

Communication Protocol

OF AM40'S ERIANTYS BOARD GAME PROJECT

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Preface

This Document is divided in three parts:

Connection of players: describes the dialog between client and server before starting a match.

Start of the Game: describes the messages sent to the clients in order to send the complete initial status of the game.

Match: describes the dialogue between client, server and broadcast during a match.

Connection Resilience: describes special dialogue needed when a client disconnects and reconnects.

In the rightmost part of the graphs there are two lifeline symbols adherent to each other, one refers to “Every Client” the other to “Broadcast”. These lifelines symbols represent almost the same thing highlighting one crucial difference between two types of “broadcast” communications. “Broadcast” represents messages that are sent identical to all players, while “Every Client” represents messages that are logically broadcast but each player receives them with different content corresponding with its personal information.

Introduction

The communication is divided in three main parts:

- Login: once opened a socket between client and server, the connection is finalized;
- Lobby: where game settings and personalization are set;
- Play: where the game is effectively played.

From which come three main types of messages:

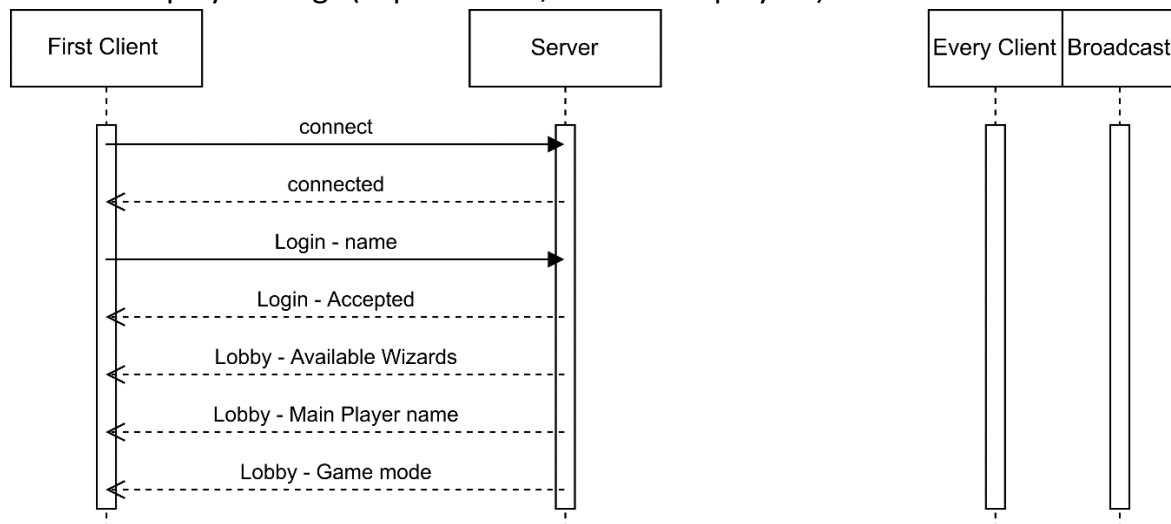
- Login: manage the dialogue just after opening the socket;
- Lobby: once logged in manages needed to prepare the game and start it;
- Play: used to send messages strictly related to the match, command and game status.

With two more useful utility message types:

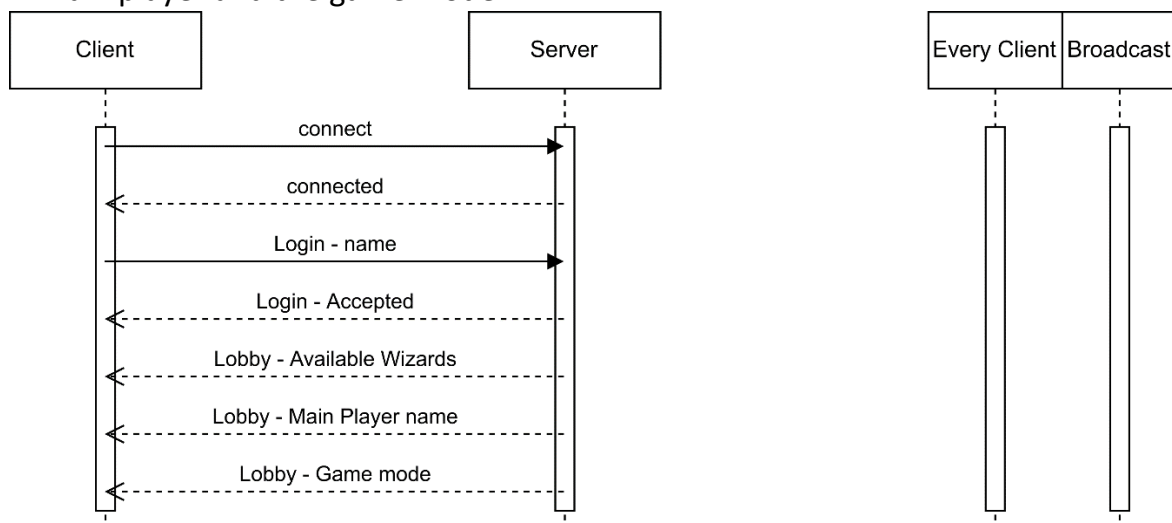
- Generic: to send simple strings of text;
- Error: used to send error messages of every kind.

Connection of players

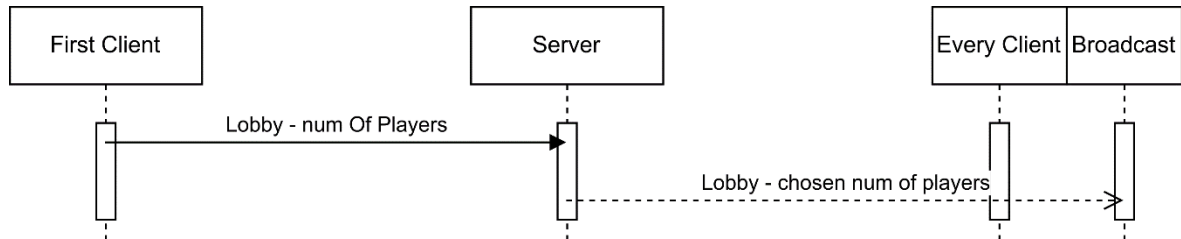
1. The communication begins when the first client required the server to connect. Once a positive response is received, the client sends a login message with the name with which it wishes to log in and the server responds with an acceptance and two lobby messages with the available wizards e and the name of the main player. The main player is the first player to connect to the game, and his job is to choose play settings (Expert mode, number of players) and start the match.



