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Design Doc

Description:

Doodle Designer is an interactive drawing game where players are tasked with drawing specific words and other players vote on the best drawing. The game is played over a TCP connection, utilizing a client-server model and threads to synchronize gameplay between multiple players.

Game Phases

- Loading and Lobby Joining
- Drawing Phase
- Voting Phase

Game Flow

Phase 1: Loading and Lobby Joining

- Objective: Players connect to the game server and join a lobby to wait for other players.
- Implementation Details:
 - Players initiate the game by launching the client application.
 - Upon launching, players are presented with a loading screen prompting them to join a lobby.
 - Players click a "Join a Lobby" button to establish a TCP connection with the game server.
 - The game waits until the lobby is full before proceeding to the next phase.

Phase 2: Drawing Phase

- Objective: Players receive a word and draw their interpretation of it on a shared canvas.
- Implementation Details:
 - Players receive the assigned word from the server.
 - The game transitions to a drawing canvas interface where players can sketch their drawings using mouse input.
 - The drawing phase has a time limit (30 seconds) after which drawing is disabled.
 - Players' drawings are captured, converted to bytes, and sent to the server.

Phase 3: Voting Phase

- Objective: Players vote on the best drawing from a selection of submitted drawings.
- Implementation Details:

- The server collects all submitted drawings and presents them to players for voting.
- Each player selects their preferred drawing by clicking on the displayed images.
- Once all players have voted, the server announces the winning drawing(s).

Game End

- Objective: Display the winner(s) of the round and close the game after a brief period.
- Implementation Details:
 - The winning drawing(s) are displayed on-screen.
 - After displaying the winner(s), the game waits for a short period (5 seconds) before closing.

Game Art and Assets

- Loading Screen: Displayed at the start, prompting players to join a lobby.
- Drawing Canvas: Provided during the drawing phase, allowing players to sketch their drawings.
- Voting Screen: Displays submitted drawings for player voting.
- Winner Screen: Shows the winning drawing(s) and congratulatory message.

Networking

- The user creates an instance of a TCP-Client, a class that holds methods related to sending and receiving data back and forth from the server.
- From the server's end, once the user connects to the server, their connection is stored inside a list and a thread is created to process the different phases of the game.
- A lock is used with the threads when clients must append their drawings and votes in shared lists. This prevents any data corruption and ensures that the data is properly stored.

User Interface

- Buttons and Interactivity:
 - Simple buttons for joining the lobby and selecting drawings during the voting phase.
 - Mouse input for drawing on the canvas during the drawing phase.

Conclusion

Doodle Designer is an engaging multiplayer drawing game that leverages networking and real-time communication to enable players to collaborate and compete creatively. The game's structured phases ensure a smooth gameplay experience, from joining a lobby to drawing and voting, culminating in the announcement of the winner(s). With its interactive design and networking capabilities, Doodle Designer promises a fun and interactive gaming experience for players.

Note:

For the sample playthrough video, I set the MAX_PLAYERS to be 1 just to showcase the game's functionality. This is why there is only 1 picture shown. The game should be played with 4 people for the most thrilling experience!