



SDLE, M.EIC, FEUP

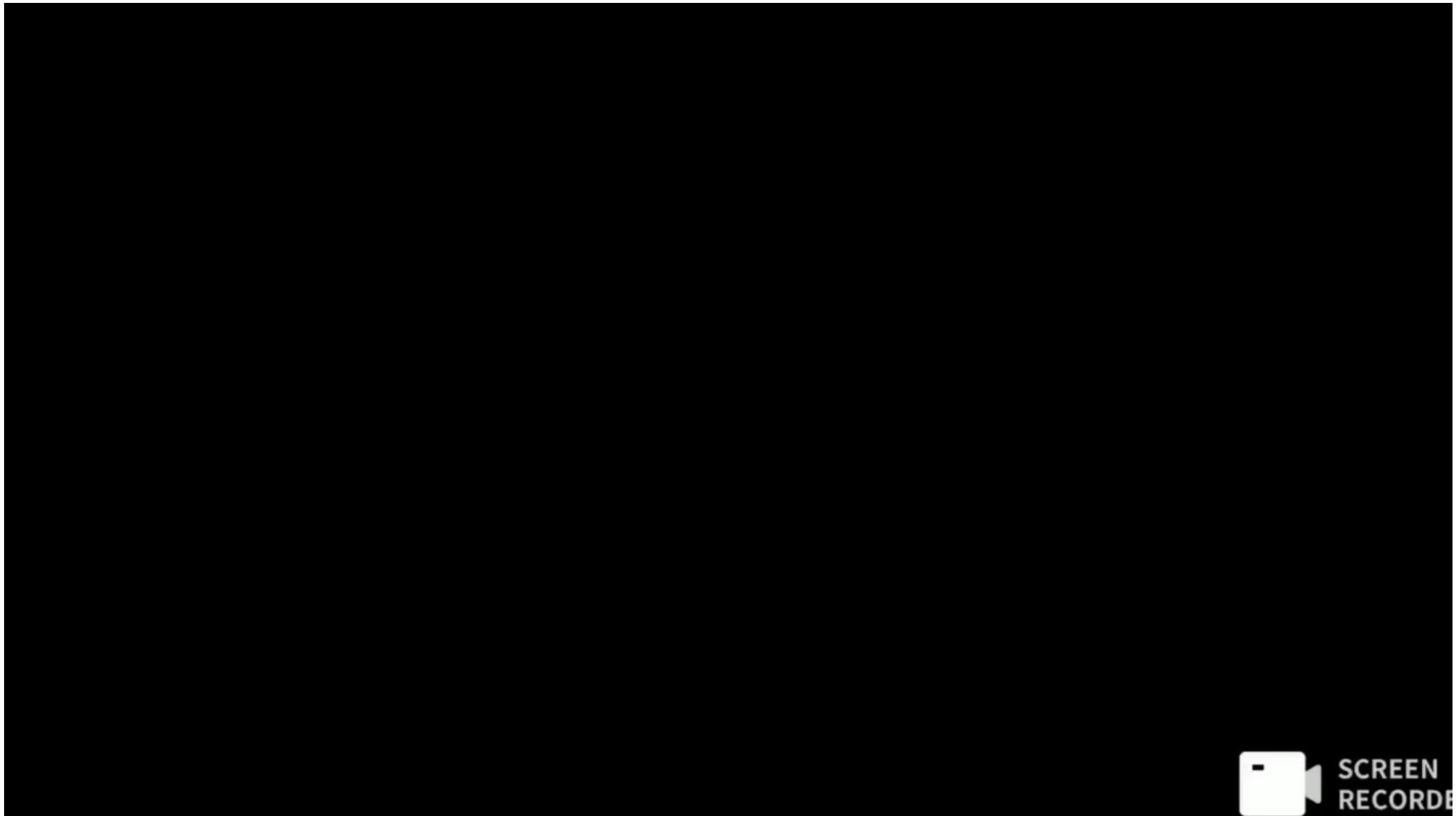
Peer2Peer: Decentralized Timeline

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Demo



Technologies

- Python
 - Zero MQ - REQ/REP pattern
 - tkinter



~~ØMQ~~

Functionalities

Register / Login

Create a new account or login with an existing one.

Subscribe / Unsubscribe

Subscribe or unsubscribe to another user's post, receiving its updates whenever a new post occurs.

Post Message

Publish a new message that becomes visible to all your followers.

Show Timeline

Display your timeline chronologically, composed of the posts of the users that you follow.

Authentication

- The application doesn't allow users with the same name;
- The application doesn't allow the same user to run in two separate windows
- The password is saved along with the user in the file `users.txt`, in the `src` folder, and it is checked when a user tries to log in;
- Each user has a timestamp that represents when it was created, to avoid conflict in situations that 2 users try to register with the exact same name at the same time in different machines.

Subscriptions

- Users can subscribe to other users to receive their messages
- If users no longer wish to receive messages from another user, they can also unsubscribe
- To facilitate finding addresses of other users we developed a server that creates a database of users that are automatically added when they connect to it for the first time. If the user logs in with a different IP than before, the database is updated.

Creating and Seeing Messages

- The user can write new messages;
- If subscribed to another user, he/she can see their messages;
- If we attempt to retrieve the messages from user3 and he is offline but we are subscribed to user2 and he has user3's messages, the app fetches user3's messages from user2;
- If a peer has a post for a certain amount of time, the post will be deleted.

App over the network

- The user can specify its own IP and the username server IP to be able to establish connections over a network and not only on his/her local machine

Conclusion and Future Work

During the development of this peer to peer network, we learnt how to build a reliable large scale network timeline.

For future work we would like to add some features like:

- Replying to messages;
- Recommendations of users that you might know.

References

- ZeroMQ, <https://pyzmq.readthedocs.io/en/latest/api/zmq.html>, Accessed December 2022
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 - tkinter, Python, <https://docs.python.org/3/library/tkinter.html>, Accessed December 2022
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Thank You!

Questions?