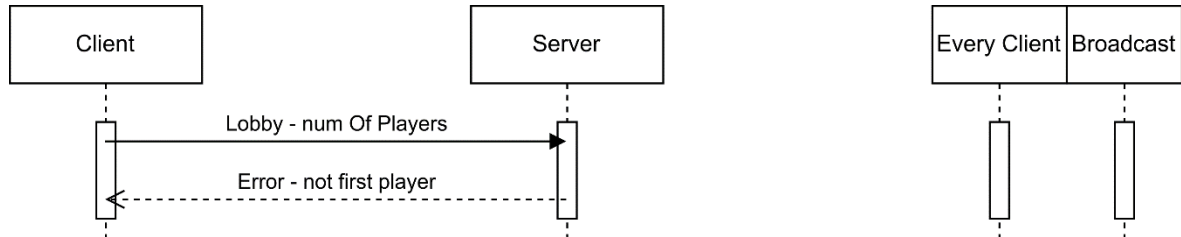
2. When a client, other than the first, wishes to connect, it sends a request to the server and waits for its response. Then he sends the server a login message with his name and waits for an acceptance response and 3 lobby messages: the available wizards, the name of the main player and the game mode.



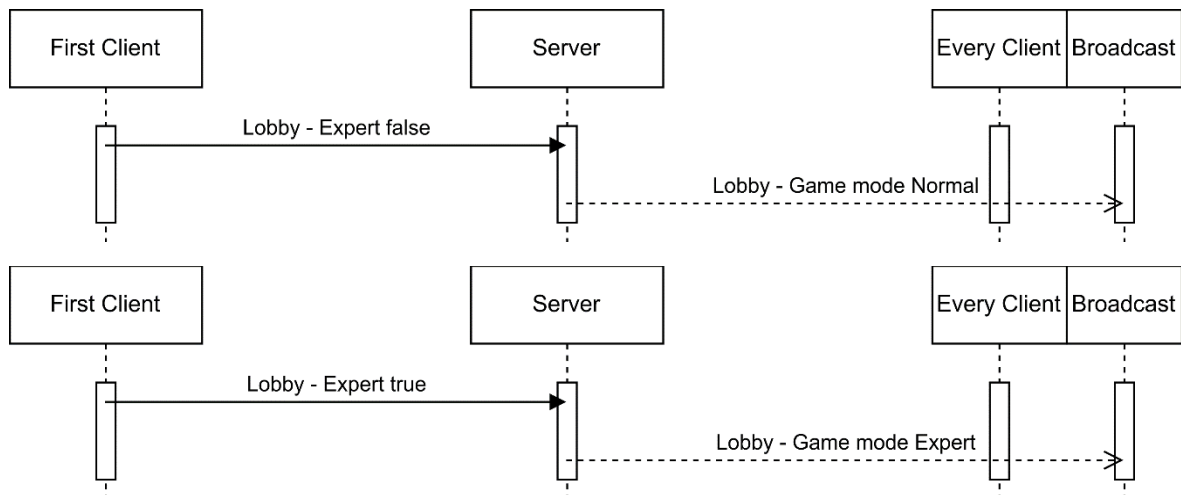
3. The main player sends a lobby message to the server with the number of players, which broadcasts it.



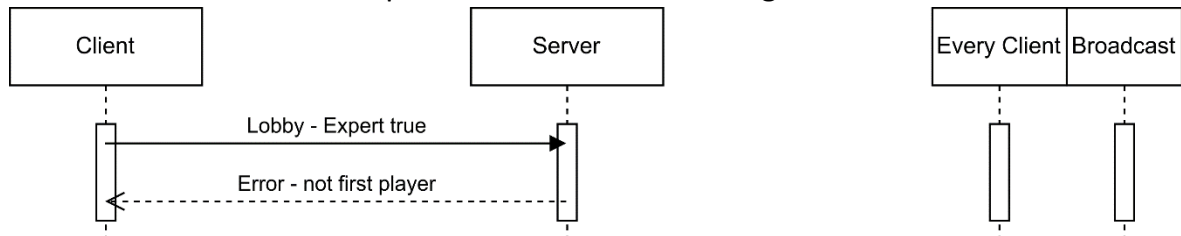
- 3.1 In case a client other than the main player tries to send the number of players, the server responds with an error message.



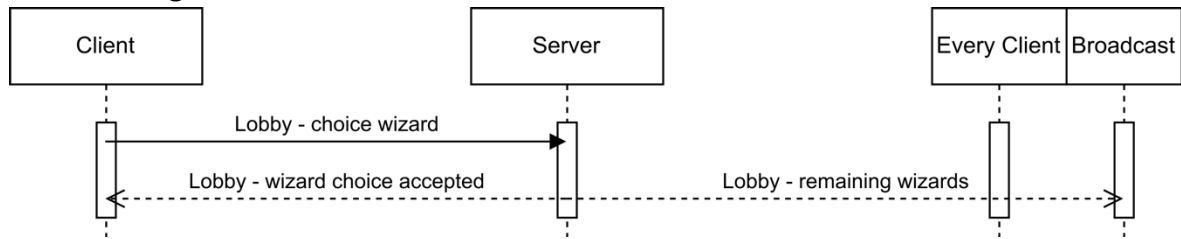
4. The main player sends a lobby message with the game mode (normal or expert) and the server sends it back on broadcast.



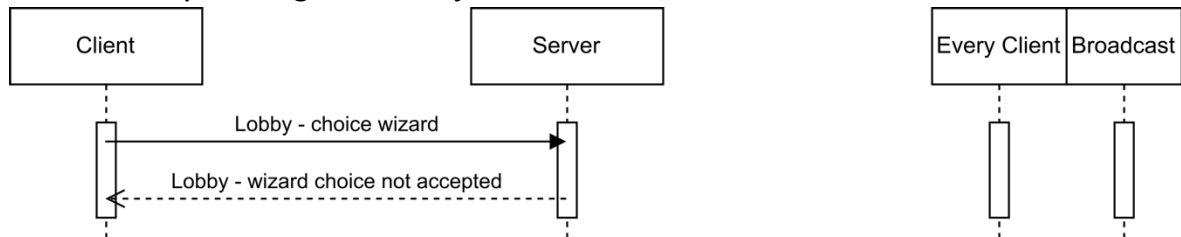
- 4.1 If a client other than the main player tries to send a message with the game mode, the server responds with an error message.



5. Each player sends a lobby message with the chosen wizard, if the choice is accepted, the server responds with a confirmation to the client and broadcasts the remaining wizards.

