Assignment 4 – Write up

CSC591 – Game Engine Foundations
Rachit Shrivastava

Part 1 - Scripting

For part 1 scripting, I had to modify my event handler function to accommodate the requirement for the assignment. Even the moving platform's color was set to random values at its movement just to depict scripting in process during regular server updates. During this part I couldn't see any sense of using any scripts, in fact I was making my code redundant my implementing the same functionality with scripts which was already working in previous assignments.

Part 2 – Space Invaders

It was part 2 which introduced me to the concept of scripting to its core. I chose to make Space Invaders, with existing client-server architecture but a single player game. This criterion completely overruled the need of sending any event/position updates to server so that I can forward to other clients.

Server here was merely being used to send the updated values for the alien gameObjects. 2d platformer's platforms were converted into aliens and the player was same with some tweaks in sizes, colors and positions.

Creating new game objects was a simple task with this design of game engine, since I had a factory file mentioning components to be included in for a particular game object.

There was no ___ to include two event triggers on a single button click, so had to remove JUMP_EVENT in order to include PLAYER_SHOOT_EVENT when spacebar is tapped.

Since my 2d platformer had customized Collision Detection meant to check for the platforms being jumped upon, I had to change it completely in order to facilitate bullet and player/alien collision detection. Scripts came in very handy in this case. Designing a game specific collision detection was surely a bad idea. Keeping collision detection handler out of the component helped me implement my third game Pong quickly. As after initializing the values it had only collision detection to be taken care of.

Part 3 - Pong

Pong is very much similar to the 2d platformer with slight change in positions, color and size of players and platform aka pong ball. Same references have been used code wide, player, platform just they render as per new values.

Pong is a two player networked game, which starts when both the players are connected to the server. The paddles move with arrow keys like the player in 2d platformer but don't have any jump event. The pong unlike moving platform now has a velocity in y direction as well. The death and spawn events have been modified as per the game, using scripts. Player 1 is at the

bottom, and player 2 is at the top. Select the window and then press arrow keys to move the paddle.

Another design decision that I had to take for Pong was starting the ball movement and syncing it with other player over server communication. For that case I had to wait for second player to get connected to server and then send the co-ordinates from client2 to client1 through server. Both the clients will be rendering the ball as well but if there's any response from the server the local values are overridden by the ones sent by the server.

