

A SECURE CHAT APPLICATION USING API_____

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Abstract: It's a well-established fact that technology is evolving at an unprecedented pace, and globally, websites serve as synonymous with the internet and web browsers. In the field of IT, software development is flourishing, offering a multitude of career prospects, especially in a country like India, which is witnessing a surge in startups. Here are some compelling reasons why opting for a career in web development is a smart choice.

Keywords: Peer-to-Peer, Chat App, React chat App, Decentralised, Buddy List, Authentication, Encryption

1. INTRODUCTION

Online chat encompasses various forms of Internet-based communication that enable real-time transmission of text messages between the sender and receiver. Chat messages are typically concise to facilitate swift responses, creating an experience akin to spoken conversations, setting chat apart from other text-based online communication methods like Internet forums and email. Online chat can involve one-on-one interactions or multicast communication from one sender to multiple recipients, and it may

include voice and video chat. It can also be integrated into web conferencing services. The inaugural online chat system, known as Talkomatic, was developed by Doug Brown and David R. Woolley in 1973 on the PLATO System at the University of Illinois. It featured multiple channels, each accommodating up to five participants, with messages appearing character-by-character on all users' screens as they were typed. Talkomatic enjoyed significant popularity among PLATO users through the mid-1980s. In 2014, Brown and Woolley introduced a web-based iteration of Talkomatic.

2. OBJECTIVE

Messaging has seamlessly integrated into our daily routines, primarily owing to its user-friendly and real-time communication convenience. For instance, it's as simple as receiving an iOS or text message on an iPhone or Android device from a friend, a work-related email on Microsoft or Gmail, participating in team chats within a Slack or Microsoft Teams workspace, or engaging in instant messaging on social media platforms. These messaging and chat applications have assumed a pivotal role in modern interactions, given their immediacy and extensive functionalities. A chat application streamlines global communication by facilitating real-time message exchange, allowing users to experience vibrant and interactive conversations, akin to in-person interactions. This, in turn, encourages users to engage within your platform rather than seeking messaging solutions elsewhere. Whether it's private conversations, group discussions, or large-scale chats, integrating personalised chat features into your app can guarantee that your users enjoy a memorable experience.

3. METHODOLOGY

The new user will be provided a user- ID and a user -password So that they can easily login. After login the chat window will be provided to the user where a user can easily chat with others and manage his profile. The chat window has three panels. In the leftmost there is a panel where you can see the chat rooms and chat groups available. you can create a chat room from here by clicking the (+) plus sign. In the middle panel all the chats will appear in a specific chat room. From here you can easily send messages and photos as well. In the left most screen the panel contains the user details and some controls. From here you can manage your groups and all photos of a specific group will appear here.

