**Problem description**

We want to create channels for particular clients.

A channel is a “group of clients”, when a client sends a message to a channel it must broadcast to every client enlisted in the channel.

The current state of the program can be seen as a single channel with all clients included.

**System behaviour**

When a client connects to the server it is added to the “main channel”.

The client can request to create, join or destroy a channel (each channel has a client that created it and only its creator can delete it) using commands started by ‘/’

Commands:

* “/Create channel” – The server creates a channel (if possible) and returns a channel ID (“/Channel ID <channel ID>”).
* “/Check clients” – The client asks for online clients, the server returns the list. “/Online <client ID> <client ID> ...”
* “/Invite <client ID> <channel ID>” – The client (must be member of the channel) invites another client through the server. The server asks if the invited client wants to join (“/Invite <channel ID>”).
* “/Accept join <channel ID>” - accepts the invite from other client. The server returns for the requester “/Permission accepted <client ID> <channel ID>”.
* “/destroy channel <channel ID>” - the server checks the ownership and deletes or not the channel. Returns “/destroy accepted <channel ID>” or “/destroy denied <channel ID>”.
* “/msg <channel ID> <message>” – the server broadcasts the message to every client in the channel. The broadcast format “/msg <channel ID> < client ID> <message>”

Channel attributes:

* “ClientOwnerID” – Client pointer – The owner of the channel
* “Clients” – Array of clients – List of clients that make part in the channel and can broadcast to other members of the channel.

**Task overview**

Tasks:

- “taskCreateChannel” – Creates a channel in the server and returns the channel ID to who requested it.

- “taskChannelInvitation”- Checks if the client is a member of the channel and sends the invite to the target client if it’s not already part of the channel. Waits up to X sec for the response. If it’s accepted in time the client is added to the channel and the inviter is notified. If it’s rejected or runs out of time the inviter is notified of the negative response.

-“taskDestroyChannel” – Checks the ownership of the channel and deletes it if true. Notifies the client about that.

-“taskMessageChannel” – Checks if the channel exists and if the client is member of it. The server broadcasts the message to all online members of the channel.

-“taskCheckClients” – Checks which clients are online and responses to the client that triggered the task.