

DuelHub

COMPETITIVE GAMING PLATFORM

Requirements and
analysis model



Project Description

The product aims to enhance gaming experience by providing a convenient and flexible platform for organizing online matches and tournaments.

DuelHub helps people connect and participate in numerous tournaments, letting viewers follow their favourite teams and players.

Team:

Lyudmila Rezunik
Teona Sadulaeva
Vladislav Shchukin

Repo: <https://gitlab.com/duelhub/duelhub>

Report:

<https://docs.google.com/presentation/d/1DQ7CRLv9Fz08vdza09DTIOLDVv2SSi3Y9dq7j8qKUK0/edit?usp=sharing>



Goal

Create a software that serves as an independent competitive gaming platform for online multiplayer PvP gamers.



Anton, 20

Amateur player with no friends. Works as a manager at a local bar.

MOTIVATION

Searching for a team to join and spending his spare time in a friendly company.

FRUSTRATION

Burdening high-skill gamers.



Anna, 36

Professional gaming coach. Works from home.

MOTIVATION

Compete with other teams of similar level to train.

FRUSTRATION

Tracking team data on her own.

Story Map

NEEDS

Find teammates

Livestream

Track statistics

MOTIVATION OR GOAL emotional job

Play with
teammates of
similar level

Connect with people

Watch a tournament

Review skill changes

TASKS

functional job

Invite
other
people

Create
personal
lobby

Choose
a lobby

Accept
people in
the lobby

Chat with
watchers

Watch
current
turns

track winners
of previous
tournaments

To be
accepted
in a lobby

Look at
the
lobbies

Choose
team

Communicate
with the team
members

Communicate with
the players of the
same game

View open
lobbies

Add
friends

Join
spectators
lobby

Look at
the results

Look at
the results

measure
players
skills

track
teams
winrate

JOBS TO BE DONE

FEATURES

List of all
lobbies with stats

Send
join
request

accept
join
requests

team
chat

private
msging

lobby
chat

polls in
chat

Filter or
search
lobbies

results
board

tournament
statistics

players skill
tracking

team
statistics

recommen-
dation
system

filtering
lobbies

See
people's
stats

open
lobbies

accept
friend
requests

reactions
in chat

list of
current
open
lobbies

Join lobby
as a
spectator

[Link to Story Map \(full res\)](#)

Features & Functional Requirements

Here are presented only the main features along with some functional requirements

01.

Lobbies

- The system shall provide the ability to create private lobbies
- The system shall allow users to configure the lobby: choose game, set number of players, etc.

02.

Matchmaking

- System shall automatically pair players of similar skill levels
- The system shall allow players to search for matches based on game, number of players, etc.

03.

Score Tracking

- System shall provide a scoring system that updates in real time during matches
- System shall allow to view participants' scores on leaderboards

04.

Livestreams

- System shall allow to broadcast the gameplay to viewers
- System shall allow viewers to write messages in livestream chat

Non-functional Requirements

Availability

The platform should be accessible by users 24/7. If the platform undergoes technical maintenance, it shouldn't cause disruption to ongoing tournaments and matches.

Compatibility

The system should be compatible with desktop computers, laptops, tablets and smartphones. It should support different web browsers: Chrome, Firefox, Safari, Edge.

Scalability

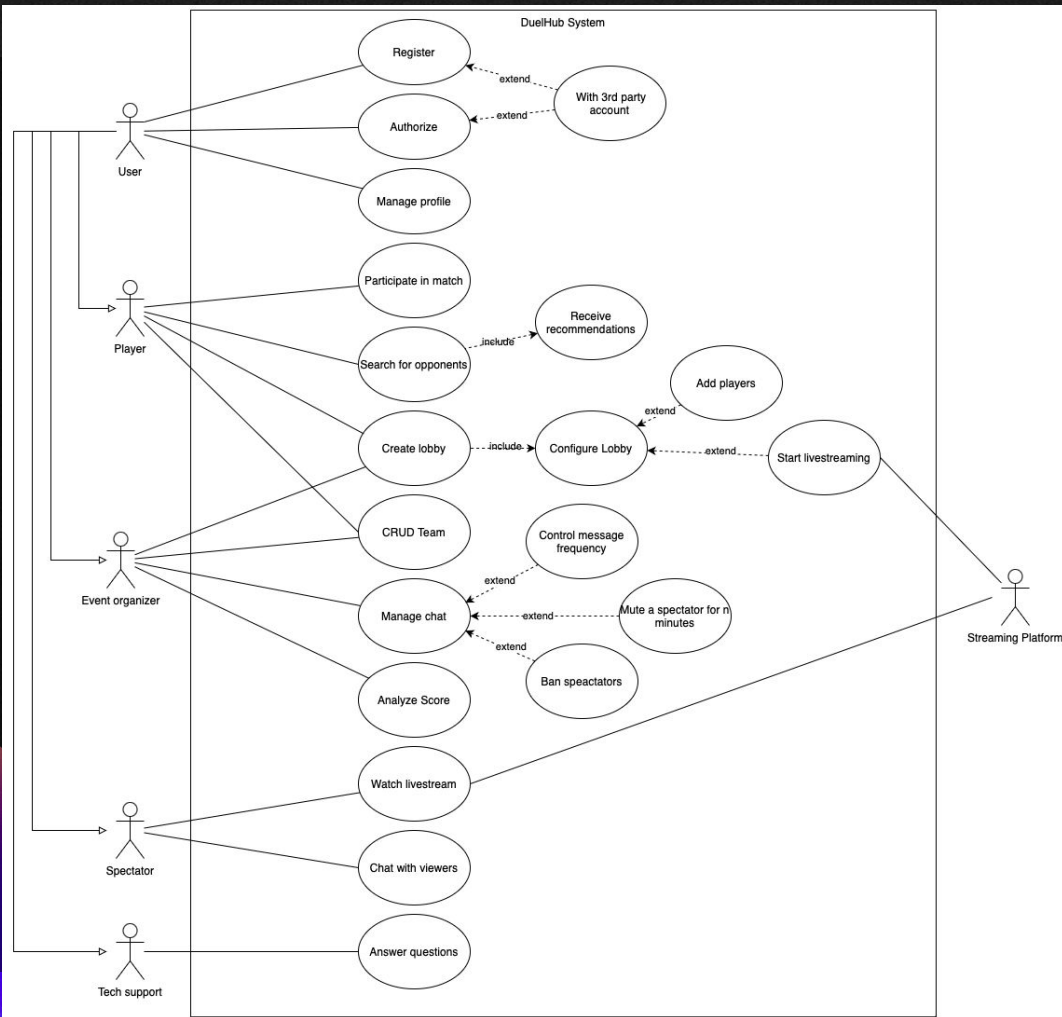
The platform shall be scalable to accommodate an increasing number of participants (up to 500 000) and tournaments without compromising performance or functionality.

