

Connection Protocol

AM23

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Contents

1	Messages	2
1.1	Messages from Server	2
1.2	Messages from Client	3
2	Connection's Setup	4
2.1	Successful connection to the server	4
2.2	Nickname already used	4
3	Lobby manager	5
3.1	Creation of a new lobby	5
3.2	Logging into a lobby	5
3.3	Disconnection during the making of a lobby	6
3.4	Starting the game	6
4	Game manager	7
4.1	First round of the game	7
4.2	Disconnection during the game	7
4.3	Complete example of a player's move	8
4.4	Final messages	9

1 Messages

Our Server - Client architecture is based on the exchange of messages: there are of course two kind of messages which are sent from one side of the system. The Client makes requests to the Server which sends back the necessary answers. The messages are also used to transfer the updated values of the objects to the clients.

1.1 Messages from Server

BOOKSHELF MESSAGE : It's sent when a player's bookshelf get updated after new tiles have been inserted into.

COMMON COMPLETED MESSAGE : It's sent when a player has gained some points after they completed a Common Goal Card.

CRASHED LOBBY MESSAGE : It's sent when a client gets disconnected from the game. The lobby is closed and all the clients are invited to reconnect to the server.

END GAME MESSAGE : It's sent when the game is ended and all the scores are shown.

ERROR MESSAGE : The message is sent to the client with a specific error message.

GAME IS STARTING MESSAGE : It's sent to all the clients when the lobby has reached the necessary number of players. Thus, the game can begin.

LAST TURN MESSAGE : It's sent when a player completes their bookshelf.

LIVING ROOM MESSAGE : It's sent when the Living Room's board has been restored.

LOBBY JOINING MESSAGE : It's sent back to the client which has joined the lobby, returning its identifier number.

PING MESSAGE : It's sent to assure that all clients are still connected to the server.

SUCCESS MESSAGE : It's sent when all the changes have been successfully applied.

UPDATE STATE MESSAGE : It's sent to all the clients after every round's end to return the updated values of the game's objects.

VALID MOVE MESSAGE : It's sent if a player's move respects game's rules.

VALID NICKNAME MESSAGE : It's sent as a client approaches the servers, assuring the uniqueness of their nickname.

1.2 Messages from Client

CLIENT ERROR MESSAGE : It's sent when a client tries to send a bad written message.

COLUMN MESSAGE : It's sent when a player has chosen a column of their bookshelf where to insert the picked tile.

COORDINATES MESSAGE : It's sent when a player wants to pick some tiles from the Living Room's board.

LOBBY CREATION MESSAGE : It's sent when a client wants to create a new lobby.

LOBBY ENTRANCE MESSAGE : It's sent when a client enters into an already existing lobby.

NICKNAME MESSAGE : It's sent when a client tries to connect to the server. The message contains their nickname so that the server can check their uniqueness.

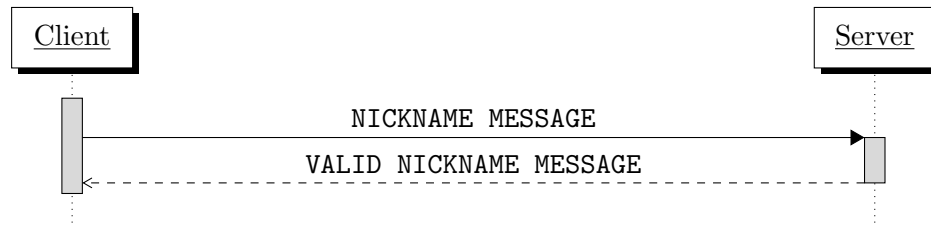
ORDER MESSAGE : It's sent when a player declares in which order wants to insert the tiles into their bookshelf.

PING MESSAGE : It's sent to keep alive the connection with the server.

