What Is The MERN Stack? Introduction & Resources

This introduction/guide will clear all your doubts about the MERN stack and provide you with resources to learn it.

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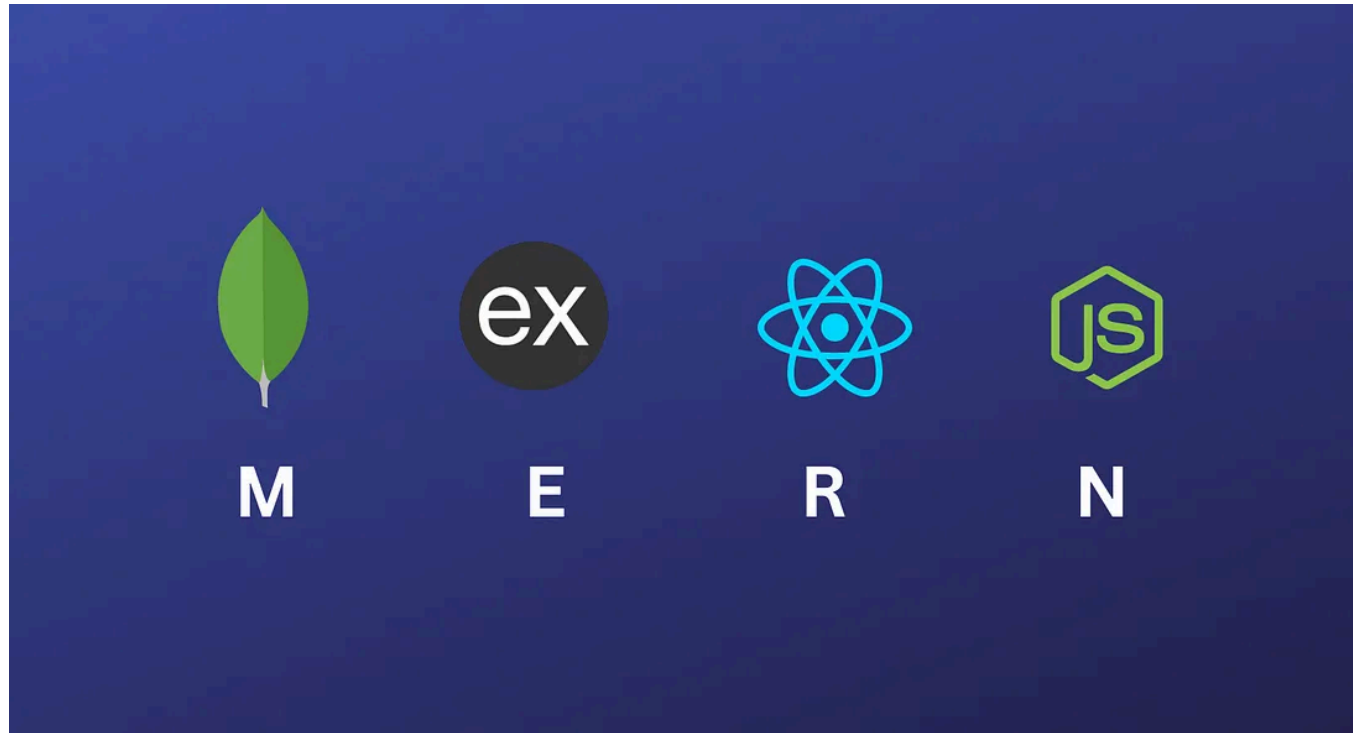
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Introduction

If you are in the field of web development you probably have heard the name 'Mern' stack. It's a trending stack used in many projects and companies to build products.

In this article, let's understand what the MERN stack is and what the different technologies are used for which tasks. I'll also provide you with resources to learn MERN stack development.

What is the MERN stack?

The MERN stack combines four powerful technologies: MongoDB, Express.js, React, and Node.js.

Each component of the stack is responsible for a specific aspect of web development, and when used together, they create a cohesive environment for building full-stack web applications.
Let's take a closer look at each of these technologies:

1. **MongoDB:** MongoDB is a NoSQL database that stores data in JSON-like format. Mongodb is designed such that it handles large amounts of data and provides high-quality scalability and performance. It's a lot more flexible if compared with SQL databases like MySQL.