Localization

The platform should support several different languages: Russian, English, German, French, Spanish.

The background features a dark, textured surface with large, flowing, organic shapes in shades of blue and purple. These shapes are positioned around the central text, creating a modern and artistic frame.

Use Cases



Use Cases

The view of the whole diagram
(in next sections each user role is
shown separately)

Textual Scenarios

Watch Livestream

Actors	Spectator
Preconditions	The list of current livestreams should be open
Postconditions	The video and chat are displayed on screen
Main scenario	<ol style="list-style-type: none">1. The user selects a livestream from a list of current livestreams. The system opens a different window with a live video of the stream and a chat on a part of a screen.2. The user watches the streamed video. The systems updates it along with chat.3. The user can interact with video player: change video quality, player size. The system changes the settings of the streamed video accordingly
Alternative Scenarios	<ol style="list-style-type: none">1 – If on step 2 system can't load the video (slow internet connection), the video is paused and downloaded when the network stabilizes. The video is unpaused by the system and scenario continues from step 2.2 – If on step 1 the livestream is opened at the same time it ended, the system displays the message that says that livestream had ended. (The video and chat are not stored after the end of stream.)

Create Lobby

Actors	Player, Event Organizer
Preconditions	The main screen should be open
Postconditions	The lobby with custom configuration is created and opened
Main scenario	<ol style="list-style-type: none">1. The user selects option "Create" on the main screen. The system displays a window, containing a form with lobby configurations, that user needs to fill in.2. The user fills the form with settings and sends the form. System creates the lobby and shows the lobby screen
Alternative	<ol style="list-style-type: none">1 – If on the step 2 an error occurs during lobby creation, the error message is displayed on the screen