2 Connection's Setup

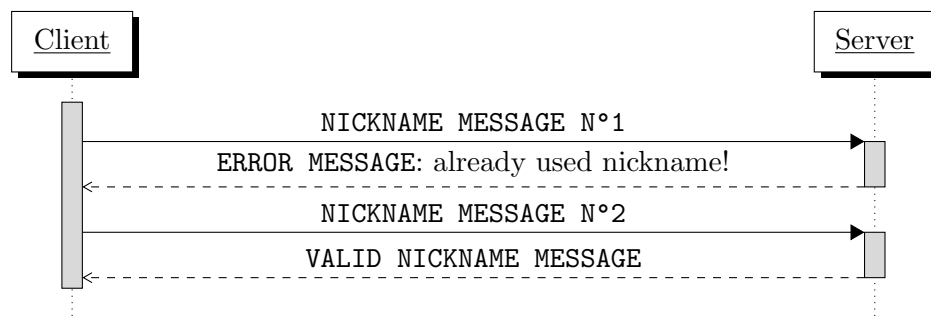
2.1 Successful connection to the server

The client receives as inputs from the player IP Address, Port Number and Type of Connection to connect to the server. After the player has chosen their nickname, the client sends a **NICKNAME MESSAGE** to the server. If there are no equal nicknames, the connection gets accepted.



2.2 Nickname already used

In case, the chosen nickname is already used from one of the clients connected to the server, the client gets back an **ERROR MESSAGE** which invites them to retry with a different nickname.

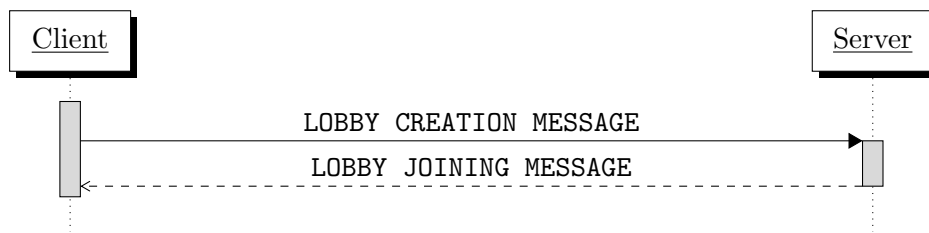


3 Lobby manager

3.1 Creation of a new lobby

Once the connection has been established, it's given two choices to the client: create a new lobby or enter in an already existent one. The client sends a **LOBBY CREATION MESSAGE** adding the wished number of players for the game.

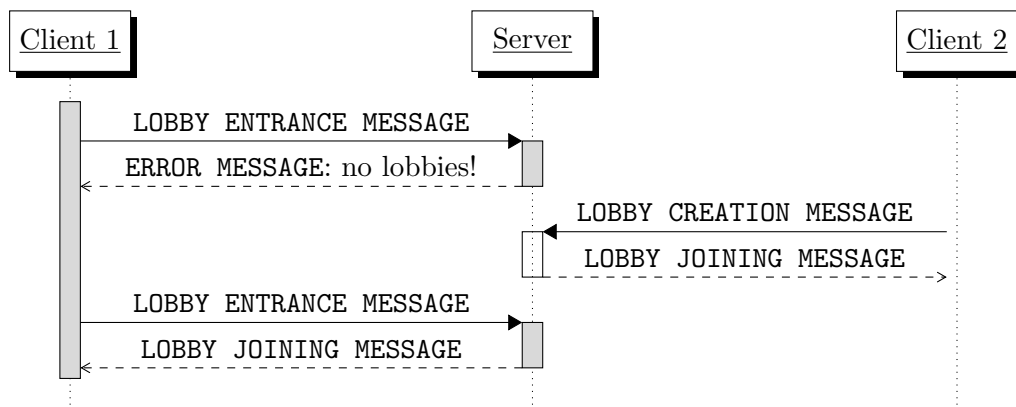
If the inserted number is not wrong, the servers answers with a **LOBBY JOINING MESSAGE** to warn the client that the lobby has been successfully created. Therefore, the clients is in waiting for other players.



3.2 Logging into a lobby

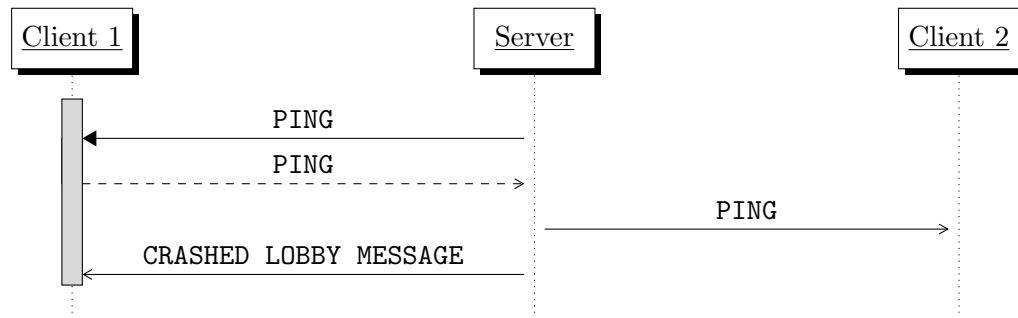
As the client is connected to the server, it can also enter into a lobby sending a **LOBBY ENTRANCE MESSAGE**. If there's at least one already existent lobby, the client joins automatically the oldest one.

