**Real-Time Chat Application User Guide and Test Plan**

**User Guide:**

**System Requirements**

To use the Real-Time Chat Application, you'll need:

* A modern web browser such as Chrome, Firefox, Safari, or Edge.
* An active internet connection.

**Registration and Login**

**Creating a New Account**

1. From the homepage, click on the "Create Account" button.
2. Fill in the required fields with your information:

* Username: Choose a unique username that will identify you on the chat platform.
* Password: Create a strong password to secure your account.

1. Click the "Register" button to create your account.
2. You will be redirected to the login page to sign in with your new credentials.

**Logging In to Your Account**

1. Enter your username and password in the login fields.
2. Click the "Login" button to access your chat dashboard.
3. If you've forgotten your password, click on the "Forgot Password" link and follow the instructions to reset it.

**Navigating the Chat Application**

Upon logging in, you'll be presented with the main chat dashboard. Here's how to navigate the main features:

**Contact Lists**

* Adding Contacts: Click on "Add Contact," enter the username of the person you wish to add, and click "Send Request."
* Managing Contacts: Your contacts are listed on the left side. Click on a contact to open a chat window.

**Engaging in Conversations**

* Starting a New Conversation: Select a contact from your contact list to open a new chat tab.
* Sending Messages: Type your message in the message input box and hit "Enter" or click "Send" to deliver your message.
* Receiving Messages: Incoming messages will appear in real-time within the open chat tab.
* Viewing Chat History: Scroll through the conversation window to view your chat history with each contact.

**Test Plan:**

The idea with this test plan is to have a good outline of the different methods to confirm the application's functionality, security, and ui. This plan will detail the approach for validating the registration, login, logout, database integrity, cross-browser compatibility, and chat functionalities.

**Test Environment:**

The testing will be conducted on various hardware platforms using different browsers to ensure compatibility and responsiveness.

**Test Data:**

Sample data for registration, login, and chat scenarios will be created to simulate user interaction, including both valid and invalid inputs.

**Functional Testing:**

**Registration Functionality:**

Valid Registration

* Confirm successful user registration with valid credentials.
* User is added to the database; confirmation message displayed.

Invalid Username Handling

* Error handling for invalid and duplicate email addresses during registration.
* Error message indicating username is taken or invalid.

Password Criteria Verification

* Check the system's response to passwords that don't meet security criteria.
* Error message indicating password is invalid.

Password Security

* Verify that passwords are securely hashed and encrypted in the database.
* Database stores hashed and encrypted password.

**Login Functionality:**

Valid Login:

* Verify that login is successful with correct credentials.
* User is logged in and redirected to the chat interface.

Incorrect Login

* Confirm that an incorrect login attempt displays appropriate error messages.
* Error message indicating incorrect login information.

**Logout Functionality:**

User Logs Out

* Ensure that the logout functionality properly logs out the user.
* User is logged out and redirected to the login page.

**Chat Feature Functionality**

Contact List

* Ensure the contact list is correctly populated.
* Contacts are listed as what’s in the database.

Chat History

* Validate the retrieval of chat history.
* Chat history is correctly displayed.

Accuracy of the Date and Time

* Confirm that the application displays the correct date and time for messages.
* Messages carry accurate timestamps.

**Database**:

User Creation Validate

* Ensure that new users are accurately represented in the database.
* Users table contains new user data.

Add Items to Database

* Verify the functionality of adding new items to the database ie chats, contacts.
* Items table updates with new entry.

**Compatibility:**

Cross-Browser Compatibility

* Ensure the application operates correctly across multiple browsers.
* Google Chrome and Microsoft Edge.