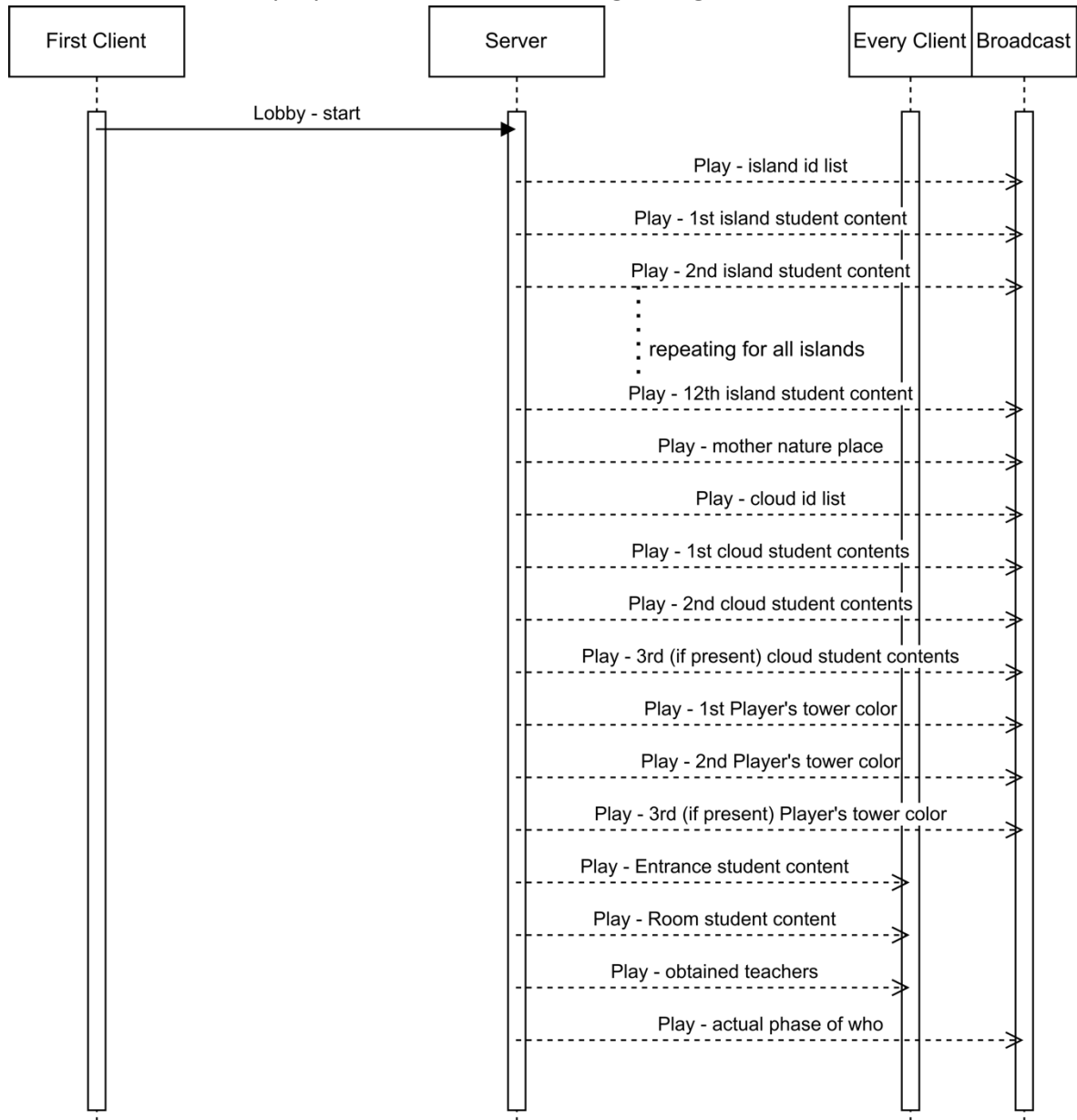


- 5.1 If a player's choice of wizard is not accepted, the server informs the player with a lobby message of the rejection.

