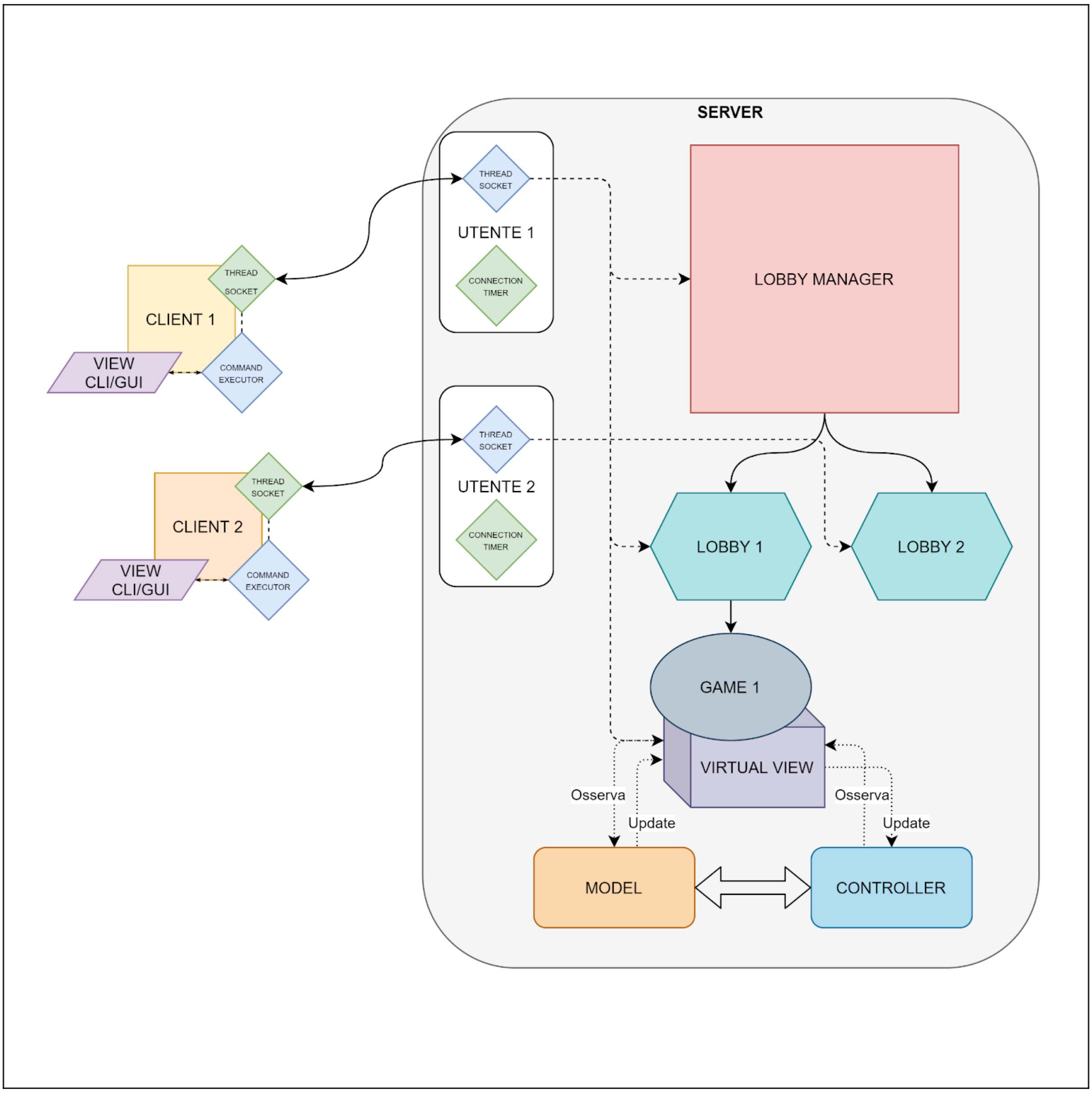
# NETWORK STRUCTURE



Connection Timer:

After *T*ms sends a Ping message to the user.

Disconnects the user after *N* unreceived Pongs (disc. time = *T* * *N* ).
Every correctly received command also counts as a Pong command.

