GALAXY TRUCKER

Presentation and Design Choices

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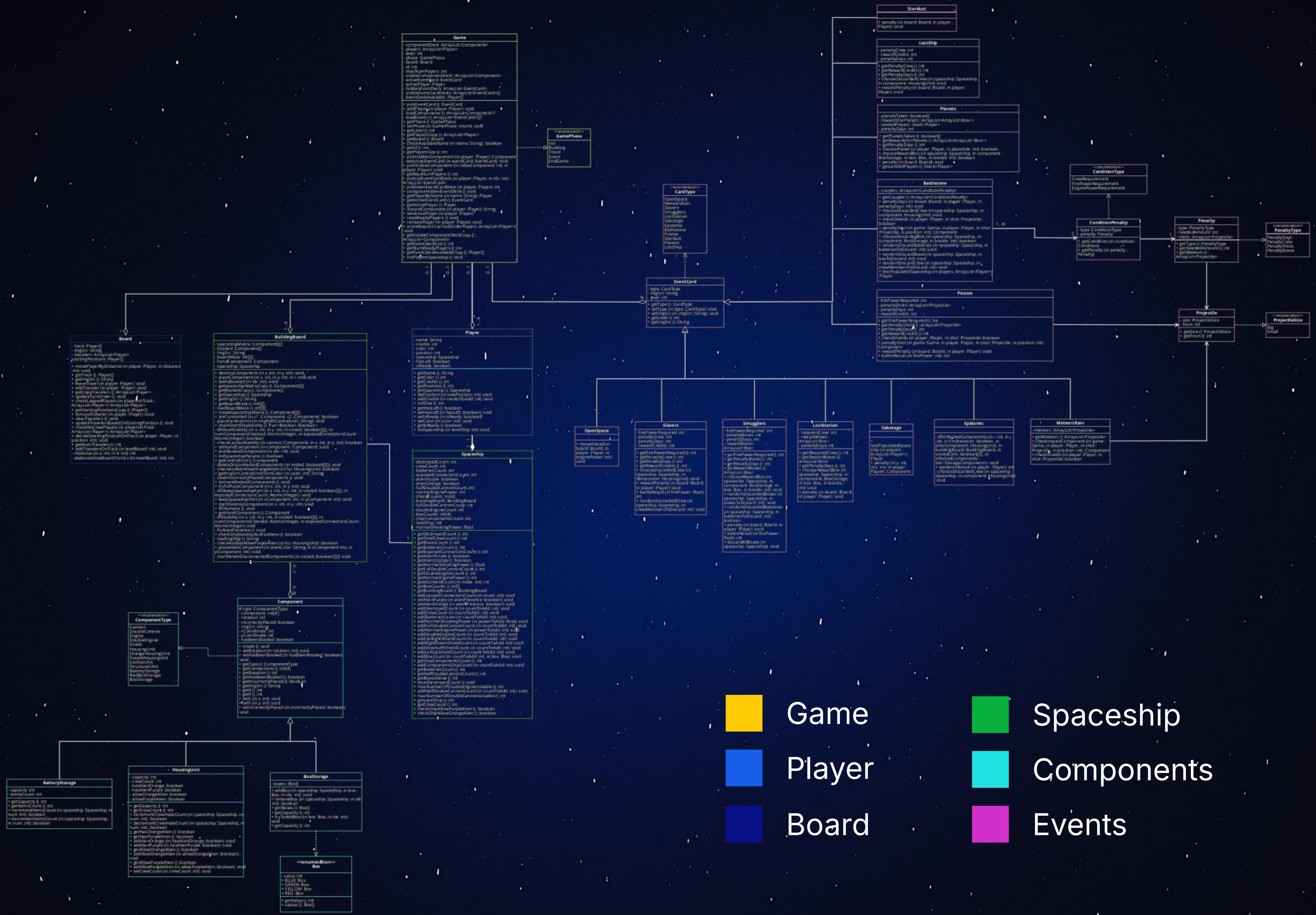
MVC PATTERN

Server	Client
Model Contains most of the game logic and is responsible for maintaining the state and information related to the various ongoing matches.	**View** Whether it's a TUI or a GUI, it contains the logic for creating the user interface and managing all possible user interactions.
Controller Handles the orchestration of the different game phases, and manages the requests and responses of the various users.	**Model** A more lightweight model whose purpose is to maintain a consistent local state on the client side, in order to minimize the amount of data exchanged with the server.

On both the server and client sides, dedicated classes are implemented to manage communication using Socket and RMI protocols.