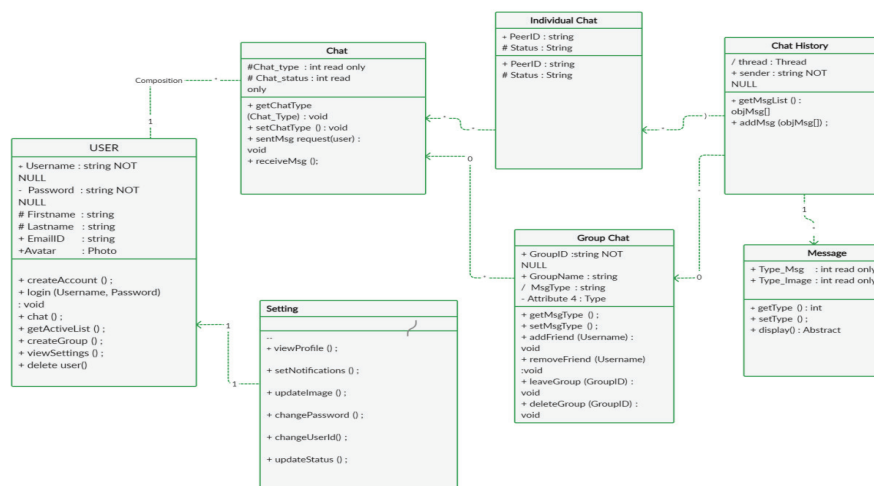


Figure 1: UML Class Diagram

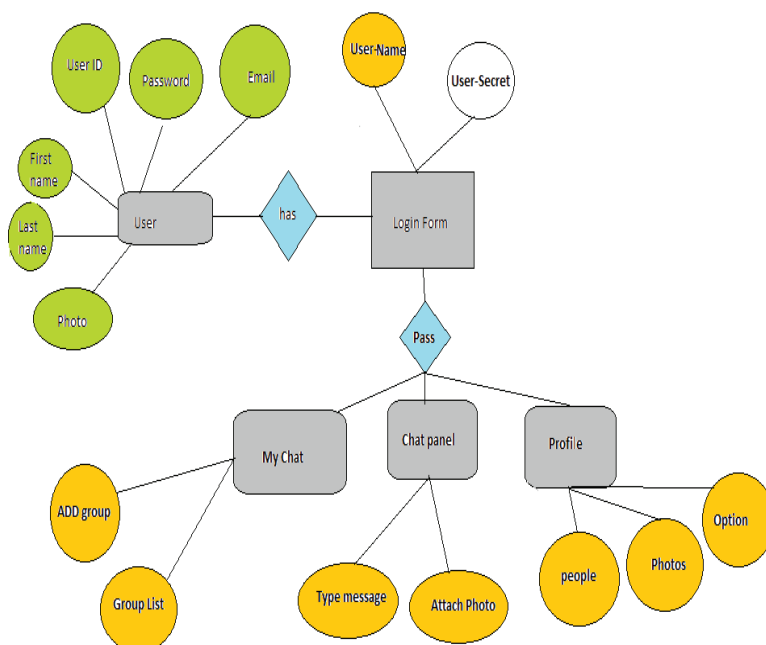


Figure 2: ER-Diagram

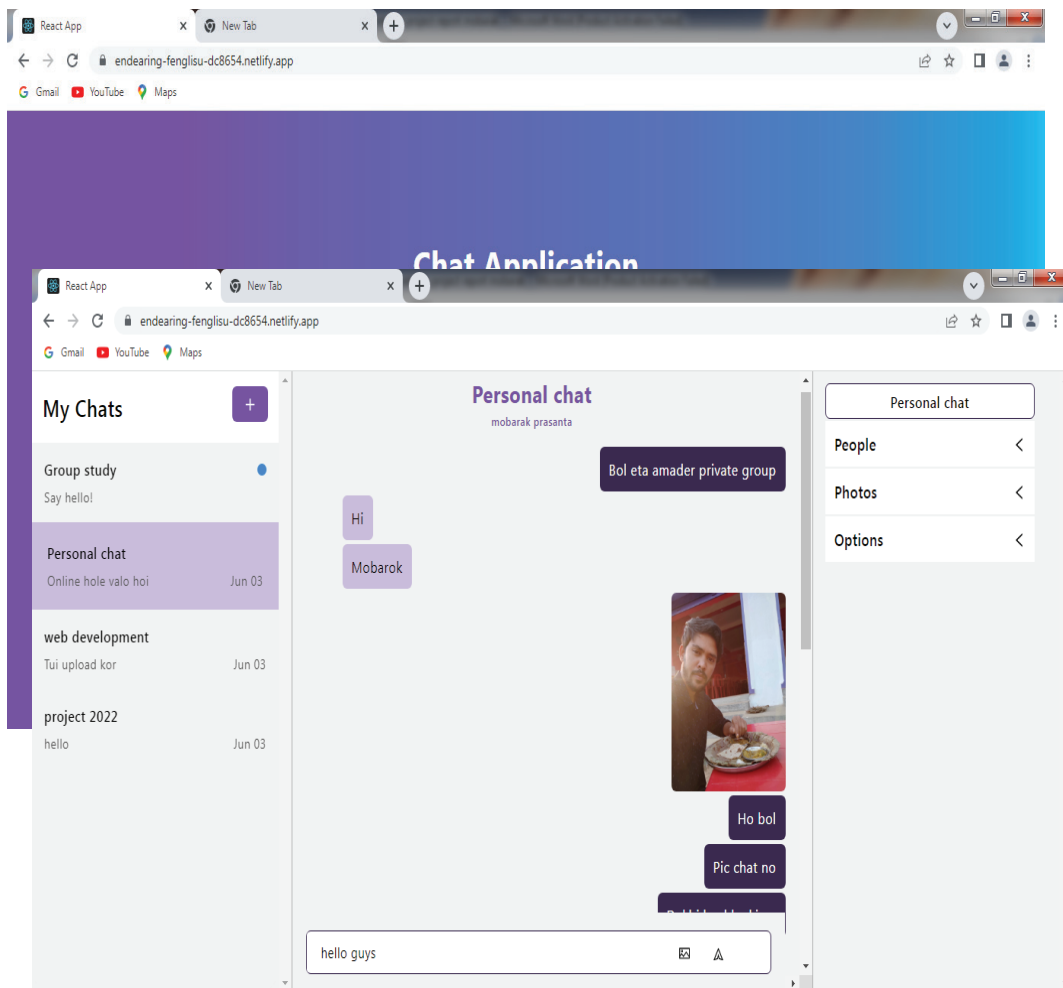


Figure 4: Personal Chat

4. FUTURE SCOPE

A web developer's role involves transforming design concepts into functional websites. In today's market, there is a proliferation of new messenger apps, indicating a promising and bright future for this domain. The outlook for online messaging applications appears highly advantageous, as it is intrinsically linked to the future of the web.

5. CONCLUSION

An analysis has been carried out to explore the decentralized P2P architecture. Within this research, we have designed a secure chat application suitable for implementation within a decentralized environment. The primary goal was to establish an independently secure user database, eliminating the need for third-party involvement. Security measures have been integrated into various aspects, including

user registration, user login, message exchange, and database storage .Looking ahead, there are several potential future enhancements worth nothing. These include updates to security tools to align with the latest versions, accommodating variable file sizes for efficient file transfers, and introducing features like voice communication and live chat functionality. Additionally, the introduction of a trusted group feature, where members require only one username and password for communication within the group, would be advantageous. To bolster application security, offering a range of authentication and encryption algorithms for users to choose from is recommended. Furthermore, allowing users to manually negotiate key sizes whenever possible can enhance the application's security.

As the shift from PC-based to mobile-based applications continues to grow, we can leverage the use of phone numbers as a means of device identification, similar to what is employed in WhatsApp's application.

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