



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Social Media Platform

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Abstract: This paper presents the development of a full stack social media website utilizing MongoDB, Express.js, and Node.js (MEN stack). Leveraging the flexibility and scalability of MongoDB as a NoSQL database, coupled with the robustness of Express.js and Node.js for server-side development, the platform offers a dynamic and responsive user experience.

Index Terms: MongoDB, Node, JavaScript, Socket.io.

I. Introduction

In an era defined by digital connectivity, the role of social media in shaping interpersonal interactions and information dissemination is ever-expanding. Within the unique context of college communities, the need for a dedicated and tailored social media platform becomes increasingly apparent. This paper introduces a cutting-edge solution—a social media website built using (MongoDB, Express.js, Node.js), enriched with real-time chat capabilities facilitated by Socket.io. This platform provides a specialized space that aligns with the distinct social and academic fabric of college life. By leveraging the strengths of the MEN stack, we amalgamate robust backend infrastructure with a dynamic frontend, ensuring a seamless user experience. The integration of Socket.IO further enhances our platform, facilitating instantaneous and collaborative communication. Real-time chat capabilities cater to the need for swift information exchange.

In the following sections, we will discuss the motivation and design considerations behind our app, as well as the benefits and challenges of using the above-mentioned stack for this type of project.

II. LITERATURE SURVEY

There have been a number of past studies on the development and use of social media apps built with the MERN stack (MongoDB, React.js, Express.js and Node.js). Here are a few examples:

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 want to stay connected with their college mates. Even they can find the job post and the all-other official alert though post done by officials

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

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

III. Methodology

In the comprehensive methodology employed for developing the social media website, the adherence to the MVC (Model-View-Controller) architectural pattern is a pivotal aspect that contributes to the project's structure, scalability, and maintainability. The Model, serving as the backbone, encapsulates the data and business logic of the application. Within this model, interactions with the database are intricately handled, encompassing tasks such as managing user profiles, posts, and company details. The Model ensures that the underlying data is organized, validated, and updated in a structured manner. On the View front, the user interface is meticulously crafted, involving HTML templates, stylesheets, and client-side scripts. These components collectively create a visually appealing and user-friendly experience. The View is responsible for rendering information to users and capturing their input, providing the bridge between the application's functionality and the end-user interaction. The Controller, acting as the intermediary orchestrator, plays a pivotal role in processing user input, updating the Model, and triggering the necessary updates in the View. In the context of the project, controllers are organized into distinct modules—userController, postController, chatController, and placementController—each handling specific functionalities related to users, posts, messaging actions, and placement details, respectively. The Controller ensures that requests are appropriately routed, data is manipulated in accordance with business logic, and the corresponding View is updated to reflect the changes. A robust user authentication system is in place, leveraging the Bcrypt package to securely hash and store passwords in the database. The user authentication process includes the implementation of registration and login routes, with a focus on using hashed passwords to enhance the overall security of user accounts.

The platform caters to two distinct user types: students affiliated with NIT Delhi and administrators. The admin role is clearly defined, and middleware is strategically employed to verify admin privileges, particularly when it comes to critical operations such as post approvals deleting flagged posts etc.