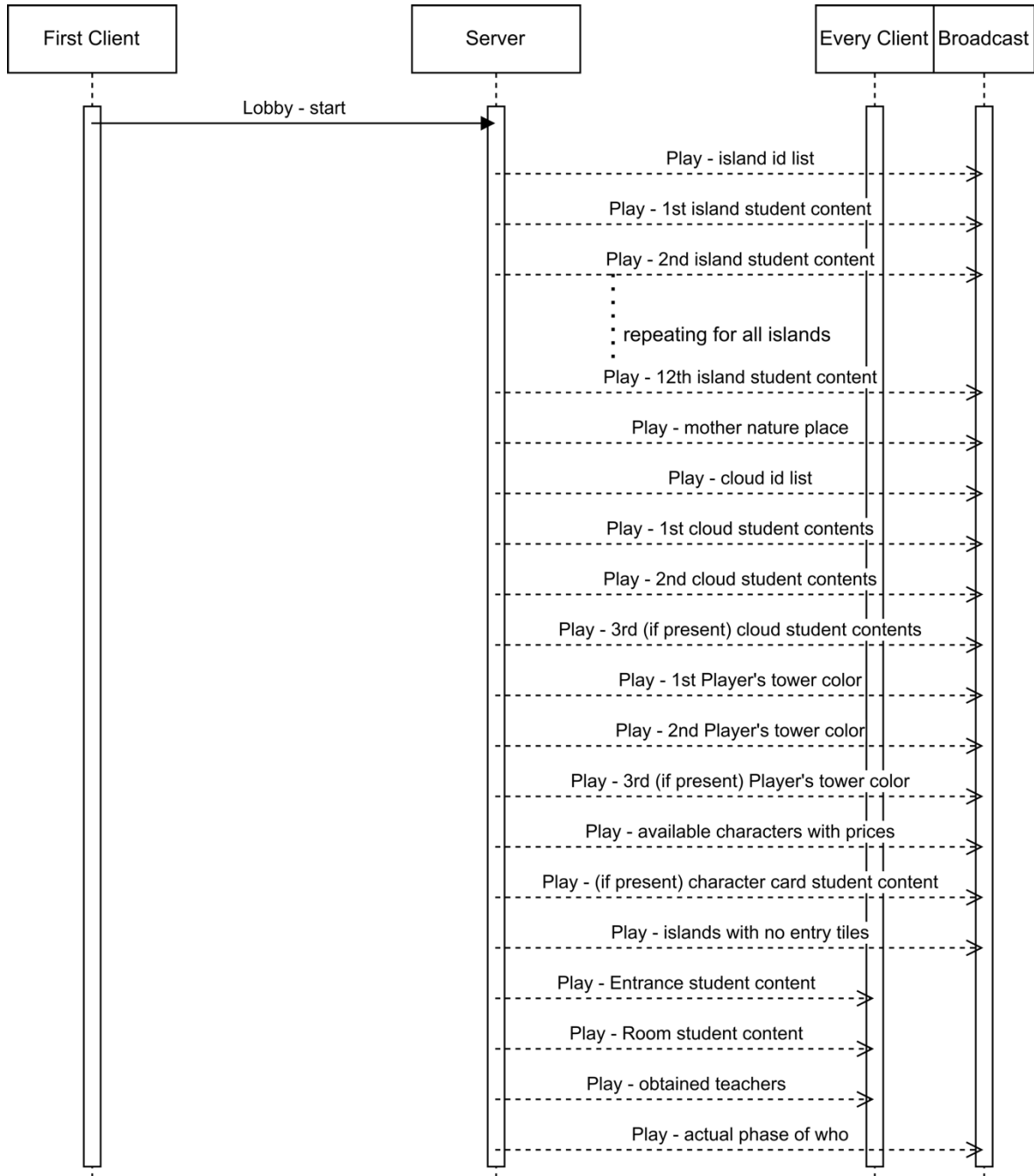


Start of the game

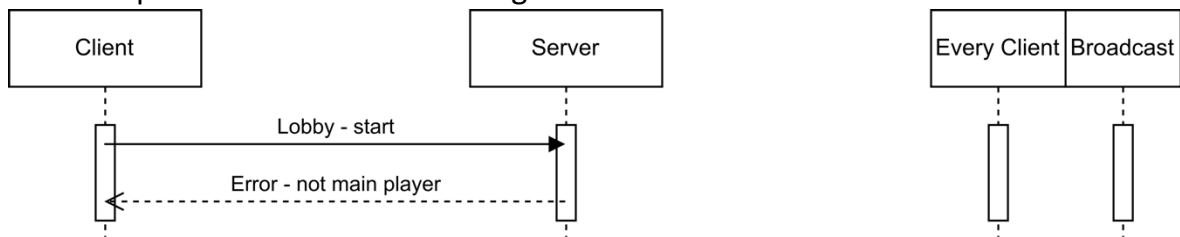
1. The main player sends a start lobby message to the server, the server responds in broadcast with play messages containing all the information on the game table and to each individual player with information regarding their dashboard.



1.1 In the case of the game in expert mode, when the main player sends the start lobby message, the server responds as described above in normal mode and adding more information regarding the expert mode in broadcast.

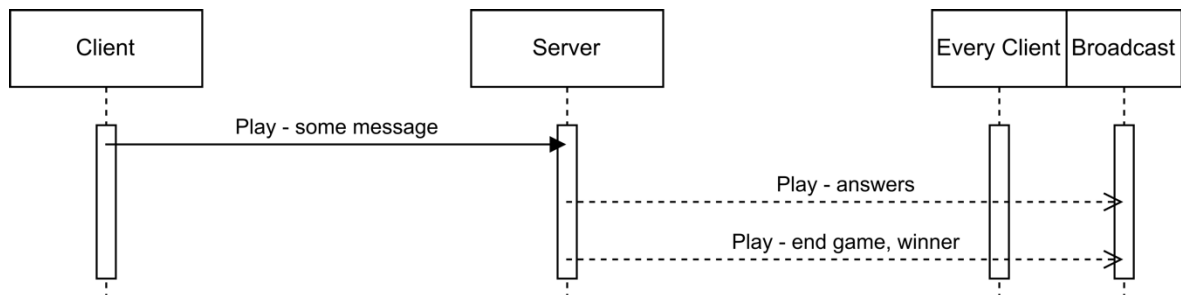


1.2 If a player other than the main player sends a lobby start message, the server responds with an error message.



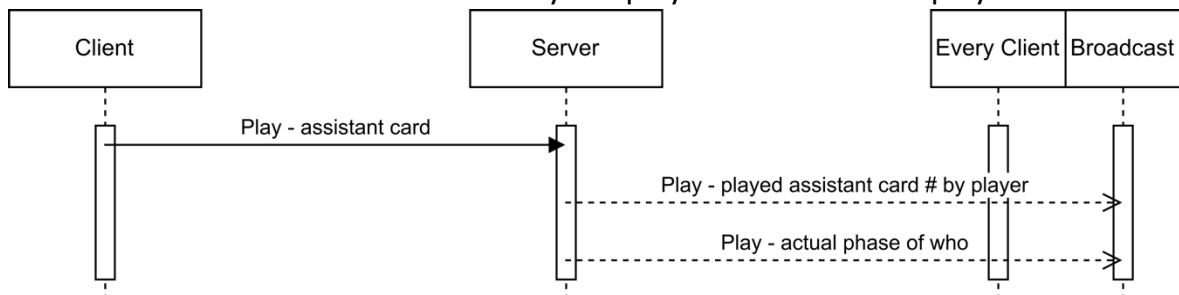
The match

In general, when a client sends a play message to the server, it broadcasts the response and, if necessary, warns that the game is over and the winner.

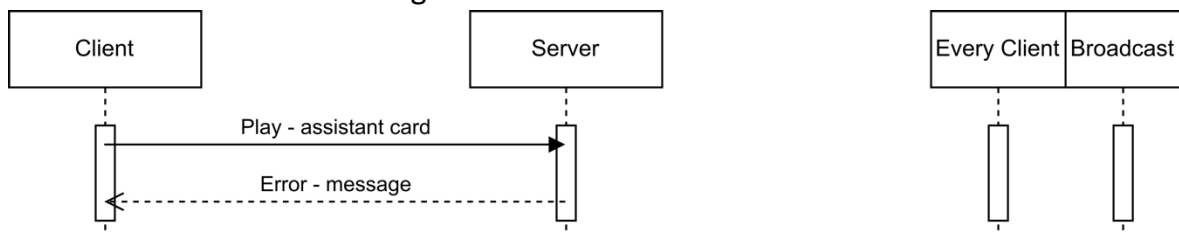


1. Planning phase

1.1 The player sends a play message to the server with the chosen assistant card, it broadcasts the card chosen by the player and the actual player.

