# Hybrid Centralized Peer-to-peer Chat System

## Group Project: Distributed System
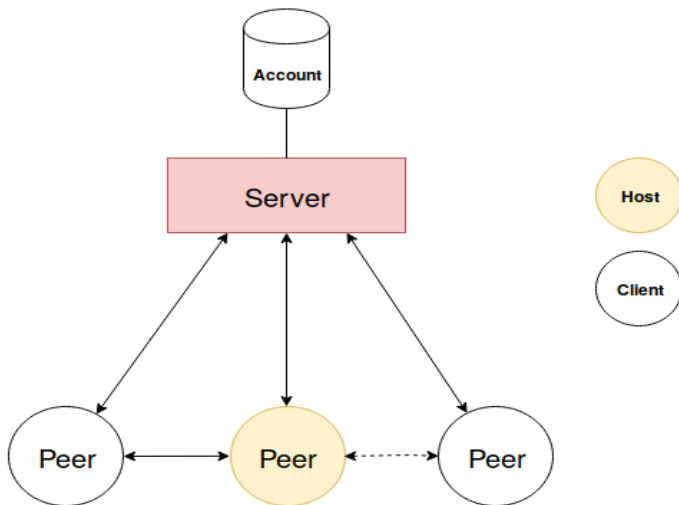
Tran Thi Thuy Kieu, Ha Minh Huong, Nguyen Dinh Mau, Vu Hoang Minh, Le Gia Anh Quy
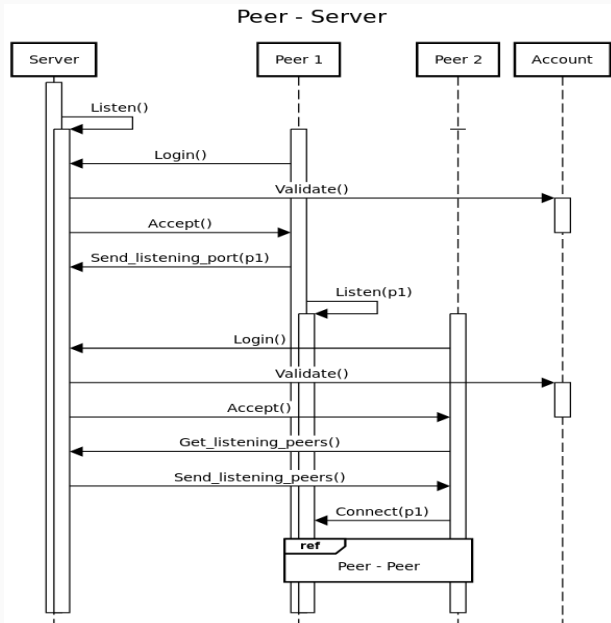
USTH - ICT - BI7

## Introduction

### Hybrid Centralized P2P Chat system

- Chat system
  - Send/receive messages

- Peer to peer (P2P)
  - Peer: A node contains both client-server functions
  - Peers can make a direct connection to each other

- Hybrid Centralized
  - Peers search each other via a central server
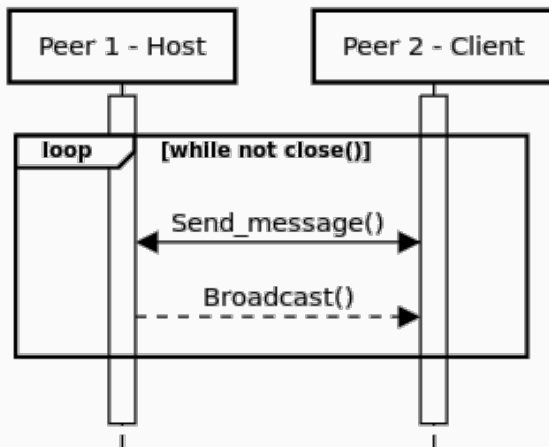  - The central server maintains peers' information and connection

# Sequence Diagram



Peer - Server

Server    Peer 1    Peer 2    Account

Listen()

Login()

Validate()

Accept()

Send_listening_port(p1)

Listen(p1)

Login()

Validate()

Accept()

Get_listening_peers()

Send_listening_peers()

Connect(p1)

ref
Peer - Peer

# Peer - Peer

# Method

- Store accounts & Encrypt password
  - SQLite
  - SHA1

- Connection Protocol
  - TCP/IP

- **Server** serves multiple peers
  - Multi-threading
  - Blocking I/O

- **Peer** serves multiple peers
  - Multiplexing I/O - Select

# Conclusion

- Done
    - A Hybrid Centralized P2P Chat System
        - Server connects multiple peers asynchronously
        - Peers send/receive messages without blocking
        - More than 2 peers can chat in a host
        - Store peer's account in database with encrypted password

- Not Done
    - Encrypt private messages

- Future Work
    - Do what have not done
    - GUI

- Reference Code: github.com/harsh-kotak/Peer-to-Peer-Chat-and-File-Sharing-Server