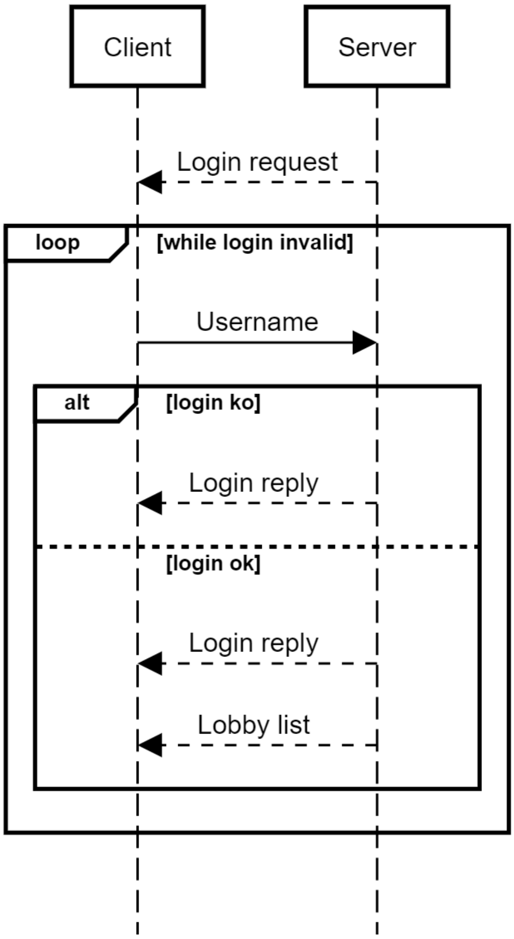
Command Executor:

Is an ExecutorService that creates a SingleThreadExecutor()
in order to split the network from the view command executions that could interrupt the system.

# JSON - SEQUENCE DIAGRAM

## GAME INITIALIZATION

Login



**[EchoServerClientHandler.java]**

**Login request (server)**
Command.REPLY\n
info: “Inserire username”

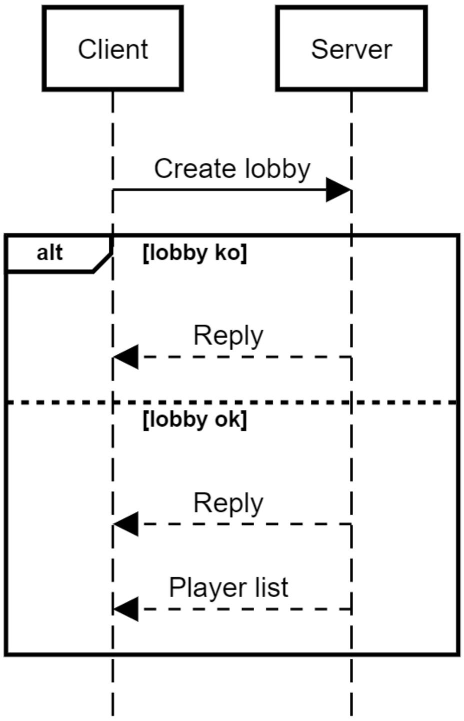
**Username (client)**
Command.LOGIN\n
JSON:{ String nickname }

**Login reply (server)**
-On Error:
Command.REPLY\n
info: “Username already in use, insert a valid nickname: ”

-On Ok:
Command.LOGIN\n
info: ”Welcome to the server”

**lobby list (server)**
Command.Lobby_List\n
LobbyListMessage.java
```
        List<LobbyInfo>:
                { [lobbyName, Owner,MaxPlayer,
                  NumConnected, isFullisClosed],
          [...], [...] }
```

## Lobby Creation



**[LobbyManager.java]**

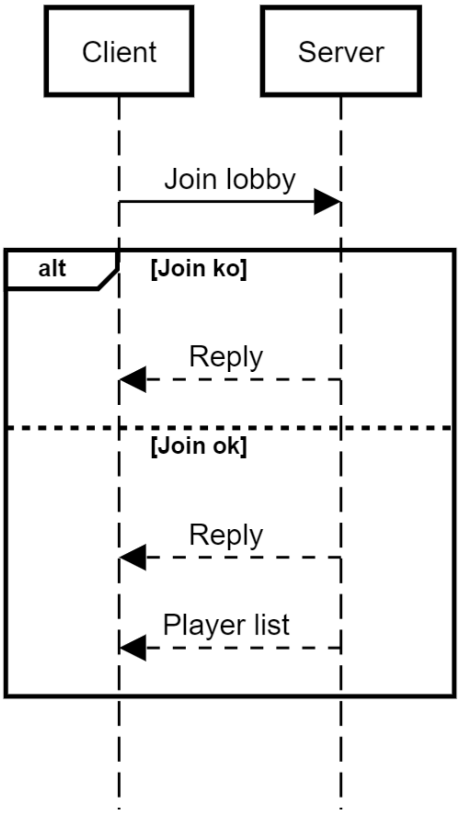
**Create Lobby (client)**
Command.CREATE_LOBBY\n
JSON:{ String lobbyName
int numOfPlayer }

