's strong suit is handling stateful, data-driven interfaces with minimal code and it has everything you'd expect from a modern web framework: great support for forms, error handling, events, lists, and more.

Working of React Js
React is divided into *two* major APIs.
First, there's the React DOM. This is the API that's used to perform the actual rendering on a web page.
Second, there's the React component API. React helps to build up complex interfaces through simple Components, connect them to data on your backend server, and render them.These are the parts of the page that are actually rendered by React DOM.

3. How does REACT JS help you?
Ans.
React helps us in different ways through its features**:**

- React helps in building user interfaces specifically for single-page applications.
- React helps us to create reusable UI components, which indeed saves a lot of time by not having to code the same thing again and again.

- ReactJS applications are super easy to test.
- React has native libraries (React Native) can be used to create mobile applications like IOS, Android.

4. What are MongoDB's most important features?
Ans.

- Ad-hoc queries for optimized, real-time analytics - MongoDB supports field queries, range queries, and regular expression searches. Queries can return specific fields and also account for user-defined functions.
- Indexing appropriately for better query executions - MongoDB offers a broad range of indices and features with language-specific sort orders that support complex access patterns to datasets.
- Replication for better data availability and stability - Replication allows you to sidestep these vulnerabilities by deploying multiple servers for disaster recovery and backup. Replication also helps with load balancing. When multiple users access the same data, the load can be distributed evenly across servers.
- Sharding - When dealing with particularly large datasets, splitting larger datasets across multiple distributed collections, or “shards” helps the database distribute and better execute. Without sharding, scaling a growing web application with millions of daily users is nearly impossible
- Load balancing - Properly distributing millions of client requests to hundreds or thousands of servers can lead to a noticeable difference in performance. Through horizontal scaling features like replication and sharding, MongoDB supports large-scale load balancing.

5. What is the difference between REACT JS and Angular JS?
Ans.

Basis of Difference	**Angular JS**	**React JS**
Data binding	Supports both one way and two way data binding ,two-way data binding means that if we modify the UI input, the model state will change, and vice versa.	One-way data binding means that a UI element can’t affect a component’s state.
DOM	Regular DOM	Virtual DOM
Dependencies	It manages dependencies automatically.	It requires additional tools to manage dependencies.
Performance	Slow	Fast, due to virtual DOM.

Rendering	Client-Side	Server-Side
Language	JavaScript, HTML	JSX
App Architecture	MVC	Combined with Flux
Packaging	Weak	Strong