Game
GamePhase
CardType
EventCard
Stardust
LostShip
Planets
Battlezone
Pirates
ConditionType
ConditionPenalty
Penalty
PenaltyType
Projectile
ProjectileSize
OpenSpace
Slavers
Smugglers
LostStation
Sabotage
Epidemic
MeteorsRain
Board
BuildingBoard
Player
Spaceship
Component
ComponentType
BatteryStorage
HousingUnit
BoxStorage
Box
🟨 Game
🟦 Player
Board
🟩 Spaceship
Components
🟪 Events

IMPLEMENTED FUNCTIONALITIES

Rules

- ✅ Basic rules
- ✅ Complete rules

Connection

- ✅ Socket
- ✅ RMI

User Interface

- ✅ TUI
- ✅ GUI

Additional Functionalities

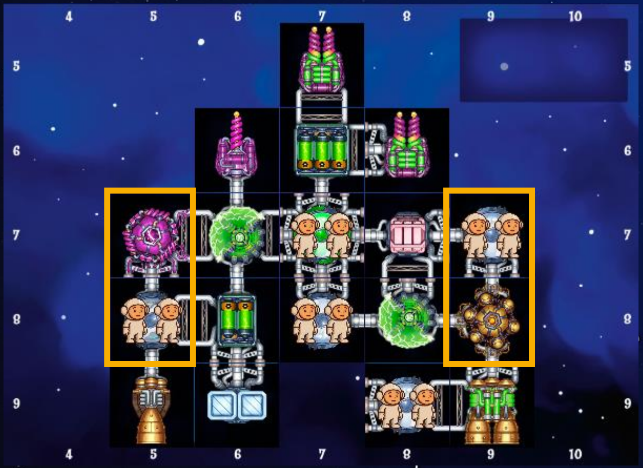
- ✅ Demo travel
- ✅ Multiple games
- ✅ Resilience
- ❌ Persistence

DEMO TRAVEL

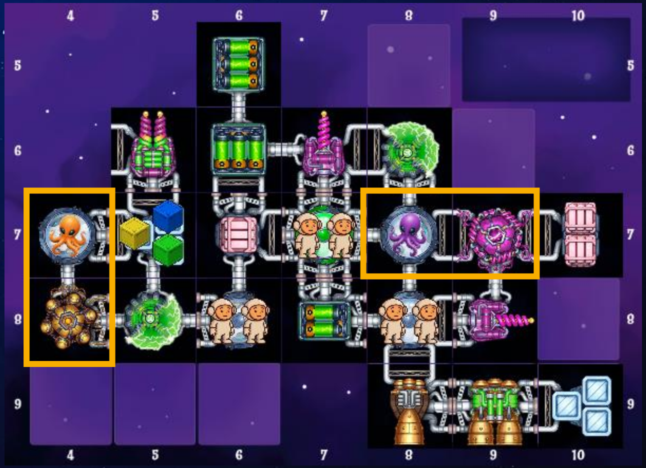
To manage the distinction between demo travels and level 2 travels, we introduced a level attribute in the *Game* class.

This attribute allows us to define the correct behaviour to apply in various gameplay situations where there is a functional difference between the two types of games.

Demo travel



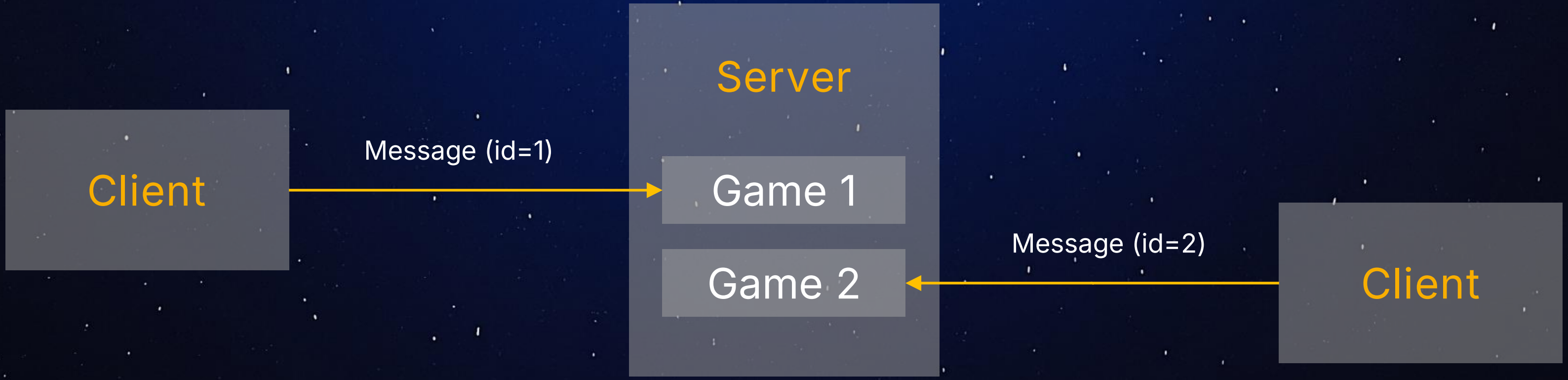
Level 2 travel



MULTIPLE GAMES

To support the coexistence of multiple games running simultaneously on the same server machine, we introduced a helper class called *GameManagerMaps*. This class contains a map of GameManager instances, each associated with a specific game ID as the key. Each game is therefore linked to its own *GameManager*, which is responsible for storing useful information about the game.