2. **Express.js:** Express.js is a backend web application framework for Node.js. It simplifies the process of development of a scalable server-side web application. Express.js provides utilities for handling HTTP requests, routing, and middleware which makes it easier to create REST APIs with Express.js.

3. **React.js:** React is a modern JavaScript library used for making UIs (User Interfaces). React makes it easy to build front-end interactive web applications. Its component-based approach makes it easier to build

scalable applications. There are lots of libraries made for React like Redux for state management which makes it even easier for developers to implement new features. There is also a widely used framework built on top of React called 'Next.js' which gives more power to React developers.

4. **Node.js:** Node.js is a runtime environment that enables developers to write JavaScript code on the server side. It uses an event-driven, non-blocking I/O model, making it well-suited for building scalable and real-time applications. Node.js can handle a high number of concurrent connections without blocking the execution of other tasks.

How the MERN stack works

The MERN stack follows a clear separation between the front end and the back end, allowing developers to work on both sides independently while ensuring smooth communication between them.

Here's how all the components of the MERN stack work:

The frontend is built using **React.js,** It handles all the client-side logic and makes the web app interactive. It sends HTTP requests to the backend for data retrieval, addition, and manipulation.

Express.js, running on Node.js, serves as the backend. It handles the incoming HTTP requests from the front end, communicates with the MongoDB database to retrieve or store data, and sends back appropriate responses.

MongoDB stores the application's data. It provides a flexible and scalable database solution that stores data in collections (equivalent to tables in relational databases) and documents (equivalent to rows).

Node.js acts as the intermediary between the front end and the MongoDB database. It receives requests from the front end, processes them, interacts with the database, and sends back the necessary data.

Benefits of using the MERN stack

Full-Stack JavaScript: MERN stack allows developers to use a single programming language for the entire application. Whether it be frontend or backend. Giving JavaScript developers a superpower.

Reusability: With the component-based architecture of React, developers practice one of the most important principles of development which is DRY

(Do not repeat yourself). With React developers can create reusable UI elements, reducing repetition and saving time.

Real-time applications: Node.js's event-driven architecture enables the creation of real-time applications, such as chat applications and collaborative tools. You can use libraries like 'socket.io' for achieving that.

Scalability: MongoDB's ability to handle large amounts of data and Node.js's non-blocking I/O make the stack suitable for building scalable applications.

Resources to learn MERN stack

Here are the resources I followed to learn MERN stack development:

1. **CodeWithHarry:** CodeWithHarry is a channel that teaches about various tech stacks and technologies. But the thing is that he (Harry) makes videos in Hindi so it'll not be suitable for non-Hindi speaking audiences.
   Link: https://www.youtube.com/@CodeWithHarry

2. **FreeCodeCamp:** I'm sure the majority of you already know about FreeCodeCamp, it's a great place to learn anything related to programming.
   Link: https://www.freecodecamp.org

3. **Clever Programmer:** This is a great youtube channel mainly focused on frontend web development, they make several clones and projects by which you can get practical knowledge.
   Link: https://www.youtube.com/@CleverProgrammer

4. **Traversy Media:** This youtube channel is filled with lots of web development content, they have separate playlists for different types of tutorials.
   Link: https://www.youtube.com/@TraversyMedia

5. **Web dev simplified:** As the name suggests, this youtube channel entirely talks about web development, they sometimes show us some very cool tricks.
   Link: https://www.youtube.com/@WebDevSimplified

You can also refer to the following article by javinpaul available on Medium, it discusses the top 6 MERN stack online courses:

https://medium.com/javarevisited/top-5-online-courses-to-learn-mern-stack-in-depth-9947230f194

Conclusion

In conclusion, the MERN stack is a powerful combination of MongoDB, Express.js, React, and Node.js that enables developers to build modern, efficient, and scalable web applications.

So, roll up your sleeves and embark on your journey into the exciting world of web development with the MERN stack!

I'm Pushkaraj Kulkarni, a full-stack developer and freelancer. I specialize in building high-quality and scalable web apps. Currently, I am available for freelance or part-time job opportunities.

If you enjoyed this article, please give it a clap, and consider following me on Medium. You can also find me on X (Twitter), where I am quite active.

If you have any queries related to this article or any suggestions, please feel free to leave them in the comments section. I will respond to all of you. Alternatively, you can also send me a DM on X (Twitter).

Mern   Mern Stack   JavaScript   Nodejs   Mongodb