

ICNFinal Report

Group 3: b07901032, b07901037, b07901055

組員: 王國豪(馬棠)、周子皓、許宸睿

Agenda

- ▶ Code Survey
- ▶ Tasks and Approaches - Server Side
- ▶ Tasks and Approaches - Client Side
- ▶ Work Distribution

Code Survey

- ▶ Client side: under folder Assets
 - ▶ Game Content: Player_Interaction, Player_Prefab, Progress_Bar, Weapon
 - ▶ Connection_Script*¹: [Client/Handle/Send/Packet](#), PlayerManager, GameManager, ThreadManager
- ▶ Server side: under folder GameServer*²
 - ▶ [Server/Handle/Send/Packet](#), Player/Projectile/Bomb, ThreadManager, Program(main)

*¹ Connection_Script was found under Library/Collab/Download/Assets

*² This was cloned from <https://github.com/Tom-Weiland/tcp-udp-networking>

Tasks and Approaches - Server Side

- ▶ Coordinate what should be included packet based on events that will happen in the game
- ▶ Based on above information to create interfaces in `Server.cs/ServerHandle.cs/ServerSend.cs`

```
1  public enum ServerPackets
2  {
3      welcome = 1,
4      spawnPlayer,
5      playerPosition,
6      playerFrozen,
7      playerWithItem,
8      playerDropItem,
9      globalProgress,
10     gunRotation,
11     spawnProjectile,
12     projectileExploded,
13     spawnBomb,
14     bombExploded
15 }
```

```
16  public enum ClientPackets
17  {
18      welcomeReceived = 1,
19      playerMovement,
20      playerGunDirection,
21      playerShoot,
22      playerPickItem,
23      playerPlaceItem, // place item at lab
24      playerPlaceBomb,
25      projectileExploded,
26      bombExploded
27 }
```

Packets to Send

Events	First Step ClientSend/ ServerHandler	Second Step ServerSend/ ClientHandler	Connection method
Game start	tcp connection request	welcome	tcp
Player spawned	welcomeReceived	spawnPlayer remember to sync	tcpToAll
Player move	playerMovement player.position(Vector3)	playerPosition player.id(int) player.position(Vector3)	udpToAll
Player gun rotation	playerGunDirection player.gunRotation(Quaternion)	gunRotation player.id(int) player.gunRotation(Quaternion)	udpToAll
Player shoot	playerShoot projectile.position(Vector3) projectile.rotation(Quaternion)	spawnProjectile projectile.id(int) projectileOrigin(Vector3) projectileDirection(Quaternion)	tcpToAll

Player place bomb	playerPlaceBomb bombOrigin(Vector3)	spawnBomb bomb.id(int) bomb.position(Vector3)	tcpToAll
Player with item	playerPickItem item((int)PROGRESS)	playerWithItem player.id(int) item((int)PROGRESS)	tcpToAll
Player place down item at factory	playerPlaceItem	playerDropItem player.id(int) globalProgress PROGRESS(int*4)	tcpToAll
Player got hit	projectileExploded projectile.id(int)	projectileExploded projectile.id(int) playerFrozen player.id(int) playerDropItem player.id(int)	tcpToAll
Player bot bombed	bombExploded bomb.id(int)	projectileExploded bomb.id(int) playerFrozen player.id(int) playerDropItem player.id(int)	tcpToAll

Tasks and Approaches - Client Side

- ▶ Mostly dealing with Unity(Scenes, Prefabs, **missing_script**, Transform, GameObject, Collider, etc.)
- ▶ Based on Packet, create interfaces in `Client.cs`/`ClientHandle.cs`/`ClientSend.cs` that connect packet with our game content.

Work Distribution

- ▶ 1032: server side code and others
 - ▶ team management
 - ▶ git/hackmd maintenance
 - ▶ server/client packet design
 - ▶ report
- ▶ 1037, 1055: client side code
 - ▶ Unity scene and prefab understanding and manipulation
 - ▶ single-to-multiplayer game conversion
 - ▶ packet-to-game-content conversion
 - ▶ client side timer synchronization

Reference

- ▶ [Unity Networking Tutorial]
(<https://youtube.com/playlist?list=PLXkn83W0QkfnqsK8I0RAz5AbUxfg3bOQ5>)
- ▶ [Tutorial Github]
(<https://github.com/tom-weiland/tcp-udp-networking>)
- ▶ [ICNFinal Github]
(<https://github.com/howardchou0302/ICNFinal.git>)
- ▶ [ICNFinal Markdown]
(<https://hackmd.io/jBB5SW9aSLCRbKnop1MU4A>)

We have great appreciation of...

- ▶ Work done by teammates
- ▶ Work done by TA
- ▶ Tom Weiland for nice and compact tutorial vids
- ▶ Brilliant and magnificent lessons given by prof. Liao
- ▶ And the most important... YOUR LISTENING!