**Reply (server)**
-OnError:
Command.REPLY\n
info: “The lobby already exists”

-OnOk:
Command.JOIN_LOBBY\n

**Player list(server)**
Command.PLAYER_LIST\n
StringMessage.java
data: JSON{ nick1, nick2, ..}

## Join lobby



**[Lobby.java]**

**Join lobby(client)**
Command.JoinLobby\n JoinLobbyMessage.java
JSON:{ “LobbyName” : string }

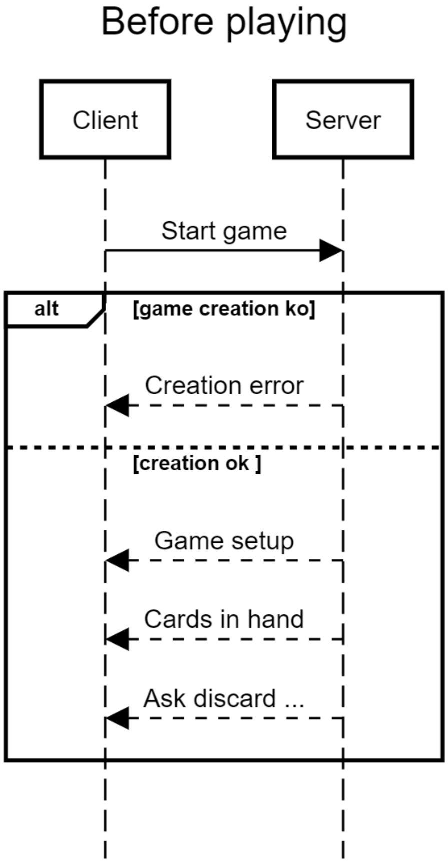
**Reply (server)**
-OnError:
Command.REPLY\n
info: Error

Error 1: The lobby is full
Error 2: The selected lobby doesn’t exist
Error 3: The game is already started
ecc.

-OnOk:
Command.JOIN_LOBBY\n

**Player list(server)**
Command.PLAYER_LIST\n
JSON:{ nick1, nick2,..}

# GAME PHASE



**[Lobby.java]**

**Start game(client)**
Command.START_GAME\n

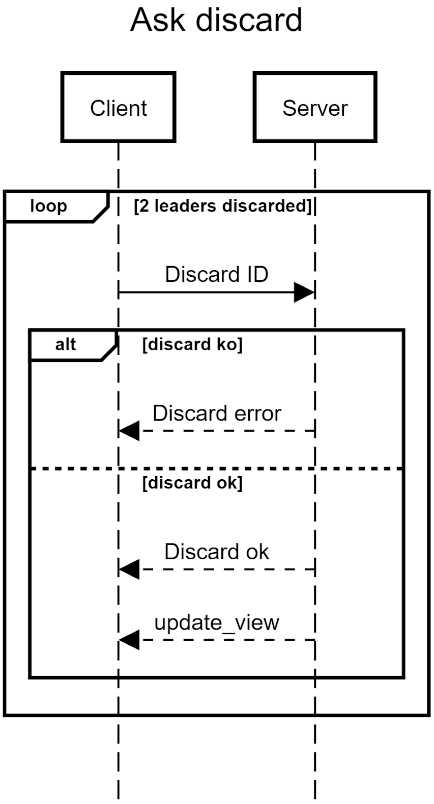
**Creation error(server)**
Command.GAME_CREATION_ERROR\n
info: Error

**[VirtualView.java]**

**Game Setup(server)**
Command.GAME_SETUP\n
JSON:{ List<Integer> cardGridIds,
List<String> nicknames,
List<ResourceContainer> marketSetup }

