



## Toddler – A Social Media Web Application

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### ABSTRACT:

In today's digital age, e-commerce web applications and social media platforms have become an essential part of our daily lives, with businesses striving to understand client demand in advance to stay ahead in the fast-paced business world. The younger generation considers e-commerce web applications as a lifestyle, where technologies such as React.js, MongoDB, Node.js, and Express.js provide access to basic necessities and luxury products. However, existing social media platforms have limitations, raising privacy and security concerns among users. A new social media platform is required to provide users with a personalized, user-friendly, and secure experience. Our responsive web application social media platform, built using MERN stack and other APIs and tools, aims to address these issues. It is also possible to develop a social media clone using MERN stack technologies such as MongoDB, Express JS, ReactJS, and NodeJS, which are the building blocks for a full-stack development.

**KEYWORDS:** E-commerce web applications, Social media platforms, React.js, MongoDB, Node.js, Express.js, APIs, Full-stack development

## I. INTRODUCTION

A Social Media Web is a simple real-world application where users can write opinions, follow each other and also chat with each other. This project helps us to learn about building modern, fast and scalable server-side web applications with NodeJS and we will get to learn and explore all about the MVC pattern, NoSQL Database (MongoDB), and much more. This Project is based on JavaScript Languages and some prerequisites of HTML, CSS and JavaScript.

As we know, The vast majority of communities can be found on well-known social media platforms including Instagram, Facebook, and many more in an age whereby social media is used for nearly everything. Various new social networking apps targeting exclusive societies, whether they be for scientific or medical communities, are gaining popularity.

So, in the present day, social networking platforms and e-commerce software have become integral parts of our everyday lives, while companies are constantly working to anticipate consumer demand in order to stay competitive. With technologies like React.js, MongoDB, Node.js, and Express.js making access to both essentials and expensive goods possible, today's generation views e-commerce web apps as a lifestyle. Users' concerns about privacy and security are brought up by the limits of the current social media platforms. In order to give consumers a personalized, user-friendly, and safe experience, a fresh social media site is necessary. These challenges are addressed by our helpful web application social networking platform, which was designed using the MERN stack as well as additional APIs and technologies. Using MERN stack technologies, which are the cornerstones of full-stack development and include MongoDB, Express JS, React JS, and Node JS, it is also possible to create a social media clone.

Here, Toddler is a simple web application that allows users to share ideas, following one another, and communicate with one another in the real world. This project teaches us how to build modern, speedy, and scalable server-side web apps with NodeJS in addition to teaching us about the Architectural design, NoSQL Database (MongoDB), and other subjects. JavaScript, HTML, and CSS. etc. are the language requirements for this project.

## II. LITERATURE REVIEW

**Application using MERN Stack by Santosh Kumar Shukla | Shivam Dubey | Tarun Rastogi | Nikita Srivastava (2022):** This paper describes the development of an online shopping platform for businesses that use the MERN technology stack. MongoDB is represented by M, Express by E, ReactJS by R, and NodeJS by N. The project consists of various components that are organized sequentially for easy online access. In addition, practically everyone uses e-commerce, whether it be for adding items to an online shopping cart or for buying and selling goods and services. Here people can see,

how many people has chosen their interest. According to product quality, everyone gave rating. So, it will be easy for everyone to buy it and recommend each other.

**Social Media Web Application using MERN by Mrunmayee Vaibhav Kulkarni (2022):** This paper describes about the interaction of people with similar interests. it may be for some romantic purpose or either for same taste of following any passion like photography, singing, dancing, and many more. Here, the main goal is to interact the people with similar interests and goal using the full stack web development MERN stack. In search of people interest of work, this application works for the fulfillment of their desired role and custom setting on app for the best search.

**A MERN-Based Social Media App for College Students by MAANIL LAAD, DR. VASUDHA BAHL (2023):** The paper explores the advantages of Mern-based applications for students in college, particularly how they can support them in finding assistance and services, exchanging information and resources, and staying in contact with other students and localities. Due to the fact that it might help college students keep in touch with their peers inside as well as outside of their college friends. This can be of particular significance for students who are living far away from home and wants to stay connected with their collegemates. Even they can find the job post and the all-other official alert though post done by officials.

**A Social Platform using MERN Stack by Desai, Krutika; Fiaidhi, Jinan (2022).** This paper describes a full functionally and most friendly, social media platform that contain business ideas and creative knowledge of the design and the deployment of the customized network. Also used to design for educational purpose in search of materials for research purpose. In order to get the advancement in the communication medium in research and creative idea field, this platform play a vital role.