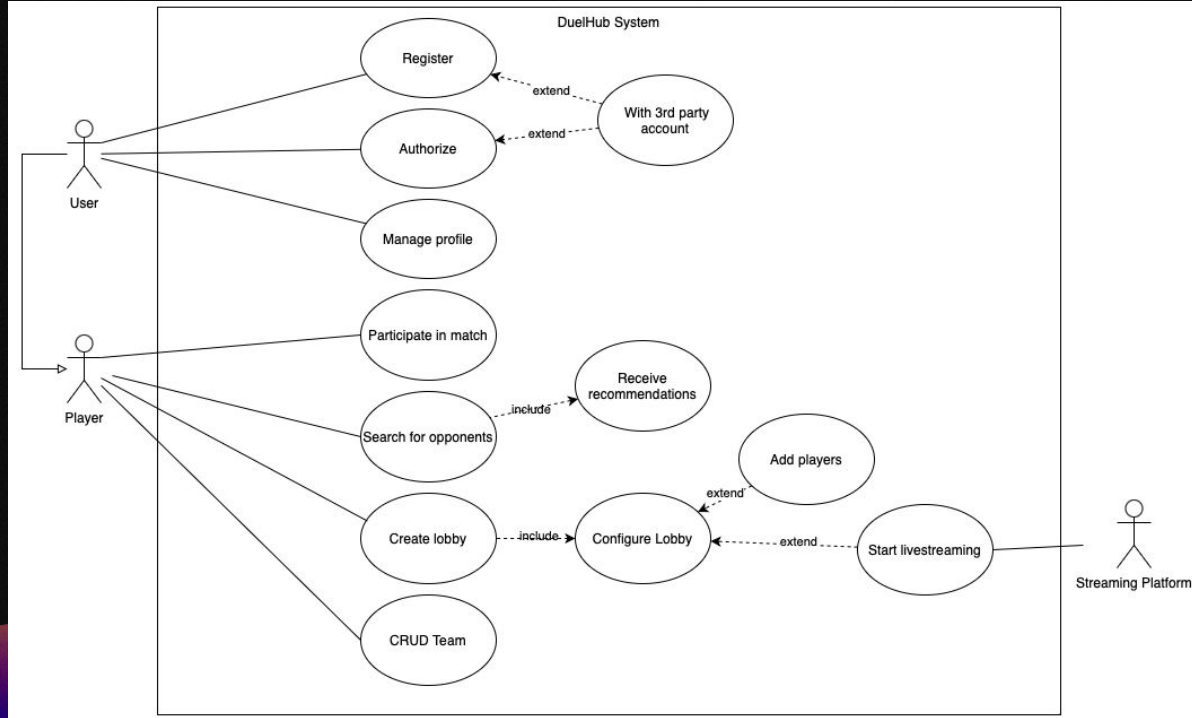
Scenarios

Textual scenarios are written in Wiki:

<https://equable-scripio-c13.notion.site/DualHub-Project-62ef3aff8a6c46bc8b4909b44714bb89?pvs=4>