**Cards in hand(server)**
JSON: { List<Integer> cards_iDs }

**...**

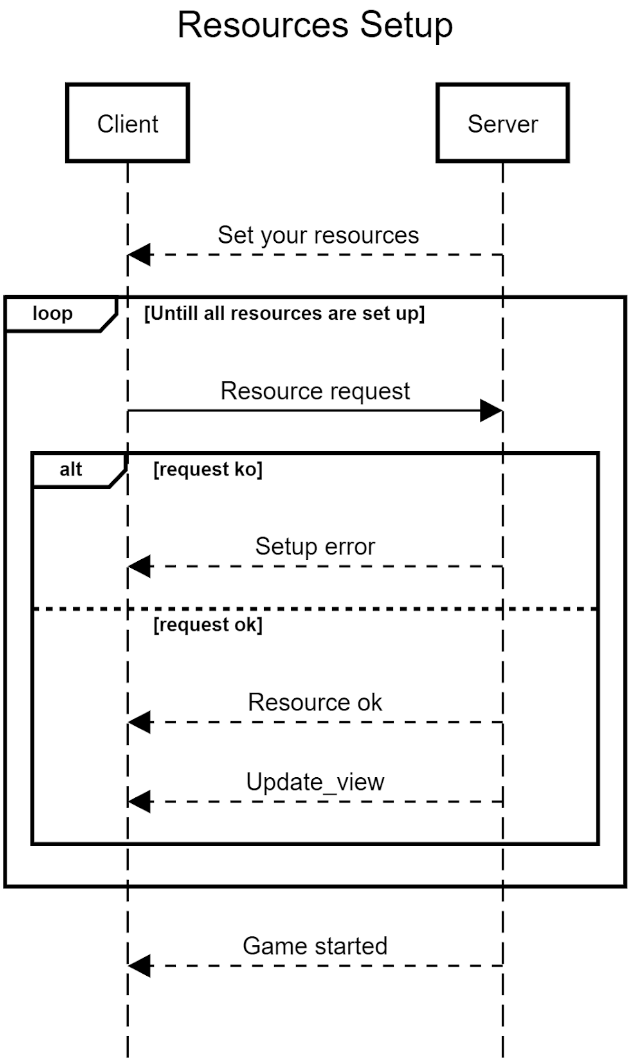


**Discard ID (client)**
Command.DISCARD_LEADER\n
JSON:{Integer ID}

**Discard error(server)**
Command.REPLY\n
info: “You selected an invalid id”/”You already discarded 2 leaders”

**Discard ok(server)**
Command.DISCARD_OK\n
JSON:{Integer ID}
info:”You discarded ID

**Update_view**
View_Update: the leader card is removed



**Set your resources**
Command.REPLY\n
Info:

info1: “Wait for others to select their resources”
info2: “You can select n resources”

**Resource request**
Command.SETUP_CONTAINER\n
JSON{ResourceContainer container,
String destination,
Integer destinationID,
Boolean added }

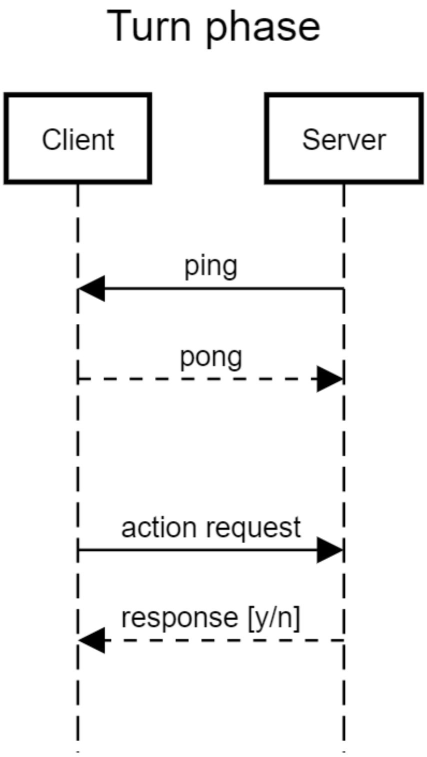
**Setup error**
Command.REPLY\n
Info:

info1:”You already selected your bonus resources”
info2:”you selected an invalid deposit id”
info3:”you are the first you cannot select extra resources

**Resource ok**
Command.REPLY\n
info1: ”Successfully selected the resources”
info2: ”You can select one more resource”

**Update_view**
Updates all views resource has been added to a player

**Game started**
Command.REPLY
info: “The game has started”



Actions:

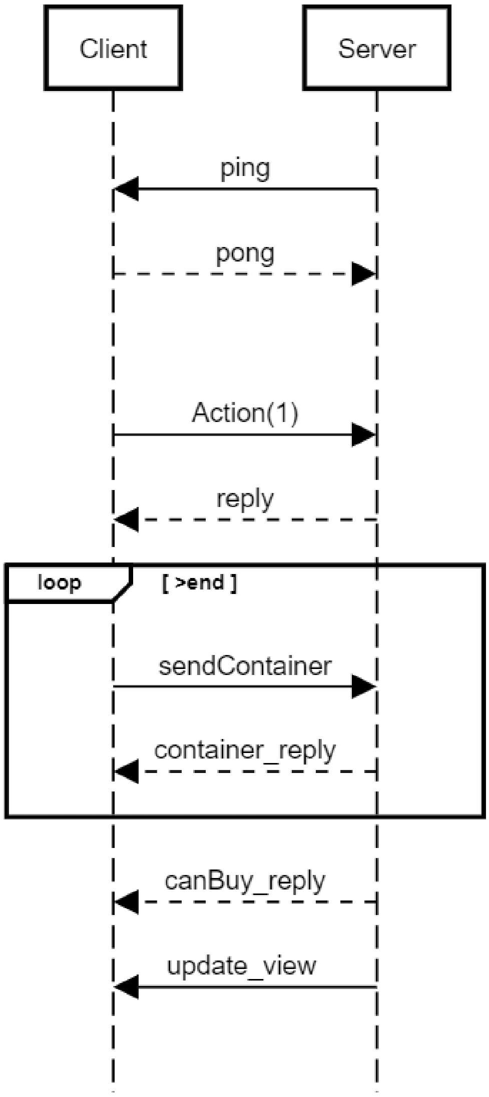
1. (1) BuyDevelopmentCard
2. (2) Produce
3. (3) SelectResourcesFromMarket
4. (4) ActivateLeader
5. (5) ManageResources
6. (6) EndTurn

**action request (client)**
ActionRequest(n)\n

**response (server)**
Command.Reply\n
response: “You already used your main action”/”Ok”

The next part of the conversation depends on the chosen action.

