Project Proposal – Secured Chat App

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System Description

The system will be composed of server side and client side. It will be a **secured** online chat where people can communicate through the internet with their friend, family and other people who share with them relevant interests and hobbies.

Hacking Scenarios

While the internet has become the preferred way for most of us to communicate, we need a secured chat website to prevent hackers from stealing messages we write or receive, by encrypting them.

There are some scenarios where hackers can access our messages and steal them, which in this project I will try to prevent hackers from getting the messages.

1. Hacker can access the database where the messages are stored and steal them, or even steal private information about users and potentially their credentials for logging to the system.
2. Hacker can try to make Man-in-the-middle attack, pretending to be the intended recipient and he will be able to access the messages.
3. Hacker can hack a user account and get advantage of the chats that are linked to him.
4. Hacker can hack the server-side and steal the keys that are used to encrypt the messages.

Project goals

The main purpose of this project is to create a secured, encrypted chat app.

Goals:

- Create a functional chat website composed of server-side and client-side with decent UI.
- Prevent hackers from stealing the messages by encrypting them using verified algorithms for encrypting messages like end-to-end encryptions.
- Prevent hackers from stealing messages from the user's device by storing the encrypted messages in a cloud database.
- Make the chat safer by creating authentication to the users.

Challenges

The main challenges in this project will be:

- Creating a working online chat website composed of server side and client side with decent UI.
- Learning and using end-to-end encryptions algorithms.
- Learning and using cloud database.
- Sending and encrypting data other than text, like files, images etc.

Timeline

- Week 1 and 2 - Create the server side of the chat website, learn to use cloud database, and test the server side.
- Week 3 and 4 – Create the client side of the chat website, and test it.
- Week 5,6 and 7 – Learn about end-to-end encryption algorithms and use an algorithm for the chat website. In addition, learn about authentication and use algorithms for authenticating users.
- Week 8 – Testing the whole project.