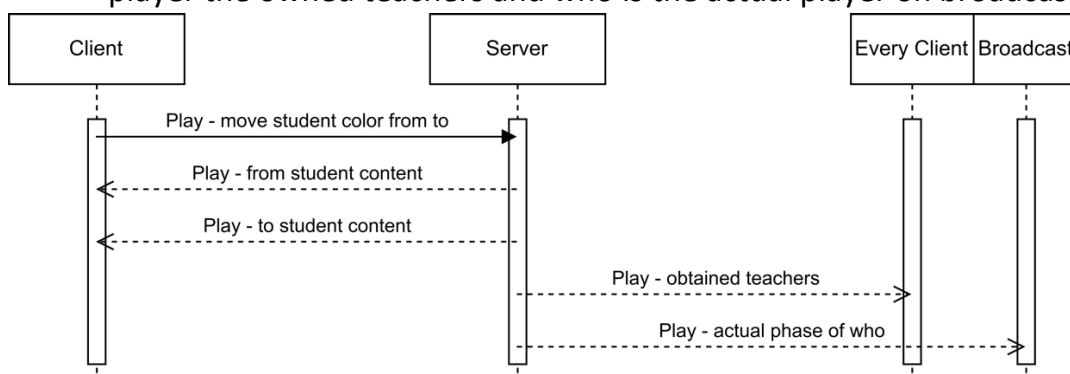


1.1.1 If a player sends an invalid assistant card to the server, he responds with an error message.

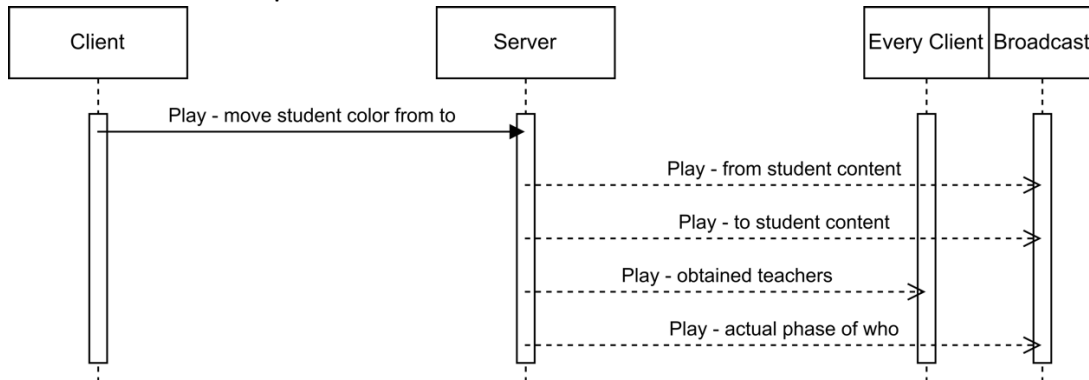


2. Action phase

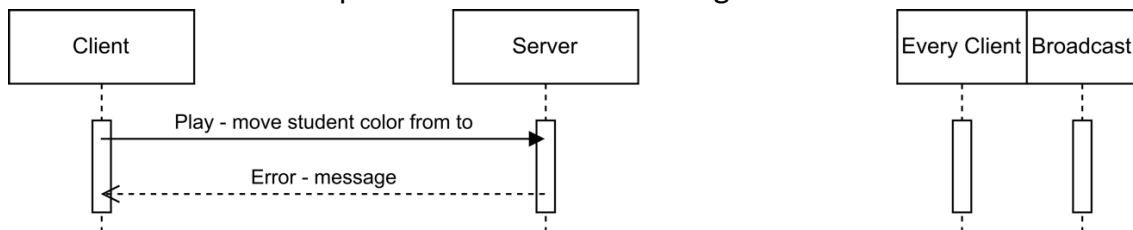
1.2 The player sends a game message to the server with the color of the student they want to move, the origin and destination of the movement. The server replies to the player with updated information on his dashboard, sends each player the owned teachers and who is the actual player on broadcast.



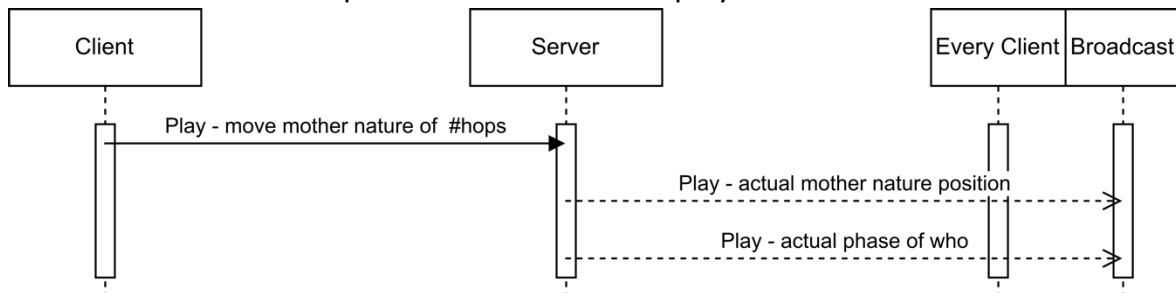
1.2.1 If the movement of students involves islands, the server also broadcasts the updated information on them.



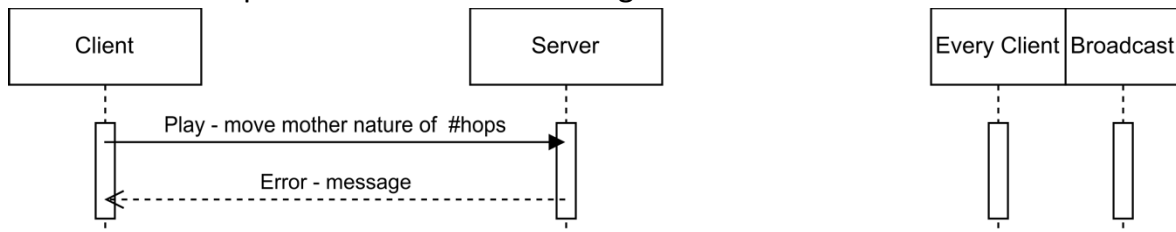
1.2.2 If a player sends incorrect or unrecognized movement parameters, the server responds with an error message.



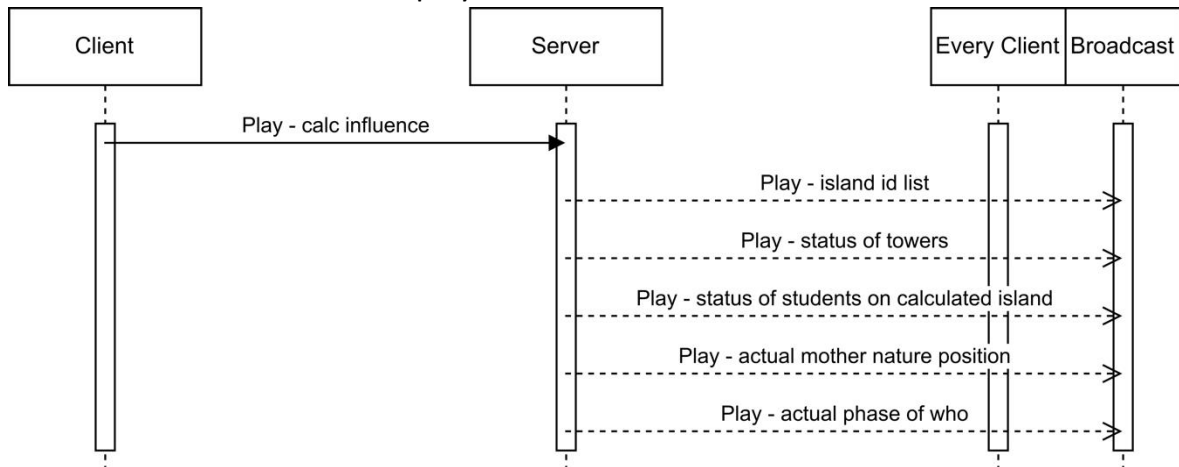
1.3 The player sends a play message to the server with the number of steps he wants mother nature to take, the server replies in broadcast with mother nature's current position and the actual player.