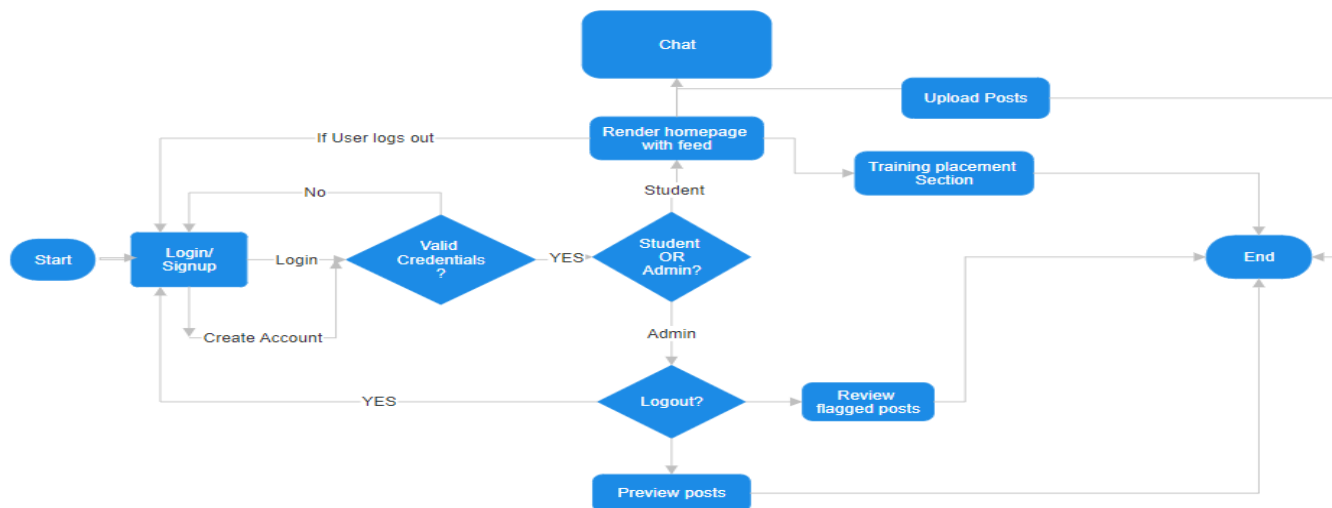
To ensure controlled and curated content on the platform, a systematic approach to post approval is implemented. Posts submitted by users, particularly students, undergo a pending state until they receive approval from administrators. This mechanism allows admins to have oversight and control over the content that gets disseminated on the homepage, adding an extra layer of moderation to the platform.

Real-time communication among users is facilitated through the integration of socket.io, providing a seamless and instantaneous messaging experience. This feature enhances user engagement and fosters a dynamic and interactive community on the platform.

Recognizing the importance of user-driven content moderation, the system incorporates a post-flagging mechanism. Users are empowered to report posts they find inappropriate, providing a mechanism for community-driven content control. Admins, in turn, have dedicated routes and tools to review flagged posts, giving them the authority to decide whether to remove or retain flagged content based on community guidelines.

Beyond the social interaction aspects, the website features a specialized section dedicated to training and placement. Companies submitting details through a designated form have their information, including CTC, job roles, and locations, disseminated to students. This additional feature serves to bridge the gap between students and potential employers, providing valuable information for career planning and placement opportunities. The inclusion of CSRF (Cross-Site Request Forgery) protection enhances the platform's defense mechanisms. For each user session, unique CSRF tokens are generated, seamlessly integrated into forms and headers. These tokens play a crucial role in preventing unauthorized actions. They are strategically placed within forms responsible for actions like posting, password changes, and user detail updates.

Furthermore, the implementation extends to include these tokens in headers for AJAX requests, ensuring comprehensive protection across various interactions.

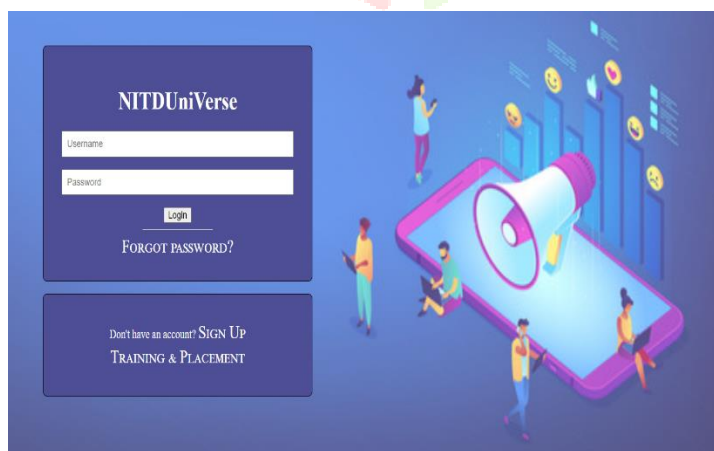


Application Design

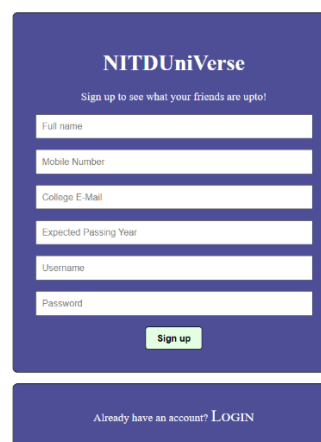
IV. RESULTS AND DISCUSSION

NITDUniVerse is the name of the application.

