Toni, Trym, James

CSC2620

Prof. Stuetzle

Final Project

[Coding Final Project WriteUp](https://docs.google.com/document/d/1d3MWiSAxqijbgX6AwRD8Dbl3YWcx5AToKoWBNhw3RT0/edit?usp=sharing) (Updated version)

Golf Game Request

The goal is to make a multiplayer golf game. The game will have one or more players compete on three levels, and the lowest combined score will be the winner.

Players can connect to the server through a view. This view provides the ability to host or join a server. To make a server, a port number and IP address are required. In order to join a server, a player enters the Server’s IP address and port number, as well as a ball color and nickname.

The Server hosts the golf game. Players join when they connect to the server. These players are given a unique ball. Both the client and server views show who is in the lobby, if they are readied up. On the client view, a button exists to ready up. When pressed, the server is updated and the player is readied up accordingly. When the server recognizes that all players are readied up, it moves into the gameplay phase.

In the gameplay phase, a level is loaded into the server. This level consists of one or more holes and walls. Walls can be rectangles, squares, or circles. The hole is a circle. The server then renders all the level objects with the correct collision bodies. Then it adds the player balls to the level, and signals the clients to load the level. On the client view the level is rendered. Then the server sends out a start signal, which causes a countdown on all clients. When the countdown reaches zero, players can click and drag on their view to shoot the ball. Upon mouse release, the client sends a velocity to the server. The server applies the velocity to the physics ball. In addition, the server will periodically send the positions of the ball objects so the client can see the up to date positions of the balls. When a ball reaches the hole, the server removes the physics ball from the current level. Any further client inputs will be disabled. Once all balls reach the hole the server selects a new level and signals clients with an intermission screen.

The intermission screen is a client view that shows the current cumulative placements of each player. Players are sorted by score, lowest to highest. A countdown shows how long until the next level starts.

After the intermission screen the server signals another load and countdown, and this repeats until three holes are played. After the third hole, the server and client views display a win screen that shows the top 3 lowest scores. Then after a period of time, the server returns to the lobby phase, and updates the clients to do so as well. From there players can ready up or leave, and this will loop until the server closes.

| Nouns | Verbs |
| --- | --- |
| ~~Goal~~  Multiplayer golf game  Players  Score  ~~Winner~~  Level  Player  Server  ~~View~~  Port Number  IP Address  Nickname  Ball Color  Golf Game  Client View  Server View  Lobby  Button  Gameplay Phase  Walls  Rectangles  Triangles  Circles  Holes  Collision Bodies  Level Objects  Player Balls  Start Signal  Countdown  Velocity  Physics Ball  Client Ball  Positions  Current Level  Client Inputs  Intermission Screen  Cumulative Placements  ~~Score~~  ~~Countdown~~  ~~Third hole~~  Win Screen  Period of time  Lobby Phase | Make multiplayer game  Compete on different levels  Connect to server through view  Ability to host or join  Make server  ~~Join server~~  Enter IP-address  Given unique ball  Show participants  Ready up  Button pressed update server^  Readied up, moove to game phase  Level is loaded into the server  Consists of one or more holes/walls  Render all level objects  Add the players to the level  Signal to load level  Level is rendered  ~~Send start signal~~  Start countdown  Click and drag to send velocity  Shoot ball upon mouse release  Server applies velocity to ball  ~~Send positions of ball object~~  Periodically send position of ball  See up to date positions  Server removes ball  Input disabled  Get next level  Show cumulative placement  Sort by score  Show time until next level  Server signals another load and countdown  Repeat until three holes are played  Display win screen  Return to lobby  Ready up or leave  Shows top three lowest scores  Loop until the server closes |

| Nouns | Verbs |
| --- | --- |
| Golf Game  Multiplayer golf game  Player  Players  Score  Cumulative Placements  Level  Server  Port Number  IP Address  Nickname  Ball Color  Client View  Server View  Lobby  Lobby Phase  Button  Gameplay Phase  Walls  Rectangles  Triangles  Circles  Holes  Collision Bodies  Level Objects  Player Balls  Start Signal  Countdown  Period of time  Velocity  Physics Ball  Positions  Current Level  Client Inputs  Intermission Screen  Win Screen  Client Ball  Client | Make multiplayer game  Compete on different levels  Make server  Connect to server through view  Ability to host or join  Enter IP-address  Given unique ball  Show participants  Ready up update server^  Readied up, moove to game phase  Level is loaded into the server  Render all level objects  Add the players to the level  Signal to load level  Level is rendered  Server removes ball  Server signals another load and countdown  Start countdown  Click and drag to send velocity  Shoot ball upon mouse release  Server applies velocity to ball  Periodically send position of ball  See up to date positions  Input disabled  Get next level  Show cumulative placement  Sort by score  Show time until next level  Repeat until three holes are played  Display win screen  Return to lobby  Ready up or leave  Shows top three lowest scores  Loop until the server closes |

| Nouns | Verbs |
| --- | --- |
| Server - C   * Port Number * IP Address * Golf Game - C, A   + Player Balls   + Player C, A     - Score A     - Nickname A   + Current Level A * Server View - C, A   + Start Signal   Level - C   * Level Objects C, A   + Walls A     - Rectangle     - Triangle     - Circle   + Hole A     - Circle   + Collision Bodies - C, A   Client -C   * Client View - C   + Client Inputs   + Intermission Screen C, A   + Win Screen C, A   + Countdown - A   Lobby Phase - C   * Button A   Gameplay Phase - C  Ball - C   * Position A   Physics Ball - C   * Velocity   Client Ball - C   * Ball Color A | Compete on different levels  Make server  Connect to server through view  Ability to host or join  Enter IP-address  Given unique ball  Show participants  Ready up update server^  Readied up, move to game phase  Level is loaded into the server  Render all level objects  Add the players to the level  Signal to load level  Level is rendered  Server removes ball  Server signals another load and countdown  Start countdown  Click and drag to send velocity  Shoot ball upon mouse release  Server applies velocity to ball  Periodically send position of ball  See up to date positions  Input disabled  Get next level  Show cumulative placement  Sort by score  Show time until next level  Repeat until three holes are played  Display win screen  Return to lobby  Ready up or leave  Shows top three lowest scores  Loop until the server closes |