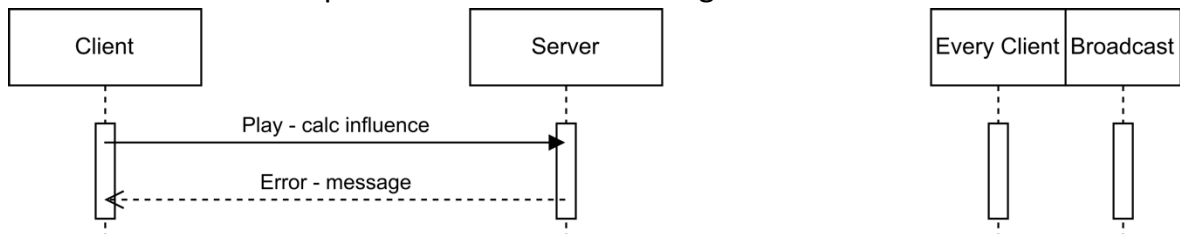
1.3.1 If a player requests an illegal or unreadable number of steps, the server responds with an error message.



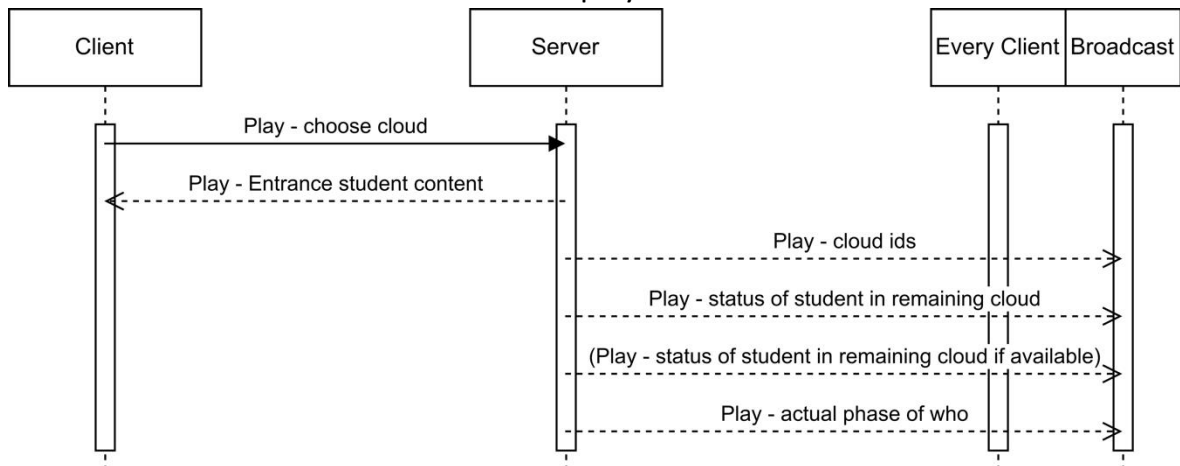
1.4 The player requests the calculation of the influence with a play message, the server responds in broadcast with information on the population of the islands and who is the actual player.



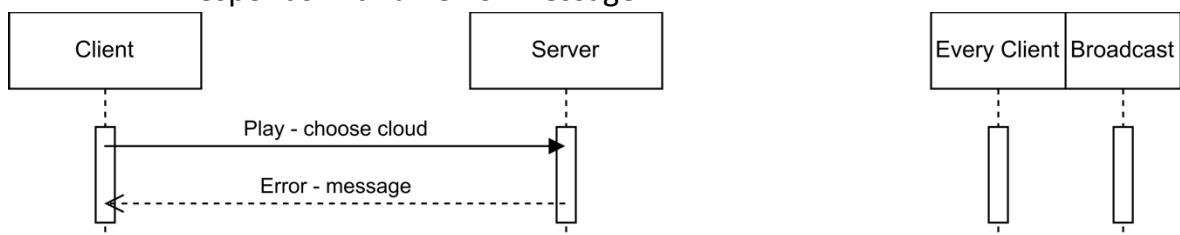
1.4.1 If a player requests the influence calculation when it is not allowed, the server responds with an error message.



1.5 The player sends a play message with the chosen cloud, the server sends the player the updated status of his entrance and the status of the remaining clouds with their id and the actual player is broadcast.