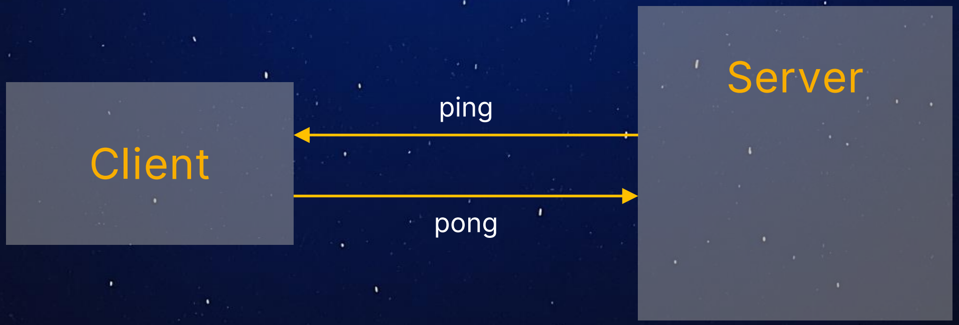
Every communication between client and server is labelled with the ID of the game the user is currently participating in. This enables the system to forward the message to the correct GameManager.



RESILIENCE (1)

A ThreadPinger sends a ping every second to all connected clients (both via Socket and RMI):

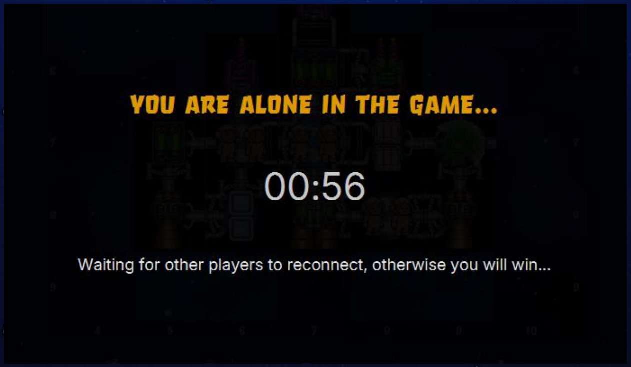
- Socket: A client is considered disconnected if it doesn't respond before the next ping.
- RMI: A client is considered disconnected if a *RemoteException* is thrown during the ping.



RESILIENCE (2)

Disconnection is handled differently based on the game phase:

- Lobby Phase
  The disconnected player is removed from the lobby list.
- Game Phase
  Player is moved from the active players list to a disconnected list. If only one active player remains, the game enters freeze mode. Disconnected players are excluded from "ready" checks, and the game proceeds with automatic decisions for them.


YOU ARE ALONE IN THE GAME...

00:56

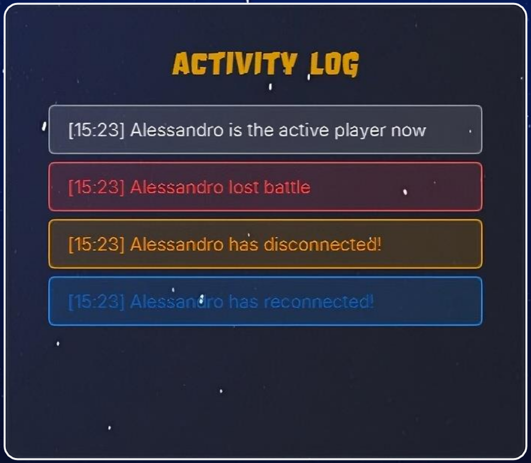
Waiting for other players to reconnect, otherwise you will win...

Freeze mode

RESILIENCE (3)

Reconnection

If a player reconnects during a game, they are restored to the active list.
If they were part of an ongoing event, a specific reconnection handler is invoked (each event card provides one), ensuring the player can resume participation, including re-sending pending questions.



```
[15:23] Alessandro is the active player now
[15:23] Alessandro lost battle
[15:23] Alessandro has disconnected!
[15:23] Alessandro has reconnected!
```