## Buy Development Card



**(1) Action (client)**
BuyDevelopmentCard\n
JSON:{ int id,
int productionSlotId }

**reply (server)**
Command.Reply\n
info: Errors/"ok"
Error 1: Invalid ID number
Error 2: The Deck is empty
Error 3: You don't have enough resources
Error 4: You can't insert that card into the selected Slot

**sendContainer(client)**
Command.SendContainer\n
JSON: { ResourceContainer resCont,
String source ("Deposit/Vault"),
Int sourceID (x/null)
Boolean added }

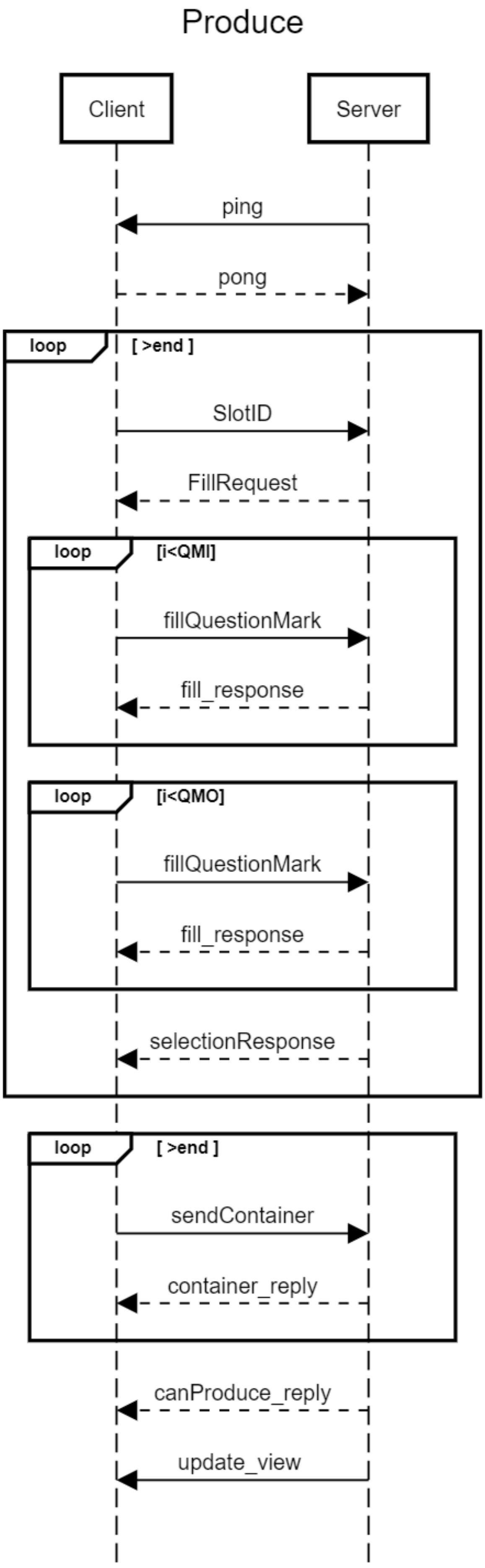
**container_reply(server)**
-On Error
Command.REMOVE_CONT_ERROR\n
info: Errors
Error1: NotEnoughResources
Error2: DifferentResourceType

-On Ok
Command.REMOVE_CONT_OK\n

**canBuy_Reply(server)**
-On Error
Command.BUY_ERROR
info: Errors
Error1: NotEnoughResources
Error2: DifferentResourceType

-On Ok
Command.BUY_OK\n
info: "You bought the card!"

**update_view(server)**
the card appears in the player's board



**(2) Action**

**SlotID (client)**
Command.PRODUCE\n
JSON: { List<Integer> SlotIDs }

**Fill_request (server)**
Command.START_FILL\n
JSON: { int QuestionMarkInput,
int QuestionMarkOutput,
int ProdSlotID }

**fillQuestionMark (client)**
Command.FILL_QM\n
JSON: { ResourceType resType}

**fill_response (server)**
Command.REPLY\n
info: Error/”ok”

Error: The type doesn’t exist

**selectionResponse (server)**
-On Error
Command.PRODUCE_ERROR\n
info: You don’t have enough resources

-On Ok
Command.REPLY\n
info: “Now you can select the resource payment”