### III. METHODOLOGY

In this MERN project, we have gone through different modes of security to secure web applications in which we BCrypt password-hashing. It is a popular algorithm used to securely store passwords by hashing them with salt and a cost factor, making it difficult for an attacker to brute-force or dictionary attack the password. The BCrypt algorithm works by taking a password and a randomly generated salt value and running them through multiple iterations of a key derivation function, resulting in a hash that is unique to that combination of password and salt. The cost factor determines the number of iterations used in the key derivation function, making the hash more computationally expensive to generate, and therefore more secure against brute-force attacks.

We have used CORS(Cross-Origin Resource Sharing) it is basically a security feature implemented by web browsers that restrict web pages or applications from making requests to a different domain than the one that served the original content. This is done to prevent malicious web pages from stealing user data or performing unauthorized actions on behalf of the user. CORS is an important security feature for web applications that need to access resources from multiple domains. It is commonly used in AJAX requests, where a web page needs to retrieve data from an API hosted on a different domain. By using CORS, web developers can ensure that their applications are secure and protect user data from unauthorized access.

While working on the different APIs we are storing large files in our database so to manage that we are using 'Gridfs-stream'. GridFS is commonly used for storing large files in MongoDB, such as images, videos, or audio files, that would otherwise be too large to store directly in a document. By using gridfs-stream, Node.js developers can easily integrate GridFS file storage into their applications, providing a scalable and efficient solution for working with large files in MongoDB. To upload those files in our application we are using MULTER which is a middleware module. It provides an easy-to-use API for accepting file uploads, allowing developers to specify file size limits, file types, and other validation criteria. When a file is uploaded using MULTER, it is saved to disk or memory, depending on the developer's configuration. MULTER also provides options for renaming files, configuring storage paths, and handling errors.

To enhance security in our application we have used HELMET which is a popular middleware module for securing Node.js web applications by setting various HTTP headers that enhance security. It provides a collection of small middleware functions that can be used to set security-related HTTP headers, such as Content Security Policy, X-XSS-Protection, X-Frame-Options, and others. By using Helmet, Node.js developers can easily add an extra layer of security to their web applications without having to manually set HTTP headers. Helmet is easy to configure and provides sensible defaults, making it a popular choice for securing Node.js web applications.

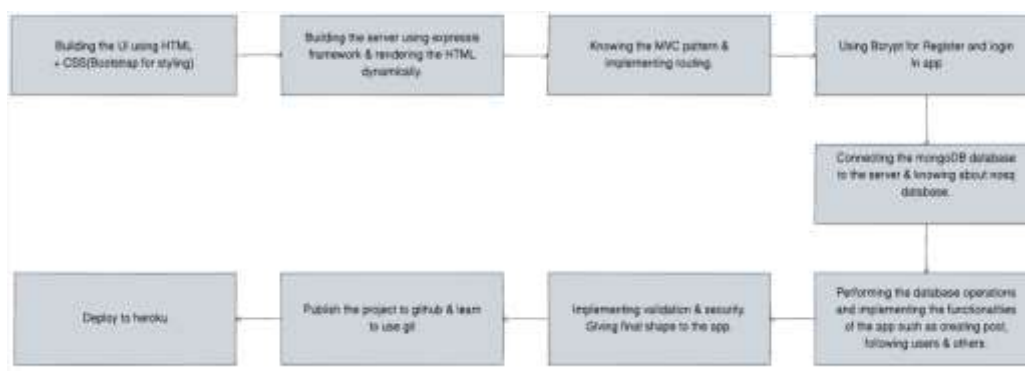


Fig- Sequence Diagram of Project

The above sequence diagram it shows overall project cycle that we have followed while building the social media web application.

#### IV. RESULTS AND DISCUSSION

“Toddler” is the name of our application.

The website consists of four main pages: a registration page for new user sign-up, a login page for existing users to access their accounts, a home page for posting images, videos or messages, and a profile page for users to view all the posts they have shared with their friends. This social media apps provide a variety of features that enable users to share different types of content, such as text, photos, videos, and links. It also offer tools for users to express their thoughts and feelings, including likes, dislikes, comments, and emojis. Overall, social media apps have become an integral part of modern communication and social interaction, connecting people from all over the world and providing a platform for sharing ideas, opinions, and experiences.

