

ChitChat
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Assignment #4

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Introduction

For this assignment, we were required to create a simple chat application that allows a user to log in, select a group and begin a chat with the members of that group.

The database consists of two tables. The first table (chatusers) stores the list of all users, past and present. This table is persistent and will not remove users. It is used to show the list of online/offline users as well as the list of members of a specific group.

The second table (chitchat) stores each message, along with data to tell the system who it came from, what group it is meant for as well as the post time and the actual text sent. The entries in the table are deleted after they are 5 seconds old, allowing all of the users to fetch the information required and removing entries to prevent buildup.

Objectives

My main objective was to allow communication between multiple users without dropped messages or duplicates. Also, I wanted to be able to show users who were online as well as offline for each group.

Methodology

An index.php file on initial load, shows a login form. This main area of the page will completely reload with new content once the user inputs their username and selects a group. When a user logs in, two global variables are set: username and group. These are persistent throughout the user's time on the chat, which allow for constant communication between the client-side code and the server for fetching and sending posts.

Once the chat page has loaded, a function is called to retrieve the latest messages for the group. This function also does general maintenance such as determining if users are online/offline as well as deleting messages older than 5 seconds. Once this function has finished executing, a setTimeout is called to loop the function -- but only after the last one has finished executing.

For the checking of new messages, a slower loop time was opted for due to the fact that the strain on the server was deemed too much for it to process any faster. This means that messages will arrive on a very slight delay instead of a perceived "instant" wait time.

The way duplicate messages are prevented (due to the fact that messages are stored for intervals of 5 seconds), is that an 11 digit number is returned at the beginning of every responseText, which contains the number of the last ID called. This is then used to limit the results to messages after that one for the next call.

The list of users is also refreshed on a loop. For the home page, it is refreshed every 10 seconds, as this is only for "at-a-glance" viewing as a user is logging in. Once inside the chat, it is refreshed every 6 seconds for the user.

The way online and offline statuses are achieved is by using the getIM function that is periodically called by every user to place a timestamp in the database of their last call. This is then cross-checked with the current time, and if the difference is greater than 10 seconds, they are deemed “offline”.

References / Citations

<https://developer.mozilla.org/en/DOM/element.scrollTop>