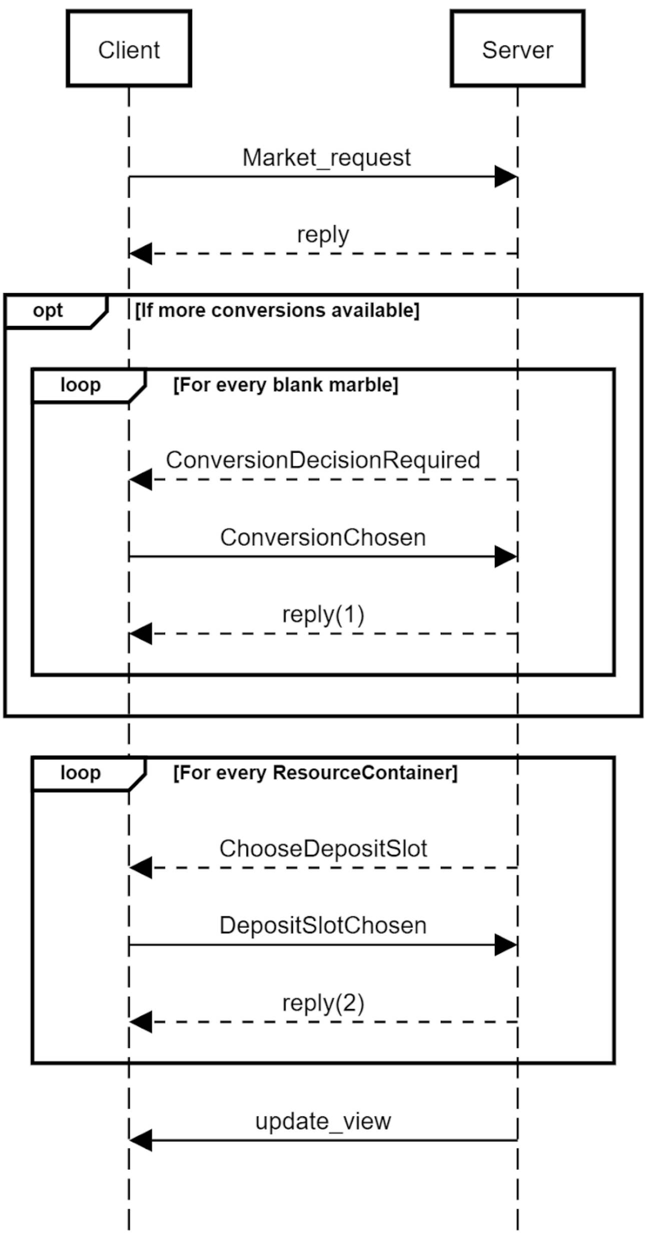
**sendContainer(client)** see prev. page
**container_reply(server)** see prev. page

**canProduce_Reply(server)**
-On Error
Command.PRODUCE_ERROR

Error 1: You didn’t select the right amount of resources
Error 2: You selected too many resources

-On Ok
Command.PRODUCE_OK\n
info: “Prod. executed correctly”

Market Request



**(3) Action**

**Market_request (client):**
Command.PICK_FROM_MARKET\n
JSON: { String selection ("ROW/COLUMN")
int number }

**reply (server):**
Command.REPLY\n
info: Errors/"ok"/

Error 1: Invalid Row number
Error 2: Invalid Column number

**ConversionDecisionRequired (server):**
Command.ASK_MULTIPLE_CONVERSION\n
info: "Please select an available conversion"

**ConversionChosen (client):**
Command.CONVERSION\n
JSON: { ResourceType resourceType }

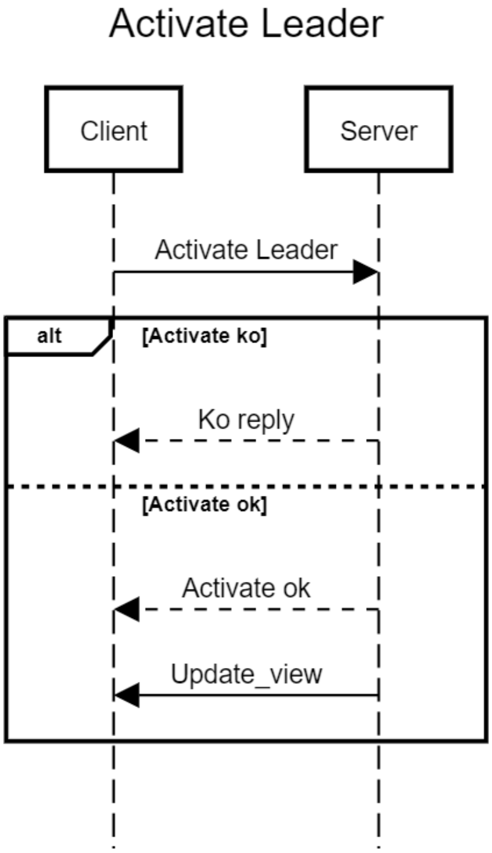
**reply(1)**
Command.REPLY\n
info: Error/"ok"
Error: invalid conversion chosen