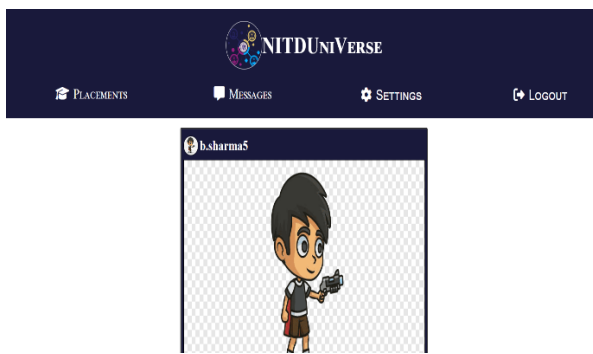
The website consists of: a registration page for new user to create their account, a login page for existing users to access their accounts and admin account to oversee the activities on the website. A home page for posting images, a messaging page for chatting with users, a profile page to view user details and to view all the posts they have shared with their friends, placements page for companies visiting information. This social media app provides a variety of features that enable users to upload/share content as well as chat with their colleagues. It also offers tools for users to express their thoughts and feelings, including likes, dislikes. 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.



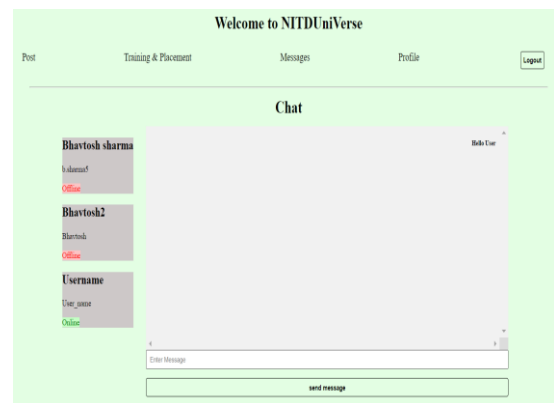
Login Page



Signup Page



Homepage For Student



Messaging page displaying user offline/Online



Homepage for and admin user

V. REFERENCES

- [1] M. V. Kulkarni. "Social Media Web Application using MERN." irjet.net. (2022). <https://www.irjet.net/archives/V9/i2/IRJET-V9I222.pdf> (accessed: Apr. 26, 2023).
- [2] Dr. Vasudha Bahl, M.L. (2023) Creating a connected campus: A mern-based social media app for college ... IRE Journals e-ISSN: 2456-8880. Available at: <https://www.irejournals.com/formatedpaper/1704085.pdf> (Accessed: April 26, 2023).
- [3] Desai, K. and Fiaidhi, J. (2022) Developing a social platform using Mern Stack, figshare. TechRxiv. Available at: https://www.techrxiv.org/articles/preprint/Developing_a_Social_Platform_using_MERN_Stack/21699764 (Accessed: April 26, 2023).
- [4] Tanya Uppal, Saumitya Srivastava, Kavita Saini, "Web Development Framework: Future Trends" (2022). 4th International Conference on Advances in Computing, Communication Control and Networking (ICAC3N). DOI: 10.1109/ICAC3N56670.2022.10074105
- [5] Preeti Yadav and Bhupendra Singh, "A comparative study of versions of JavaScript", Haryana in International Journal of Computational Intelligence Research, vol. 13, no. 8, April 2020, ISSN 2065-2073.
- [6] Yong Kang Xing, Jia Peng Huang and Yong Yao Lai, "Front-end Frameworks and Libraries in E-Business Development", *Nanfeng College of Sun Yat-sen University China in 11th International Conference on Computer and Automation Engineering*, 2019.

[7] Kavita Saini, "Recent Advances and Future Research Directions in Edge Cloud Framework", *International Journal of Engineering and Advanced Technology (IJEAT)*, vol. 9, no. 2, December 2019, [online] Available: , ISSN 2249 – 8958.

[8] Lambodara Parabhoi, "Awareness and Use of Academic Social Networking Sites by Faculty and Students", International Symposium on Emerging Trends and Technologies in Libraries and Information Services (ETTLIS),2018,
DOI: 10.1109/ETTLIS.2018.8485201

[9] S. Bardakci, ö. Arslan and T. K. ünver, "How scholars use academic social networking services", *Inf. Dev*, pp. 1-12, 2017

[10] D. K. El-Berry, "Awareness and use of academic social networking sites by the academic staff at the South Valley University in Egypt", *J. Libr. Inf. Sci*, vol. 3, no. 2, pp. 115-132, 2015.

