Computer Network Report

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1. Unregister extension

In case of a keyboard interrupt, an additional try catch on the send and receive threads in client application can be used to send UNREGISTER message and close the socket. When the user exits by keyboard interrupt, an unregister message will be sent, client is unregistered and socket is closed.

To deal with offline users, we will first open third socket in a seperate thread in client and register the socket. This socket will be used to receive acks from receiver. Acks received here are of two types. One Ack is received when receiver is online and message is delivered. Another type of ack is received when user reads the message. When a message is sent, the ack from server to sender thread of client will either be that message is received by server or username does not exist. In this case, there will be a single tick on message. Now the server checks whether the receiver is online. If the receiver is online, message is delivered and ack from receiver is forwarded to third socket of sender which shows that message is delivered and the message will have double tick. If the receiver is offline, message for the receiver will stored in the server. The data structure will contain a list of tuple of username and list of messages. A hashmap can be used to decrease search time. The message is stored in this list. When the user comes online and its new sockets are registered, the server will forward the messages stored in list to receiver. While sending messages, we give every message a unique message id to identify the message for tick. When the user reads a message, an ack will be sent to the server which will forward it to the sender and mark the message in blue tick.