**ChooseDepositSlot (server):**
Command.ASK_MARKET_DESTINATION\n

**DepositSlotChosen(client):**
Command.SEND_DEPOSIT_ID\n
JSON: { int depositID }

**reply(2)**
Command.REPLY\n
info: Errors/"ok"/
Error1:DifferentResourceType
Error2: ResourceTypeAlreadyStored
Error3: "You must discard this resource"

**update_view**
All the resources now are visible in the deposit



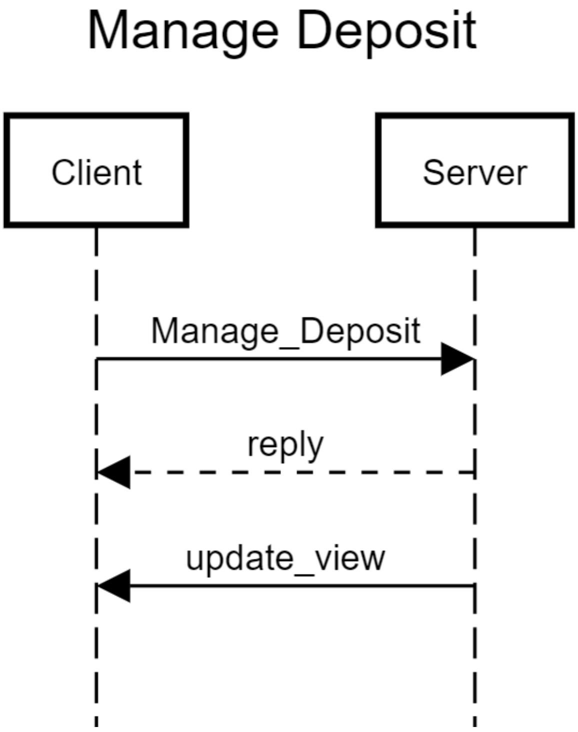
**(4) Action**

**Activate Leader (client):**
Command.ACTIVATE_LEADER\n
JSON:{int leaderCardID}

**Ko reply (server):**
Command.REPLY\n
info:"You don't meet the requirements to activate this leader"

**Activate ok (server):**
Command.ACTIVATE_OK\n
JSON: { int leaderCardID }
info:"Correctly activated ID leader"

**Update_view (server):**
updates all views that the player has activated the ID leader



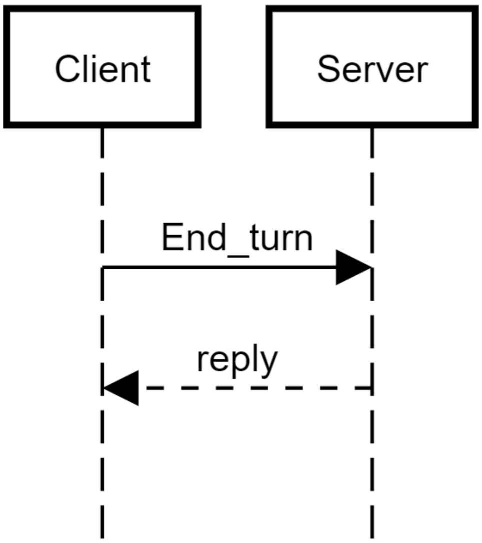
**(5) Action**

**Manage_deposit (client):**
Command.SWITCH_DEPOSIT\n
JSON:{ int sourceDepositID,
int destinationDepositID }
or
Command.MANAGE_DEPOSIT\n
JSON:{ int sourceDepositID,
int qty,
int destinationDepositID }

**reply (server):**
response\n
response: Error/"ok"

Error1: DepositSlotMaxDimExceeded
Error2: DifferentResourceType
Error3: NotEnoughResources
Error4: ResourceTypeAlreadyStored