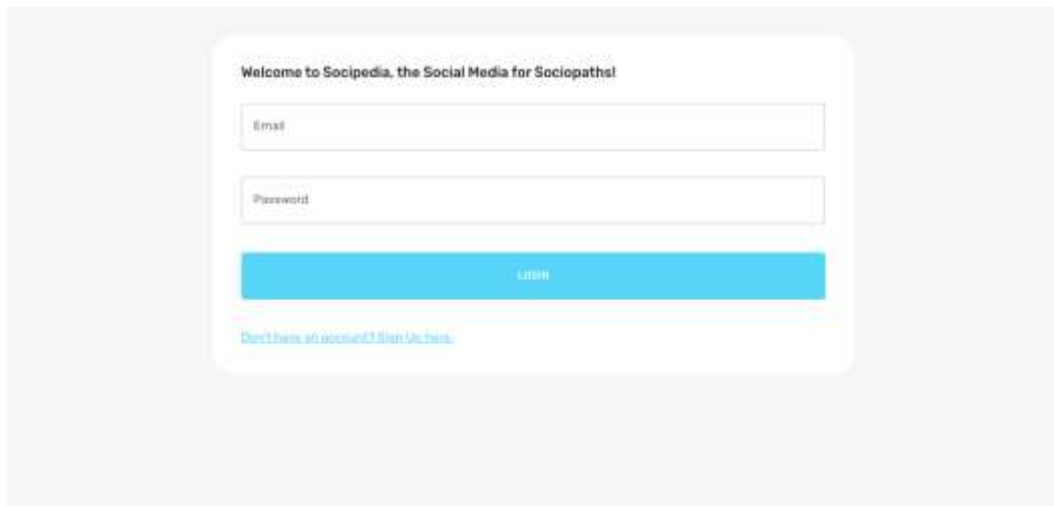


Fig- This the login page where user can register to account and sign to the web application

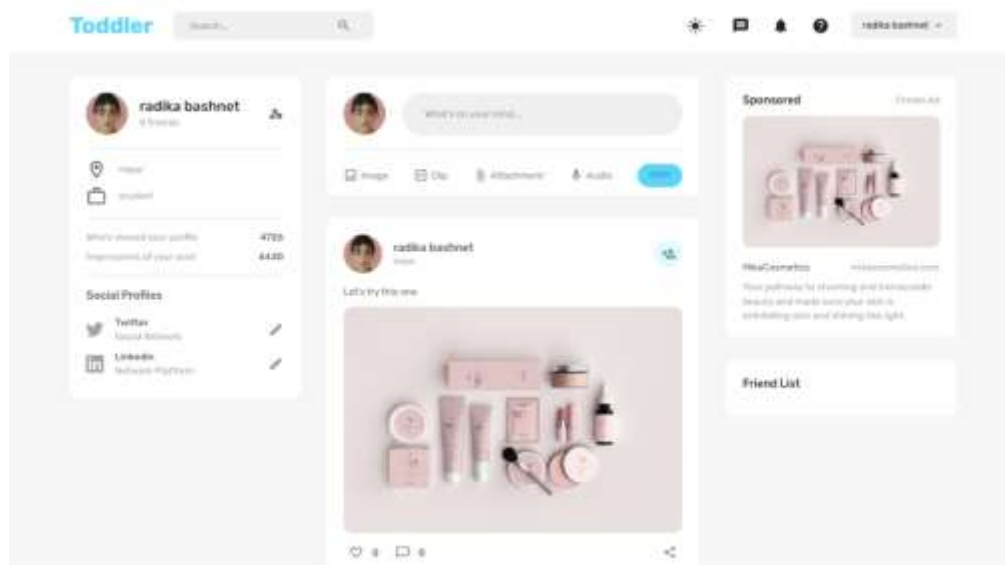


Fig- This is home page where people can upload images, like, comments and even can use dark mode

#### V. CONCLUSION

This paper presents an in-depth examination of the MERN stack, a set of powerful technologies for developing web applications, and its application in the development of an end-to-end social networking web app. The article covers the fundamental concepts, principles, and key techniques of each technology involved in the MERN stack. Additionally, the paper explores the benefits of using these technologies to create a fully integrated frontend and backend application that leverages a NoSQL database engine. By providing a step-by-step guide for building the social media app, this paper

demonstrates the practical application of the MERN stack in real-world scenarios. The project successfully achieved all of its goals, and the outcomes were generally positive. Moreover, the paper offers detailed implementation methodologies for the social networking application.

In conclusion, the MERN stack is a versatile and effective tool for building web applications, and this paper provides a comprehensive overview of its capabilities and application in a social media app. The detailed implementation methodologies and real-world application examples presented in this paper make it a valuable resource for developers and researchers seeking to build similar applications.

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