**MERN Stack Development**

**MERN Stack:**

MERN Stack is a JavaScript Stack that is used for easier and faster deployment of full-stack web applications. MERN Stack comprises of 4 technologies namely: [MongoDB](https://www.geeksforgeeks.org/mongodb-an-introduction/), [Express](https://www.geeksforgeeks.org/introduction-to-express/), [React](https://www.geeksforgeeks.org/react-js-introduction-working/) and [Node.js.](https://www.geeksforgeeks.org/introduction-to-nodejs/) It is designed to make the development process smoother and easier.

Each of these 4 powerful technologies provides an end-to-end framework for the developers to work in and each of these technologies play a big part in the development of web applications.

**MongoDB: Cross-platform Document-Oriented Database**  
MongoDB is a NoSQL database where each record is a document comprising of key-value pairs that are similar to JSON (JavaScript Object Notation) objects. MongoDB is flexible and allows its users to create schema, databases, tables, etc. Documents that are identifiable by a primary key make up the basic unit of MongoDB. Once MongoDB is installed, users can make use of Mongo shell as well. Mongo shell provides a JavaScript interface through which the users can interact and carry out operations (eg: querying, updating records, deleting records).

**Why use MongoDB?**

* Fast – Being a document-oriented database, easy to index documents. Therefore a faster response.
* Scalability – Large data can be handled by dividing it into several machines.
* Use of JavaScript – MongoDB uses JavaScript which is the biggest advantage.
* Schema Less – Any type of data in a separate document.
* Data stored in the form of JSON –
  1. Objects, Object Members, Arrays, Values and Strings
  2. JSON syntax is very easy to use.
  3. JSON has a wide range of browser compatibility.
  4. Sharing Data: Data of any size and type(video, audio) can be shared easily.
* Simple Environment Setup – Its really simple to set up MongoDB.
* Flexible Document Model – MongoDB supports document-model(tables, schemas, columns & SQL) which is faster and easier.

**Express: Back-End Framework:**  
Express is a Node.js framework. Rather than writing the code using Node.js and creating loads of Node modules, Express makes it simpler and easier to write the back-end code. Express helps in designing great web applications and APIs. Express supports many middlewares which makes the code shorter and easier to write.

**Why use Express?**

* Asynchronous and Single-threaded.
* Efficient, fast & scalable
* Has the biggest community for Node.js
* Express promotes code reusability with its built-in router.
* Robust API

**React: Front-End Framework**  
React is a JavaScript library that is used for building user interfaces. React is used for the development of single-page applications and mobile applications because of its ability to handle rapidly changing data. React allows users to code in JavasScript and create UI components.

**Why use React?**

* Virtual DOM – A virtual DOM object is a representation of a DOM object. Virtual DOM is actually a copy of the original DOM. Any modification in the web application causes the entire UI to re-render the virtual DOM. Then the difference between the original DOM and this virtual DOM is compared and the changes are made accordingly to the original DOM.
* JSX – Stands for JavaScript XML. It is an HTML/XML JavaScript Extension which is used in React. Makes it easier and simpler to write React components.
* Components – ReactJS supports Components. Components are the building blocks of UI wherein each component has a logic and contributes to the overall UI. These components also promote code reusability and make the overall web application easier to understand.
* High Performance – Features like Virtual DOM, JSX and Components makes it much faster than the rest of the frameworks out there.
* Developing Android/Ios Apps – With React Native you can easily code Android-based or IOS-Based apps with just the knowledge of JavaScript and ReactJS.

**Node.js: JS Runtime Environment**  
Node.js provides a JavaScript Environment which allows the user to run their code on the server (outside the browser). Node pack manager i.e. npm allows the user to choose from thousands of free packages (node modules) to download.

**Why use Node.JS?**

* Open source JavaScript Runtime Environment
* Single threading – Follows a single threaded model.
* Data Streaming
* Fast – Built on Google Chrome’s JavaScript Engine, Node.js has a fast code execution.
* Highly Scalable

**Steps to build MERN Project :**

* Create a basic React application
* Install dependencies
* Re-arrange the React application
* Server-side configurations
* Bundle the Front-end and Back-end
* Integrating the database with backend
* Wire the database Back-end with React

**Job opportunities for MERN Stack Developer**

* **Full Stack Developer**
* **MERN Stack Developer**