Assignment 4 report

Design Decision

I used the TCP for this programming assignment. TCP is easier to implement. Since this is a relatively small game, it’s not necessary to use UDP for the speed requirement. This game can have up to 4 players. I made all the players clients and make a separate server. It’s easier to keep track of the data from client and server on this way. Since the server has the absolute truth of the game, all the screens will have only one version of the game. I have the server waits for the client on one thread, and it will start a new separate thread when a client connected. This way, the program will continue to run while the server waits for the new client. The server will send three different types of message to all the clients depends on the situation. This way, it will avoid sending a big chunk of message at one time.

Implementation process

First, I created the ServerSystem and ClientSystem. I made sure they can communicate with each other before I do anything else. Second, I made the ClientSystem implements the ControlListener, so the client will send control command to the server when a key is pressed or released. Third, I made a ServerEvent to decode the message from the client, and make players on the server screen. Then, I made the server to send the message with some additional information to all the clients. I made a ClientEvent to decode the message from the server, and make players on clients’ screen. Then I just keep adding thing onto the program and make it better.

Problems

The power up system for the multiplayer has some problems. Sometimes a power up block will appear on one screen and not appear on the other screen. This is probably caused by the bomb explosion timing are different on different program. The speed is the only power up a player can get. This is because other two power ups can cause even more problems and it’s not easy to solve it for now.

Results

I learned a lot about client-server programming from this assignment. I know when to use TCP socket and UDP socket. I understand the approach of using a separate server and each player as a client. Even on the same computer, the clients and server can have some series lag problem. I found it amazing how multiplayer game works. I really enjoyed this assignment since I used to play online games all the time.