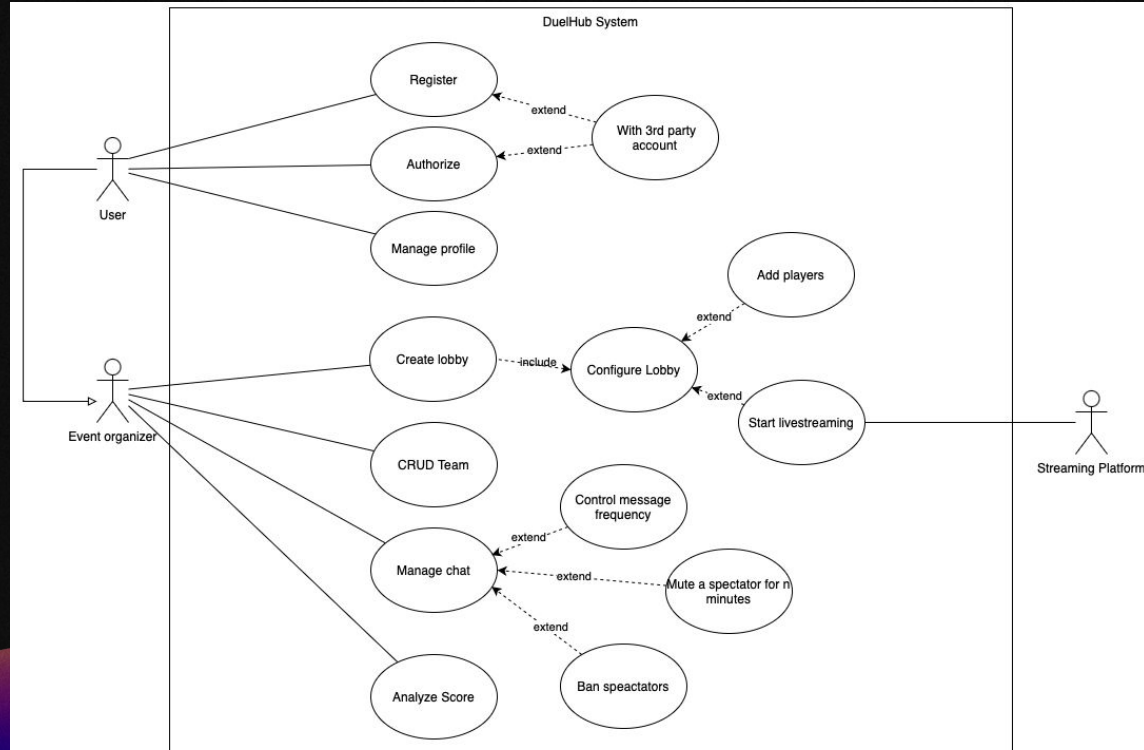
Player Use Cases

Use cases for general user and player



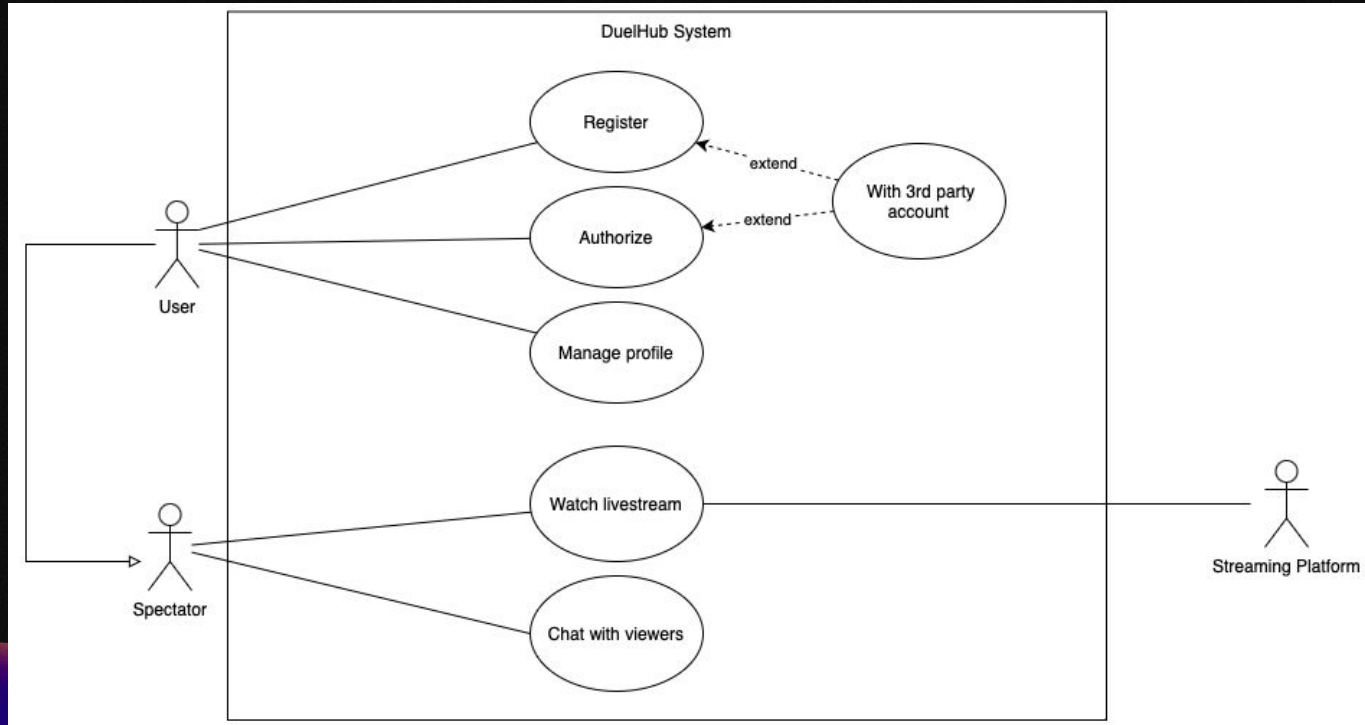
Event Organizer Use Cases

Use cases for general user and event organizer



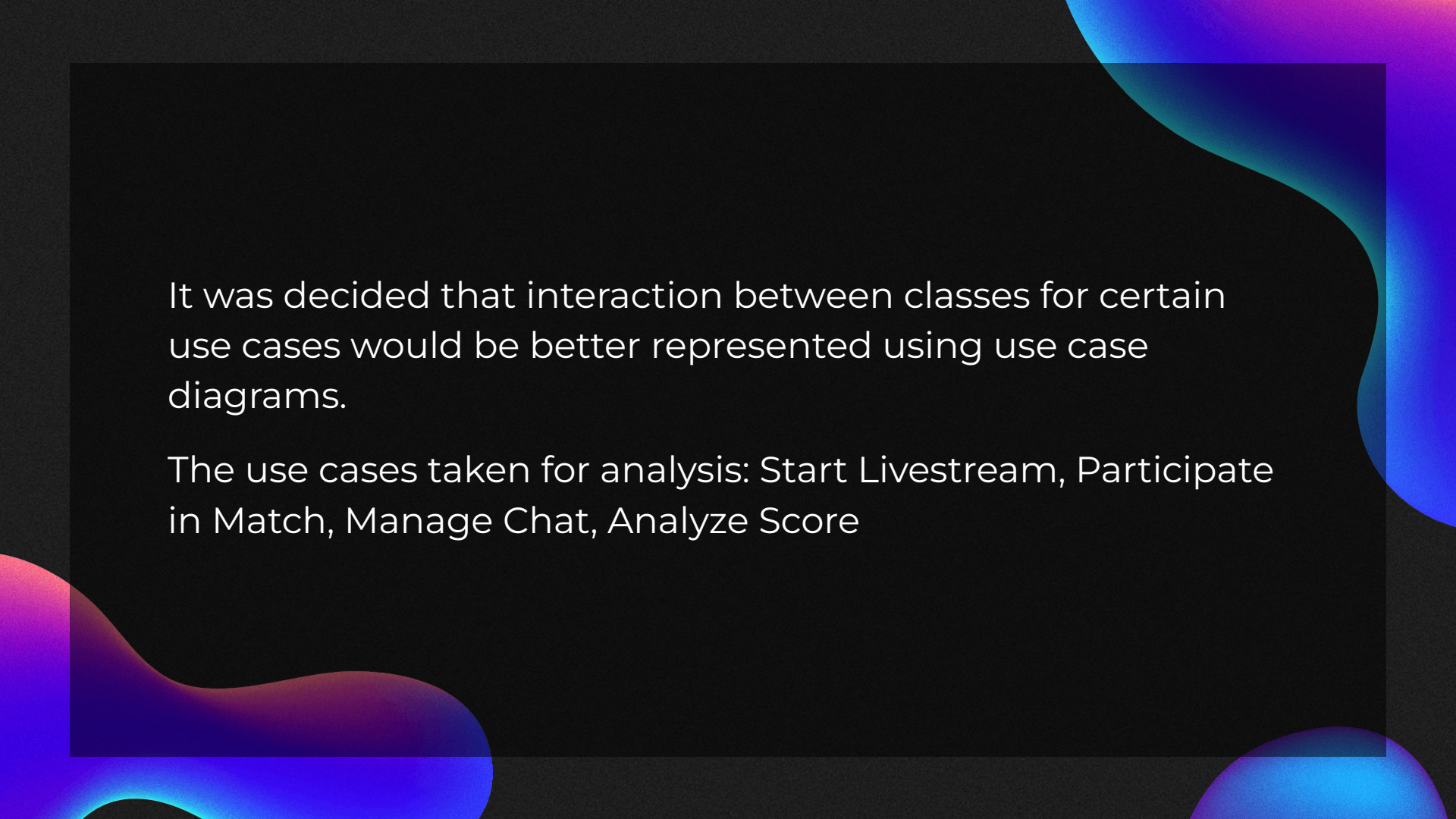
Spectator Use Cases

Use cases for general user and spectator



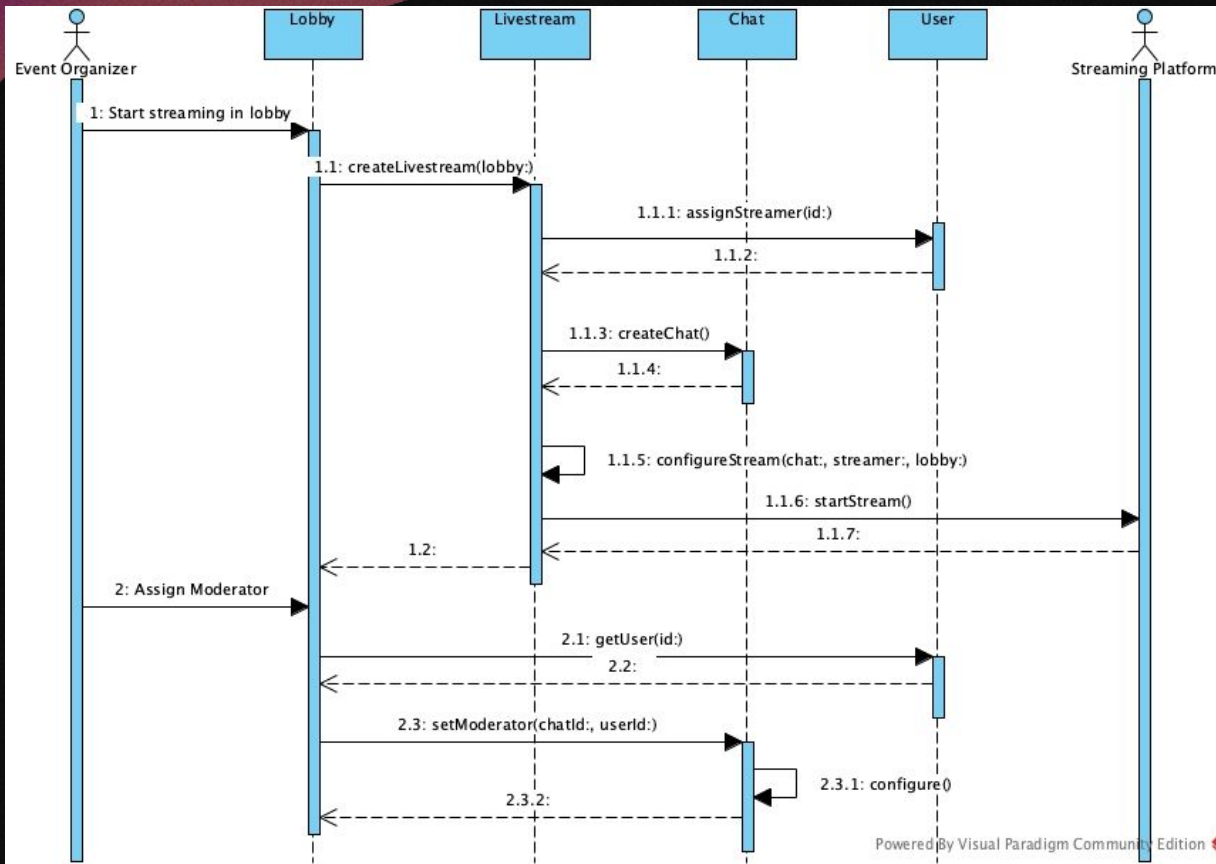
The background features several large, organic, fluid shapes in shades of blue and purple. These shapes are positioned around the central text, creating a frame-like effect. The colors transition from deep blue to vibrant purple, with some areas appearing lighter, suggesting a light source or gradient effect. The overall aesthetic is modern and digital.