In case of inexistent lobbies on the server, the client receives an **ERROR MESSAGE**.



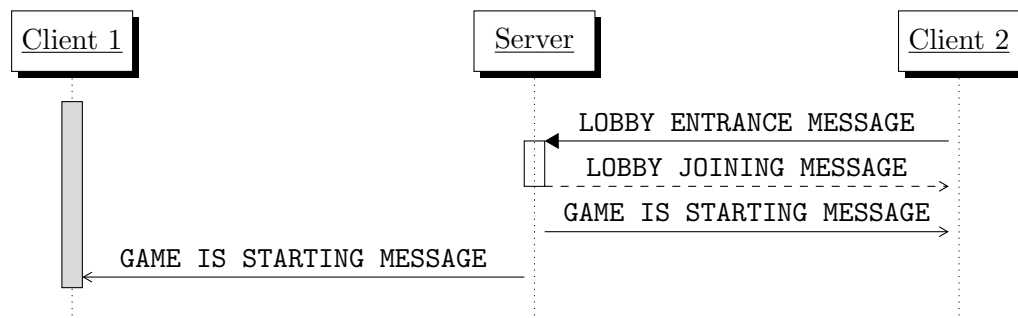
3.3 Disconnection during the making of a lobby

If one of the joined clients of the lobby loses the connection, the lobby is closed and all the clients get disconnected from the server. Before of the disconnection, they receive from the server a CRASHED LOBBY MESSAGE.



3.4 Starting the game

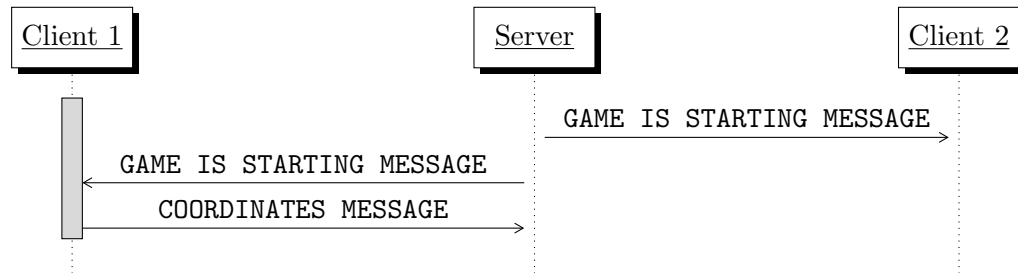
As the number of players is reached, the lobby gets closed and all the clients receive the GAME IS STARTING MESSAGE.



4 Game manager

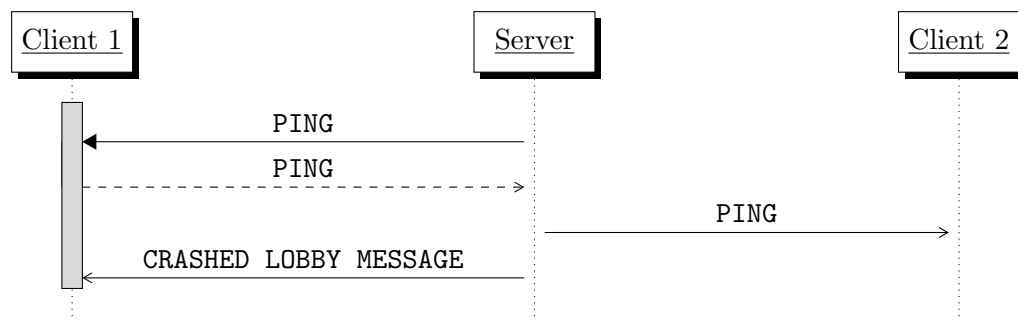
4.1 First round of the game

As the game is started, all the objects get created by server side and are forwarded to all the clients through the **GAME IS STARTING MESSAGE**. So, only one client is able to play their move until the end of their turn.