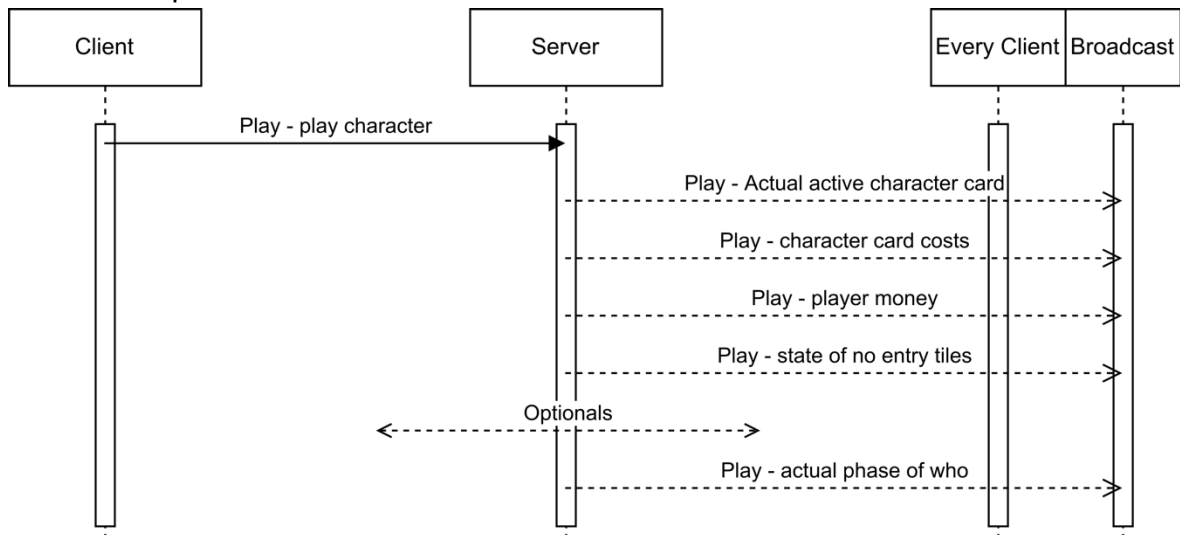


1.5.1 If a player chooses a nonexistent or already chosen cloud, the server responds with an error message.

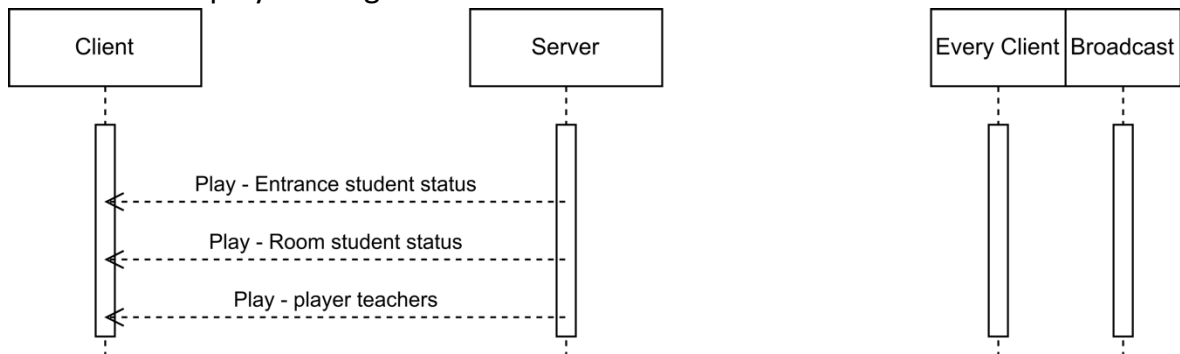


3. Expert mode

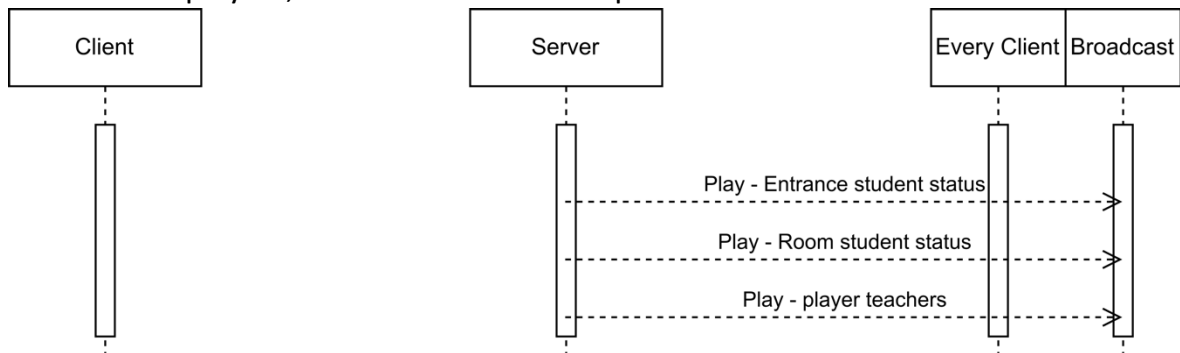
1.6 The player decides to play a character card, the server broadcasts play messages with the actual character card, information on updated costs, the status of the prohibition cards and who is the actual player. While using the card, common or customized dialogue parts may be present, represented by the Optionals arrow.



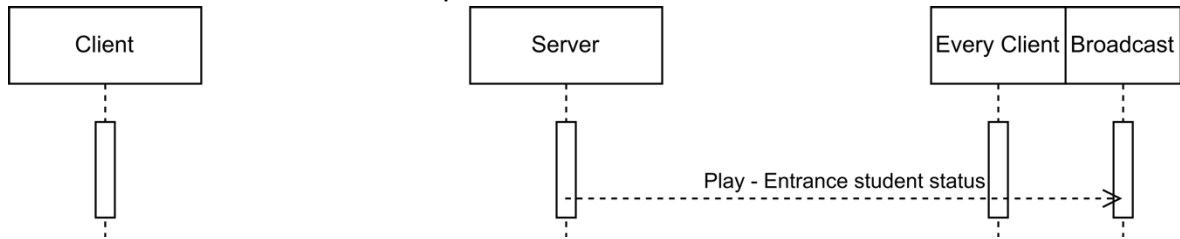
1.6.1 Optional - The player uses a character that changes the status of his dashboard, the server sends the updated information to the player with a play message.



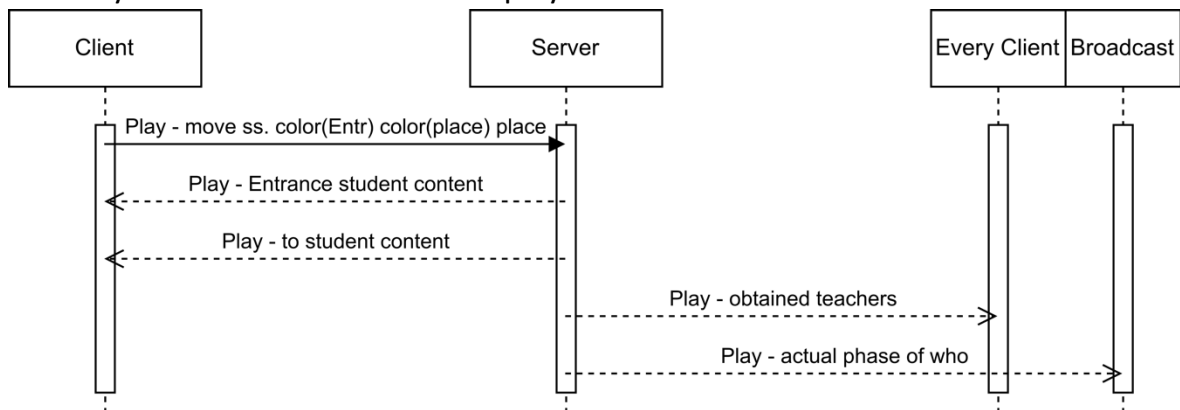
1.6.2 Optional - If the played character also changes the dashboards of other players, the server sends the updated information in broadcast.