Interaction Analysis



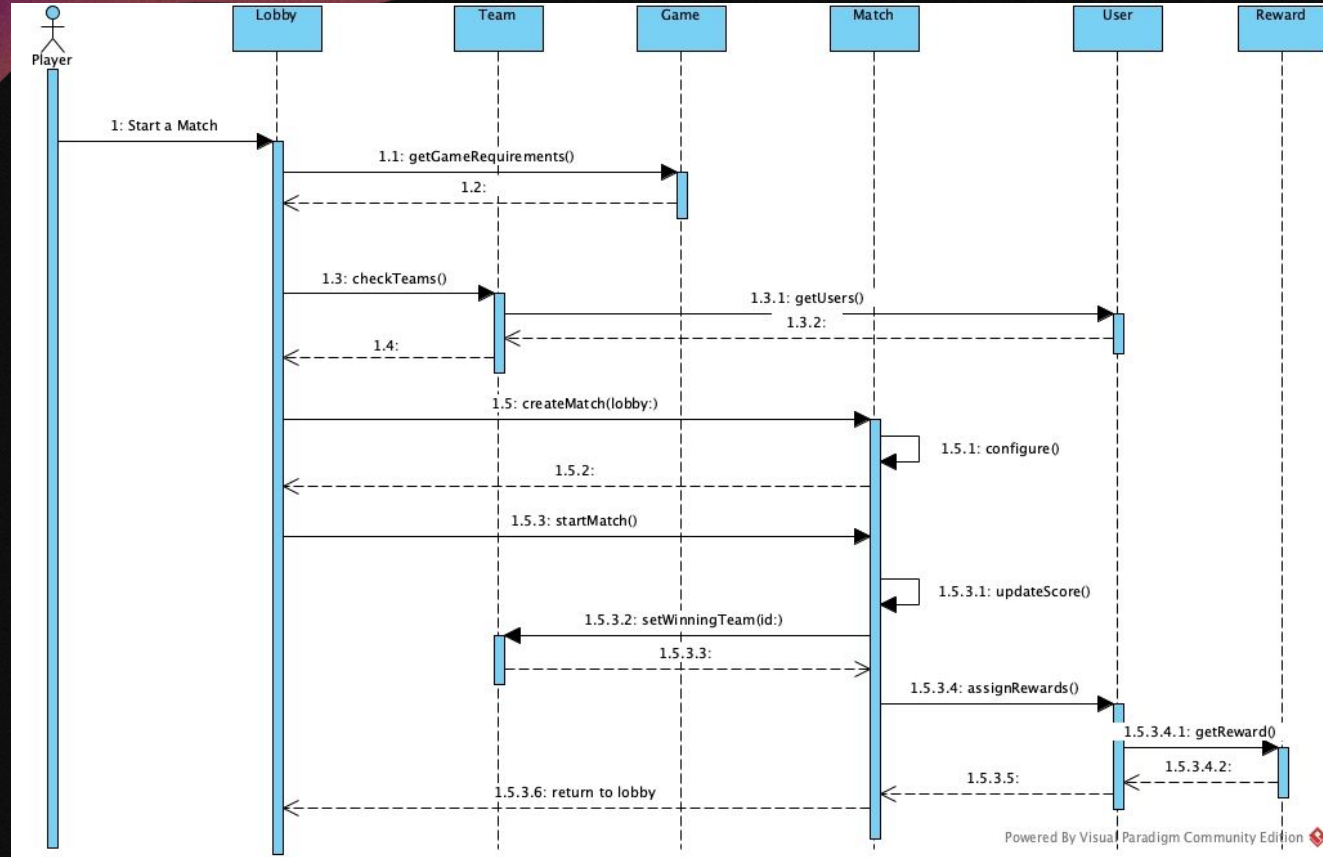
It was decided that interaction between classes for certain use cases would be better represented using use case diagrams.

The use cases taken for analysis: Start Livestream, Participate in Match, Manage Chat, Analyze Score