According to me implementing event handlers using scripts gives an edge to the game designers not to fiddle with the game engine code, but modify some basic functionality when need be. Given a chance to redesign my game engine I would definitely move eventHandlers out of the game engine subsystem and use them in Scripts.
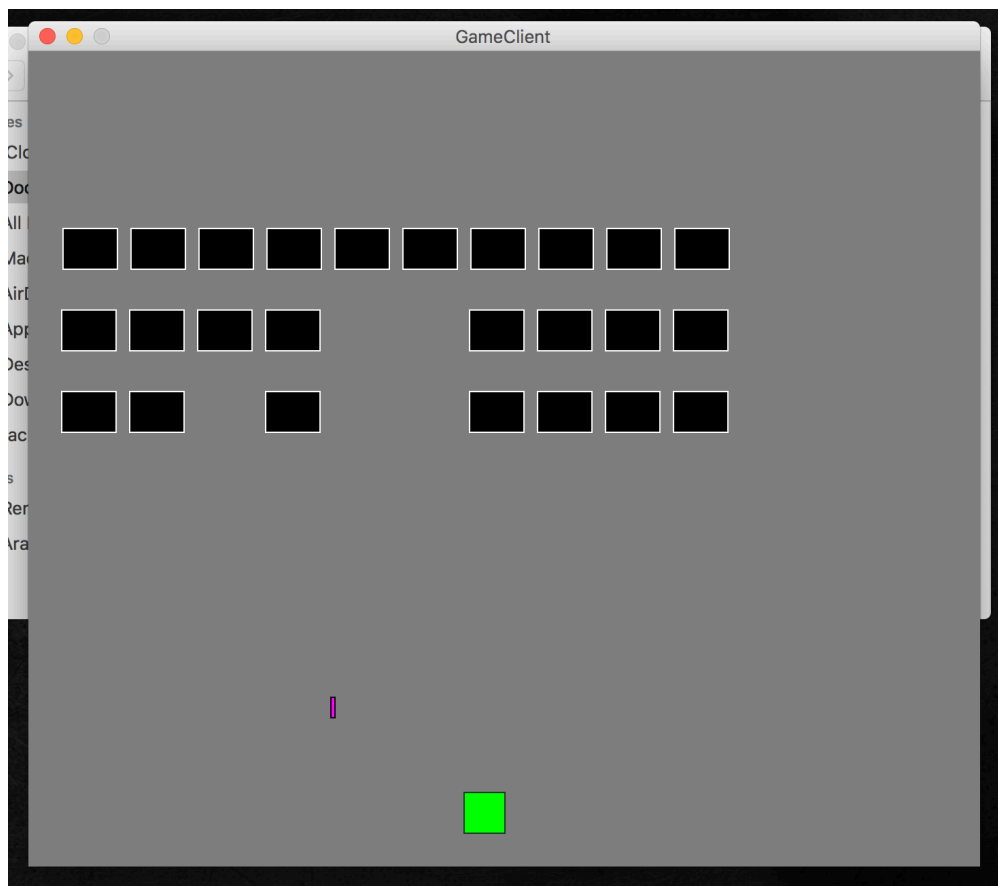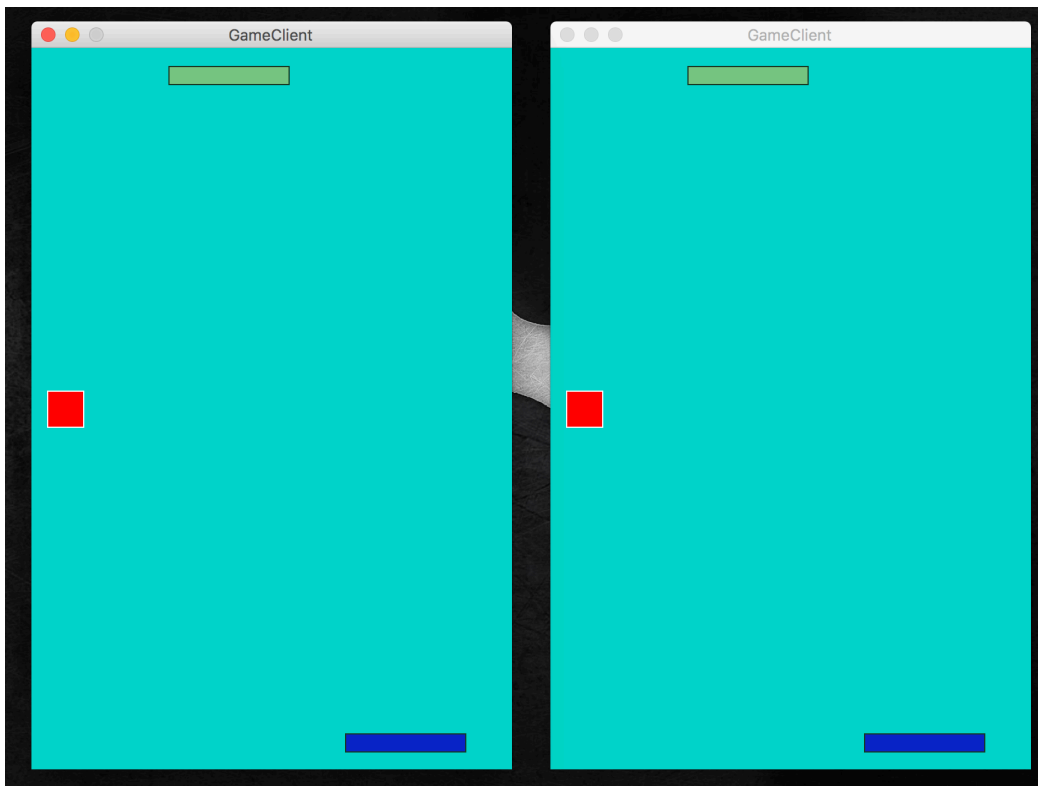

Space Invaders game play

When bullet hits the player
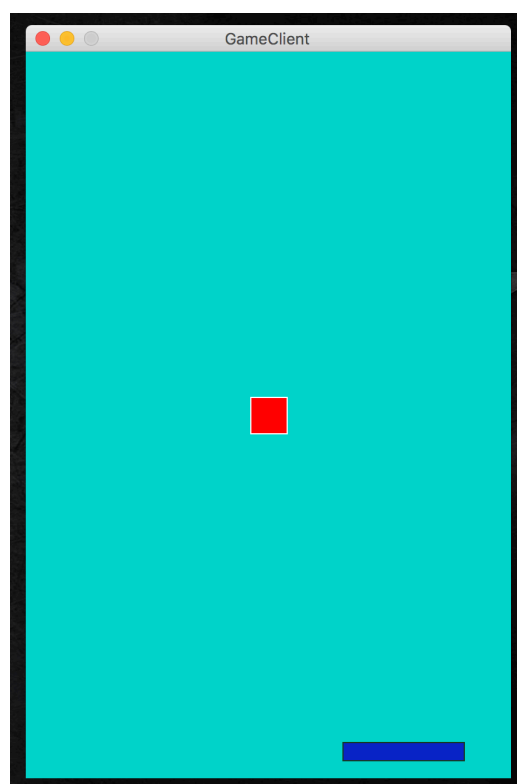
When only one client up, game is in pause state

When both the players are up, player 1 is at the bottom, and player 2 is at the top. Select the window and then press arrow keys to move the paddle