

AnyChat : A Secure Web-Based Chat Application with Encrypted Messaging

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ABSTRACT :

This paper presents the development of a secure web-based chat application, named "AnyChat" that prioritizes user privacy and message confidentiality. The application leverages an XAMPP server and a MySQL database for user authentication and information management, including login credentials. A unique feature of the application is its secure messaging system, which encrypts messages before storing them in the database and decrypts them upon retrieval for the recipient, ensuring message confidentiality. This paper details the system design, implementation, and functionalities of the application, emphasizing the secure communication achieved through message encryption and decryption.

Keywords: Realtime Communication, User Privacy, Security

1. INTRODUCTION

The widespread adoption of the internet has fuelled the demand for convenient and efficient communication platforms. Web-based chat applications have emerged as a popular solution, facilitating real-time interactions for various purposes including personal communication, professional collaboration, and online communities. However, ensuring security and privacy remains a crucial challenge, as sensitive information like user credentials and message content require robust protection.

This paper introduces "AnyChat" a secure web-based chat application designed to address the growing need for secure online communication while prioritizing user-friendliness. AnyChat offers a seamless and intuitive user experience,

making it accessible to users with varying levels of technical expertise.

2. EASE OF USE

AnyChat prioritizes user-friendliness and accessibility, ensuring a smooth and intuitive experience for users with varying technical backgrounds. Here are some key aspects contributing to its ease of use :

- *Simple and Intuitive Interface :*
 - *Clean and uncluttered layout :* The interface minimizes distractions, allowing users to focus on communication.
 - *Clear labeling and icons :* Functionalities are clearly labelled, with easy-to-understand icons guiding users.

- *Logical organization* : Features are organized logically, following a user-intuitive flow for effortless navigation.
- *Minimal Learning Curve* :
 - *Straightforward design* : The application focuses on core functionalities, avoiding overwhelming users with complex features.
 - *Minimal setup* : AnyChat requires minimal setup, allowing users to quickly start using the chat features.
 - *Intuitive interaction* : User interactions, like sending messages and accessing user profiles, are designed to be intuitive and require minimal prior knowledge.

By incorporating these user-centric design principles AnyChat fosters a user-friendly environment that empowers users with various skill levels to communicate effectively and securely online.

2.1 Units

Throughout the project, when reporting measurements or specific values, we are using appropriate SI units (Système International d'Unités, also known as the International System of Units) for consistency and clarity. Here are some common examples:

- *Time* : seconds (s), milliseconds (ms), minutes (min), hours (h)
- *Data size* : bytes (B), kilobytes (KB), megabytes (MB), gigabytes (GB)
- *Network speed* : bits per second (bps), megabits per second (Mbps)
- *Cryptography* : key size in bits (e.g., 128-bit encryption)

2.2 Equations

In the context of the AnyChat application, there might not be complex mathematical equations involved. However, we can potentially use some basic equations like :

Password Hashing :

$$\text{Hash} = \text{HashingFunction}(\text{Password})$$

Encryption & Decryption :

$$\begin{aligned} \text{Ciphertext} &= \text{Encrypt}(\text{Plaintext}, \text{Key}) \\ \text{Plaintext} &= \text{Decrypt}(\text{Ciphertext}, \text{Key}) \end{aligned}$$

2.3 Abbreviations and Acronyms

The AnyChat uses following acronyms in the development :

- DBMS : Database Management System

- GUI : Graphical User Interface
- HTTP : Hypertext Transfer Protocol
- API : Application Programming Interface
- MySQL : A relational database management system
- PHP : Hypertext Preprocessor
- URL : Uniform Resource Locator
- XAMPP : A cross-platform web server solution stack

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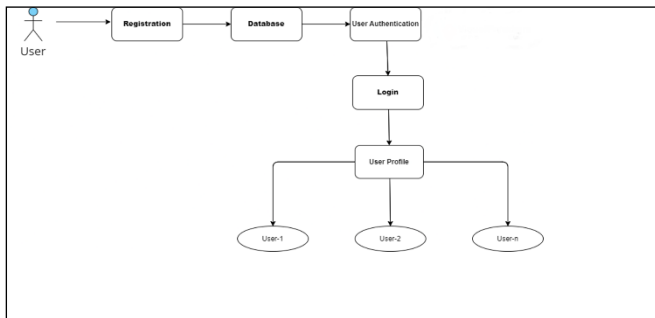
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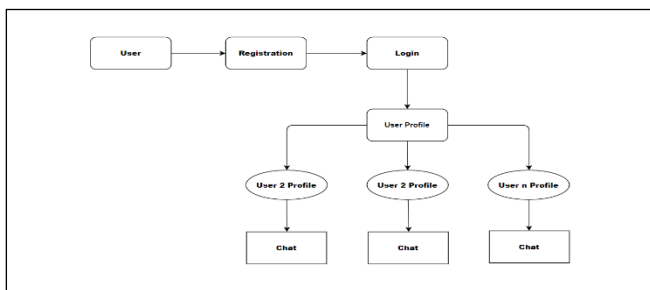
4. System Architecture

4.1 User Data Flow Diagram :



User will have to simply register on the AnyChat application and then he can login with credentials like username and password.

4.2 System Data Flow Diagram :



This diagram shows when number of users register on the AnyChat and then login they will show all the existing users on the system. The user can chat with anyone he want.

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6. CONCLUSION

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