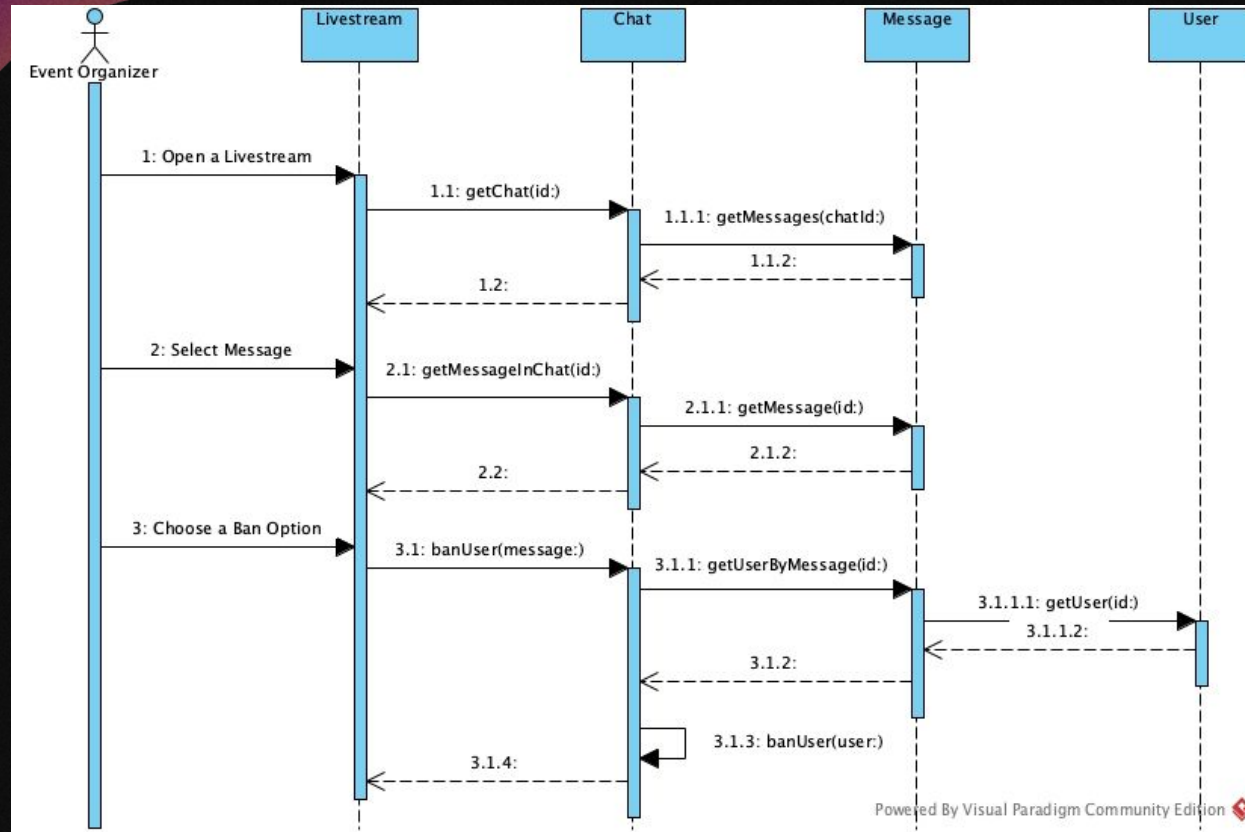


Start Livestream

Participate in Match

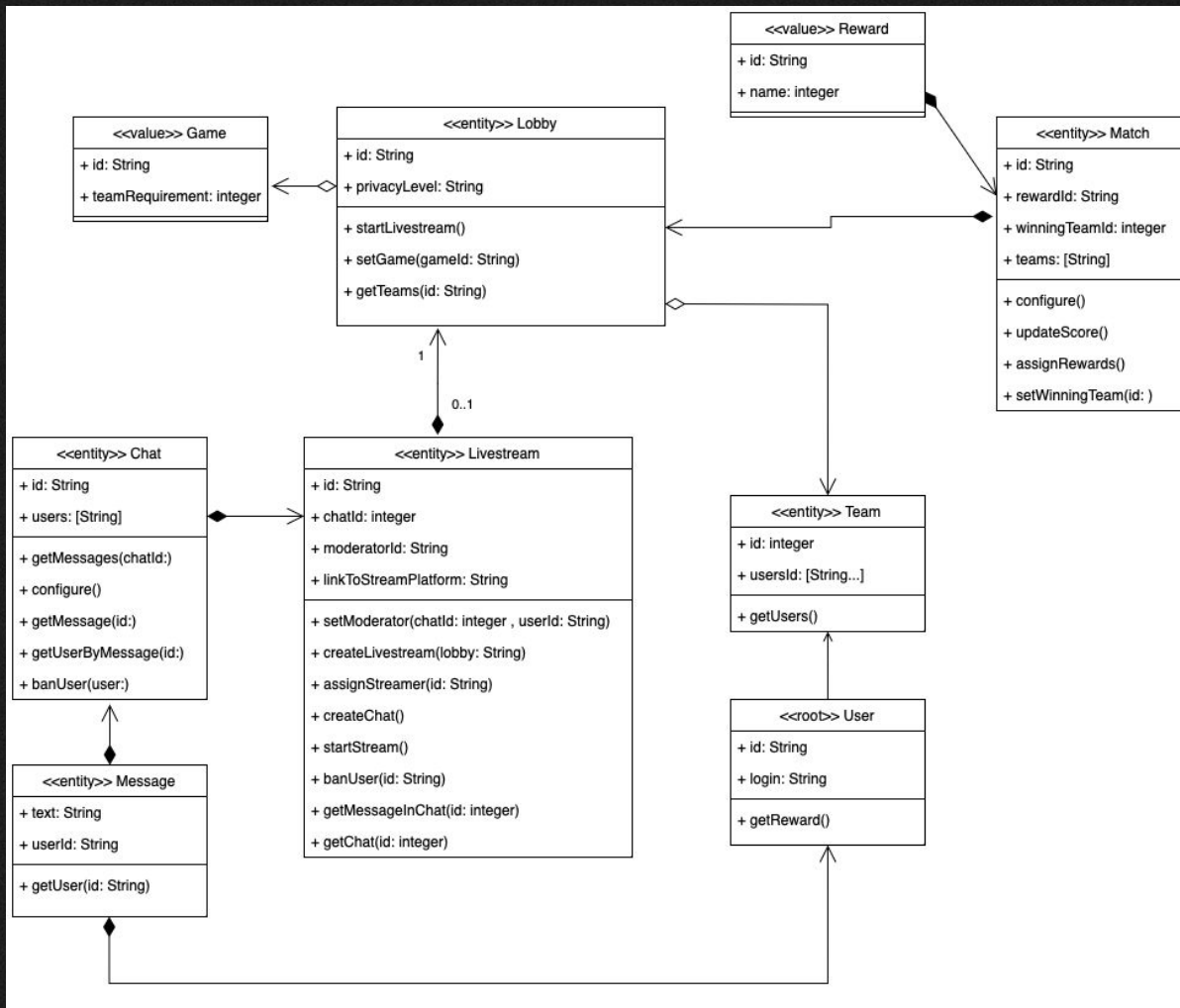


Manage Chat



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Class Diagram



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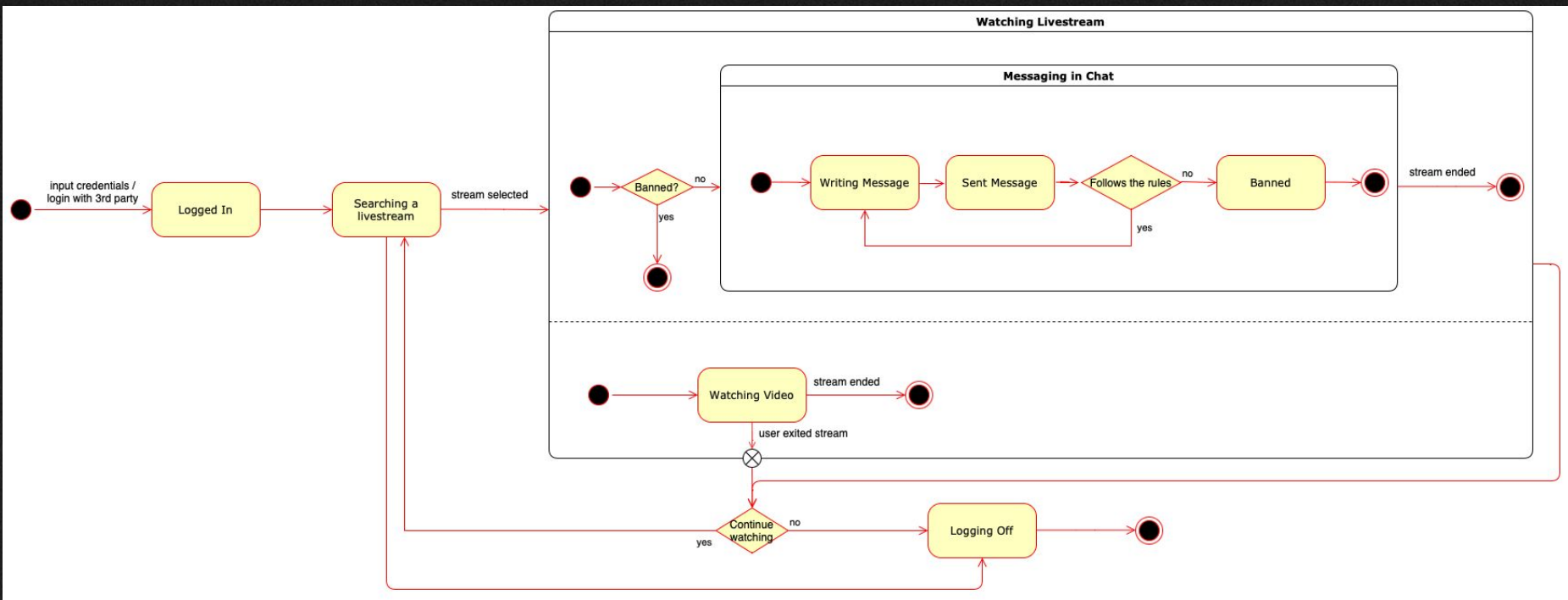
Behaviour

The following state diagram describes the Spectator classifier.

Spectator logs in, then he can use the system. Spectator can search and select the livestream to watch. Then spectator watches the stream, he can chat with other spectators in chat while watching the stream. He can also be banned in chat if he doesn't follow the rules.

Spectator can choose another stream to watch whenever he wants, he can also log off whenever he wants or close the system.

Spectator



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Repository



Project Repository

Link to GitLab

<https://gitlab.com/duelhub/duelhub>

Tools Used

Notion

For keeping the documentation at one place

Draw.io

Main modeling tool

Visual Paradigm

Second modeling tool. Used for modeling interactions

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Team & Roles

Team

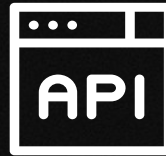


Sadulaeva Teona

Frontend Developer

Responsible for:

- Persona discovery
- Documenting customer journey
- Domain modeling



Rezunik Lyudmila

Backend Developer

Responsible for:

- Documenting use cases
- Performing interaction analysis
- Behavioral analysis



Shchukin Vladislav

QA Engineer

Responsible for:

- Coming up with features
- Completing textual scenarios

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Thanks !