# End Turn



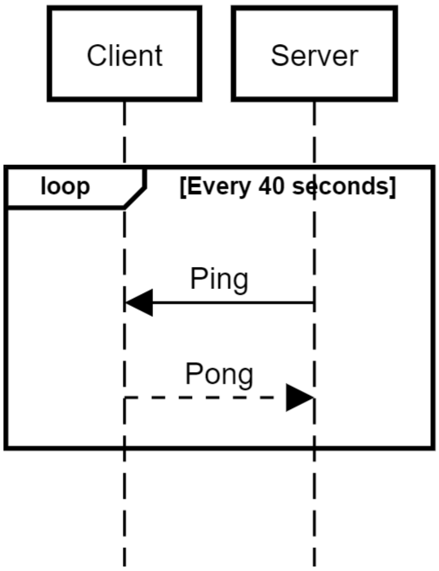
**(6) Action**

**End_turn (client):**
endturn\n

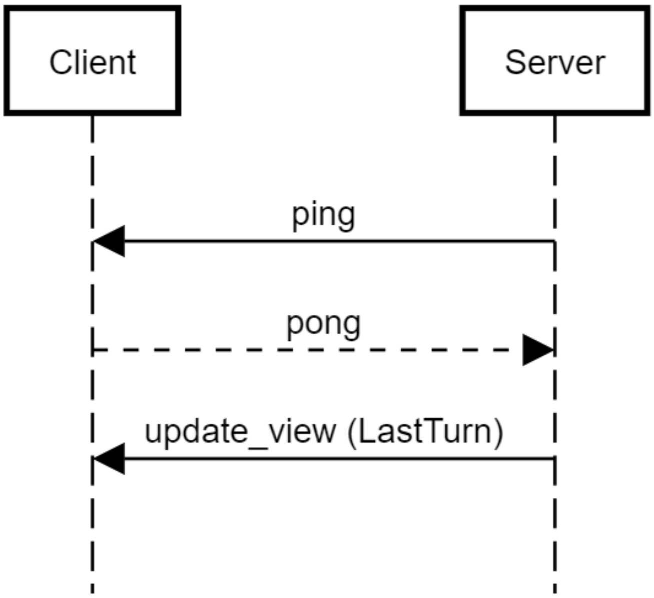
**reply (server):**
response\n
response: Error/”ok”

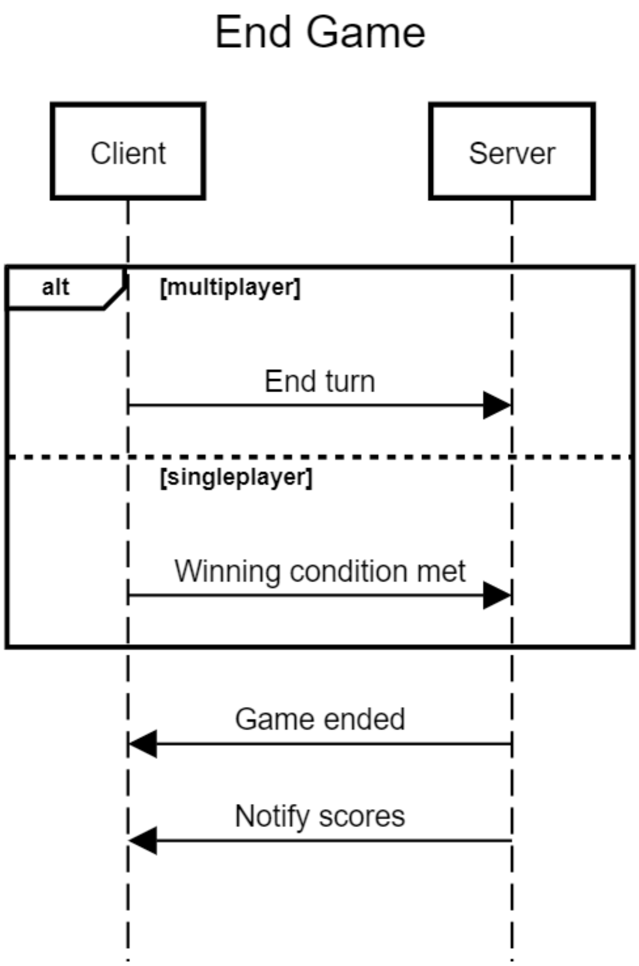
Error: You can’t pass your turn

## isClientConnected



## Last Turn Notify





**Game ended (server)**
Command.END_GAME\n

**Notify scores (server)**
Command.NOTIFY_SCORES\n
JSON: {
    List<String> winners,
    List<String> players,
    List<Integer> points
}
Command.REPLY\n
info: “You are now in the lobby”

**update_view**
the scoreboard and the winners are printed, changes the screen to the lobby

Some SequenceDiagram.org code

```
title Ask discard
participant Client

participant Server



loop 2 leaders discarded

Client->Server:Discard ID

alt discard ko
Client<--Server:Discard error
else discard ok
Client<--Server: Discard ok
Client<--Server: update_view
end
end
```

```
title Resources Setup
participant Client

participant Server


Client<--Server:	Set your resources

loop Untill all resources are set up


Client->Server:Resource request

alt request ko
Client<--Server:Setup error
else request ok
Client<--Server: Resource ok
Client<--Server: Update_view
end
end
Client<--Server: Game started
```

```
title Market Request

participant Client

participant Server



Client->Server:        Market_request
Client<--Server:reply

opt If more conversions available
loop For every blank marble
Client<--Server:ConversionDecisionRequired
Client->Server: ConversionChosen
Client<--Server:reply(1)
end
end

loop For every ResourceContainer
Client<--Server:ChooseDepositSlot
Client->Server:DepositSlotChosen
Client<--Server:reply(2)
end

Client<-Server: update_vie
```