4.2 Disconnection during the game

If one of the joined players loses the connection, the game is ended and all the players get disconnected from the server. Before of the disconnection, they receive from the server a **CRASHED LOBBY MESSAGE**.



4.3 Complete example of a player's move

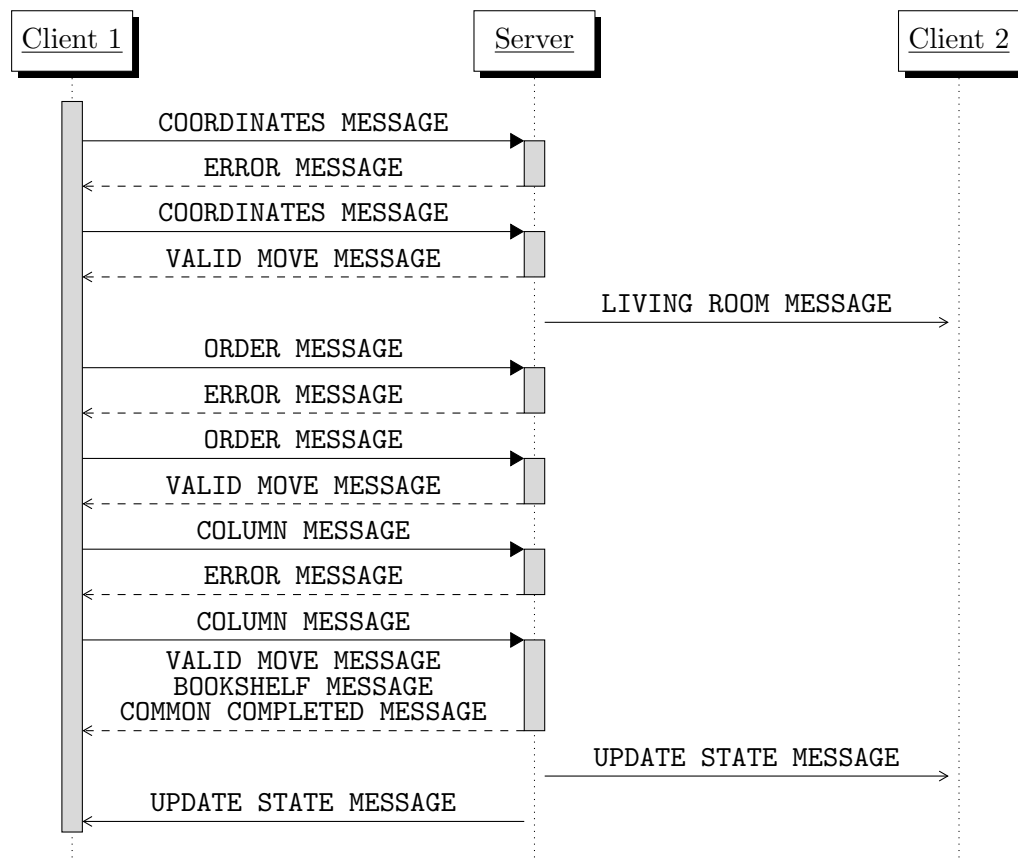
During their turn, a player has to send three messages to the server to play their move. First, they have to pick some tiles from the board through the **COORDINATES MESSAGE**; if their selection isn't legal, the client receives an **ERROR MESSAGE** and is invited to retry.

Then, they have to choose the order and column of insertion in their bookshelf, respectively through the **ORDER MESSAGE** and **COLUMN MESSAGE**; if there's something wrong, the server will send an eventual **ERROR MESSAGE**.

If the Living Room's board needs to get restored, the server sends the new board to all the clients through the **LIVING ROOM MESSAGE**.

Or when a player completes a Common Goal Card, server sends the **COMMON COMPLETED MESSAGE**.

When a player finishes their turn, the server sends to all the players the **UPDATE STATE MESSAGE**.



4.4 Final messages

As a player completes their bookshelf, the server sends to all the clients a **LAST TURN MESSAGE**.

When the last player finishes their turn, the game is ended and the server send the **END GAME MESSAGE** to all the clients so that they can show the final scores.

