User System Flows

CONNECT WITH PLAYERS IN MATCHMAKING

Name: Connect with Players in Matchmaking

Actors: User, Opponent, Matchmaking System, Server

Pre-conditions: User is connected to the server and has an active matchmaking request.

Trigger: User searches for a match.

Post-conditions: User is successfully connected to an opponent and enters a game session.

Main Success Path (Primary Flow)

Actor Actions	System Response
User selects matchmaking option.	Client receives matchmaking request and searches for an appropriate match based on skill level and availability.
	Server finds a match and notifies both players.
Actor accepts the match.	Game session is initialized, and players are connected.

Alternate Path A1

Actor Actions	System Response
Actor rejects the match.	Goes back to main menu/application screen.

Exception Path E1

Exception	System Response
No suitable match is found immediately.	User is placed in a waiting queue.
Server encounters an issue while matching players.	User receives an error message.
User receives an error message and matchmaking request is canceled.	Unable to matchmake error message given to actor.

Scenario

Scenario	Actor Action
User enters matchmaking but disconnects before finding an opponent.	Can requeue again.
Server removes the user from the matchmaking queue.	Can requeue again.

DATA RETRIEVAL OF USER FROM SERVER

Name: Data Retrieval of User from Server

Requirement ID: ID02

Actors: User, Server, Database

Pre-conditions: User is connected to the server and authenticated.

Trigger: User requests to view their profile or leaderboard.

Post-conditions: User data is retrieved and displayed on the client side.

Main Success Path (Primary Flow)

Actor Actions	System Response
User opens app and logs in.	Client sends request to server for user data.
	Server retrieves data from the database.
	Server sends the data back to the client.
User reviews their profile and data.	

REAL-TIME GAME SYNCHRONIZATION

Name: Real-Time Game Synchronization

Requirement ID: ID03

Actors: User, Server, Opponent, Game System

Pre-conditions: User is connected to the server and in an active game session.

Trigger: A player makes a move.

Post-conditions: Game state updates are synchronized across all players' clients.

Main Success Path (Primary Flow)

Actor Actions	System Response
Player makes a move.	Client sends move data to the server.
	Server validates and updates the game state.
	Server broadcasts the updated game state to all clients.
	Other players see the new game state in real time.

CHAT

Name: Chat

Requirement ID: ID04

Actors: User, Recipient, Chat System, Server

Pre-conditions: User is connected to the server and has an active matchmaking request

Trigger: User types and sends a chat message.

Post-conditions: Message is successfully delivered to the recipient(s).

Main Success Path (Primary Flow)

Actor Actions	System Response
User types a message.	Client sends message to the server.
	Server routes the message to the intended recipient(s).
	Recipient(s) receive and display the message.

Alternate Path A1

Actor Actions	System Response
Actor does not type a message	System waits for any message from the actor.

Exception Path E1

Exception	System Response
Network failure occurs.	User receives an error message and message is not sent.

Scenario

Scenario	System Response
Recipient is offline.	Server queues the message for later delivery.
User sends a message but experiences lag.	No response due to latency issue.

REDIRECT CLIENT QUERIES

Name: Redirect Client Queries

Requirement ID: ID05

Actors: User, Server, Database

Pre-conditions: User is connected to the server.

Trigger: User initiates an action.

Post-conditions: The request is processed and directed to the appropriate system.

Main Success Path (Primary Flow)

Actor Actions	System Response
User performs an action.	Client sends the request to the server.
	Server routes the request to the relevant system.
	The system processes the request and returns a response.
	User receives confirmation or the requested information.

Alternate Path A1

Actor Actions	System Response
User does not perform any query	System waits for any query from the user.

Exception Path E1

Exception	System Response
Server fails to process the request.	User receives an error message.

Scenario

Scenario	System Response
Server fails to route the query.	Server error - Unable to process request error thrown.
Database is down or unavailable.	Profile data unavailable. Please try again later.
Chat message fails to deliver.	Message failed to send.

CONNECT TO SERVER

Name: Connect to Server

Requirement ID: ID06

Actors: User, Server, Authentication System

Pre-conditions: User has an internet connection, application installed, met system requirements, and followed instructions.

Trigger: User launches the application and tries to connect.

Post-conditions: User is successfully connected to the server and can access the platform and all features and games.

Main Success Path (Primary Flow)

Actor Actions	System Response
User opens app.	Client sends request to server.
	Server authenticates the request.
	Server maintains a connection and sends response back.
	User gains access to the system.

SESSION RECONNECTION

Name: Session Reconnection

Requirement ID: ID07

Actors: User, Server, Game System

Pre-conditions: User was previously connected to a game session but got disconnected due to network issues.

Trigger: User attempts to reconnect to the game.

Post-conditions: User successfully rejoins the active game session without data loss.

Main Success Path (Primary Flow)

Actor Actions	System Response
User loses connection.	Server detects disconnection and stores session state.
User reconnects to the game.	Server verifies session ID and checks match status.
Server restores user's state.	User resumes gameplay from where they left off.

Alternate Path A1

Actor Actions	System Response
User takes too long to reconnect.	Server removes the user from the session.
User must start a new match.	Matchmaking system finds a new opponent.

Exception Path E1

Exception	System Response
Game session has already ended.	User is notified that the match is no longer available.

LATENCY COMPENSATION & NETWORK STABILITY

Name: Latency Compensation & Network Stability

Requirement ID: ID08

Actors: User, Opponent, Server, Game System

Pre-conditions: Users are actively playing a match, but network conditions fluctuate.

Trigger: A player's network latency increases beyond an acceptable threshold.

Post-conditions: Gameplay remains smooth with minimal disruption despite network instability.

Main Success Path (Primary Flow)

Actor Actions	System Response
User experiences network lag.	Server detects high latency and applies compensation mechanisms (e.g., input delay buffering, rollback adjustments).
Opponent continues playing.	Server ensures the game state remains synchronized for both players.

Alternate Path A1

Actor Actions	System Response
Latency is temporary and stabilizes.	Server automatically resynchronizes the game state.

Exception Path E1

Exception	System Response

Exception	System Response
Player's connection drops long-term.	Player is disconnected, and match continues or ends based on game rules.