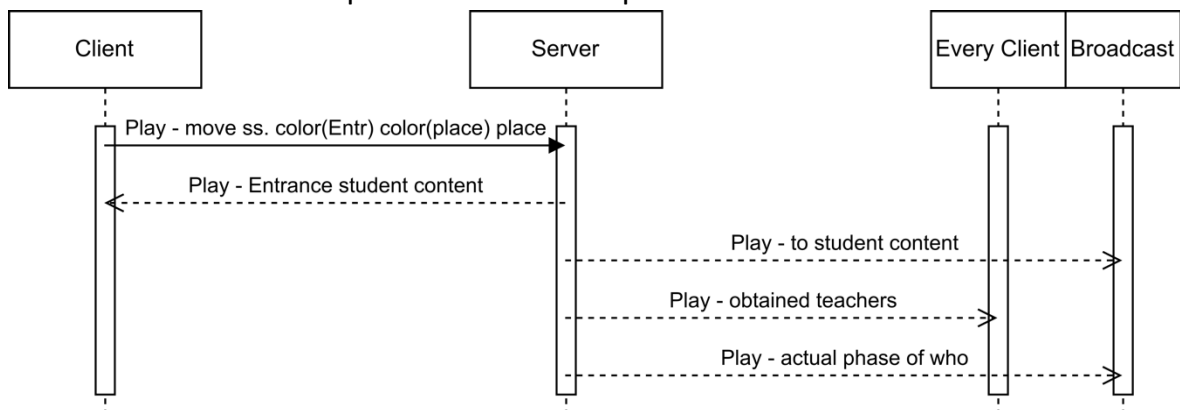
1.6.3 Optional - If the played character changes the state of the islands, the server sends the updated information in broadcast.



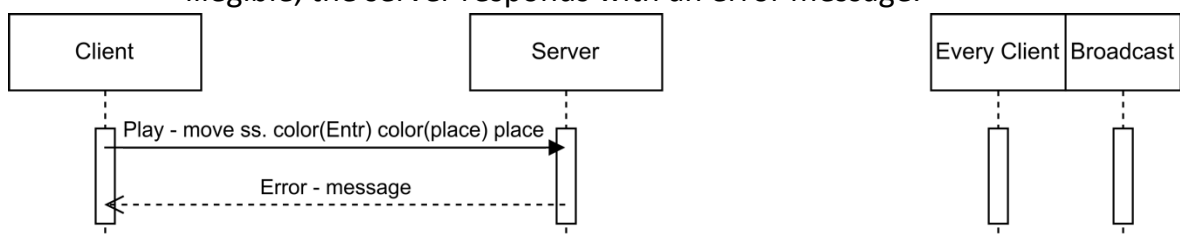
1.7 The player decides to exchange a student from the entrance with one from another place in his dashboard, sends a play message to the server with the color of the student in entrance, the color of the student in the destination place and the destination place, the server responds to the player with the entrance and the destination place updated, it updates the professors owned by each client and the actual player is broadcast.



1.7.1 If the destination place of the exchange described above is not found in the player's dashboard (it is an island or a character card), the server sends the updated destination place information in broadcast.

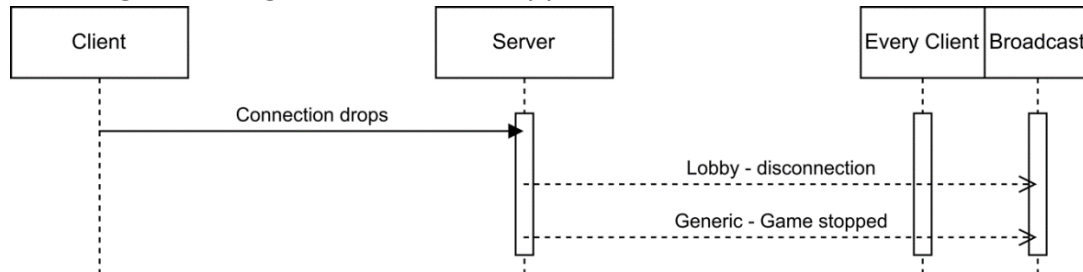


1.7.2 If a player tries to swap two students but the move is not allowed or is illegible, the server responds with an error message.

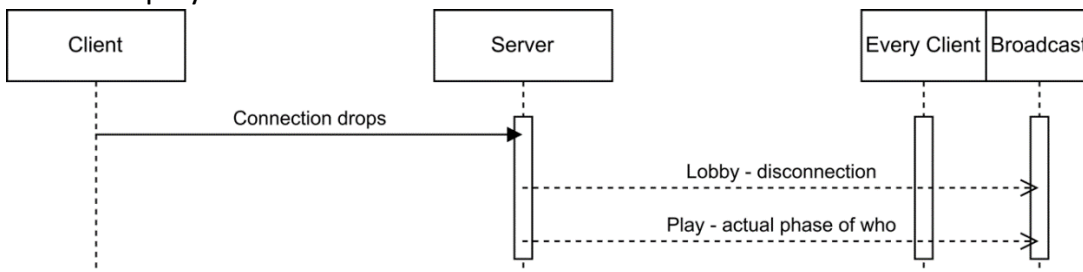


Connection Resilience

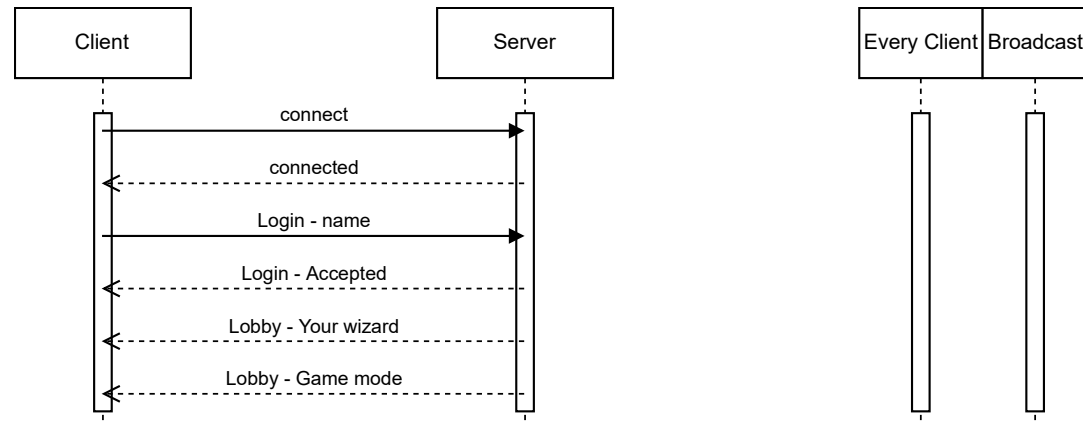
1. In the case of a two-player game, if one of the two disconnects, the server broadcasts a lobby message notifying the disconnection and a generic message informing that the game has been stopped.



2. In the case of a three-player game, if one of the two disconnects, the server broadcasts a lobby message notifying the disconnection and a play message with the actual player.



3. To rejoin the game, the player sends a connect message to the server, once the player receives a reply, he sends a login message with the previously chosen name and the server responds by accepting and with the player's wizard.



4. Once the connection has been re-established, the server sends a play message to the reconnected player with the complete state of the game and who is the actual player in broadcast.

