

HW1 雙人連機遊戲 two-player online game

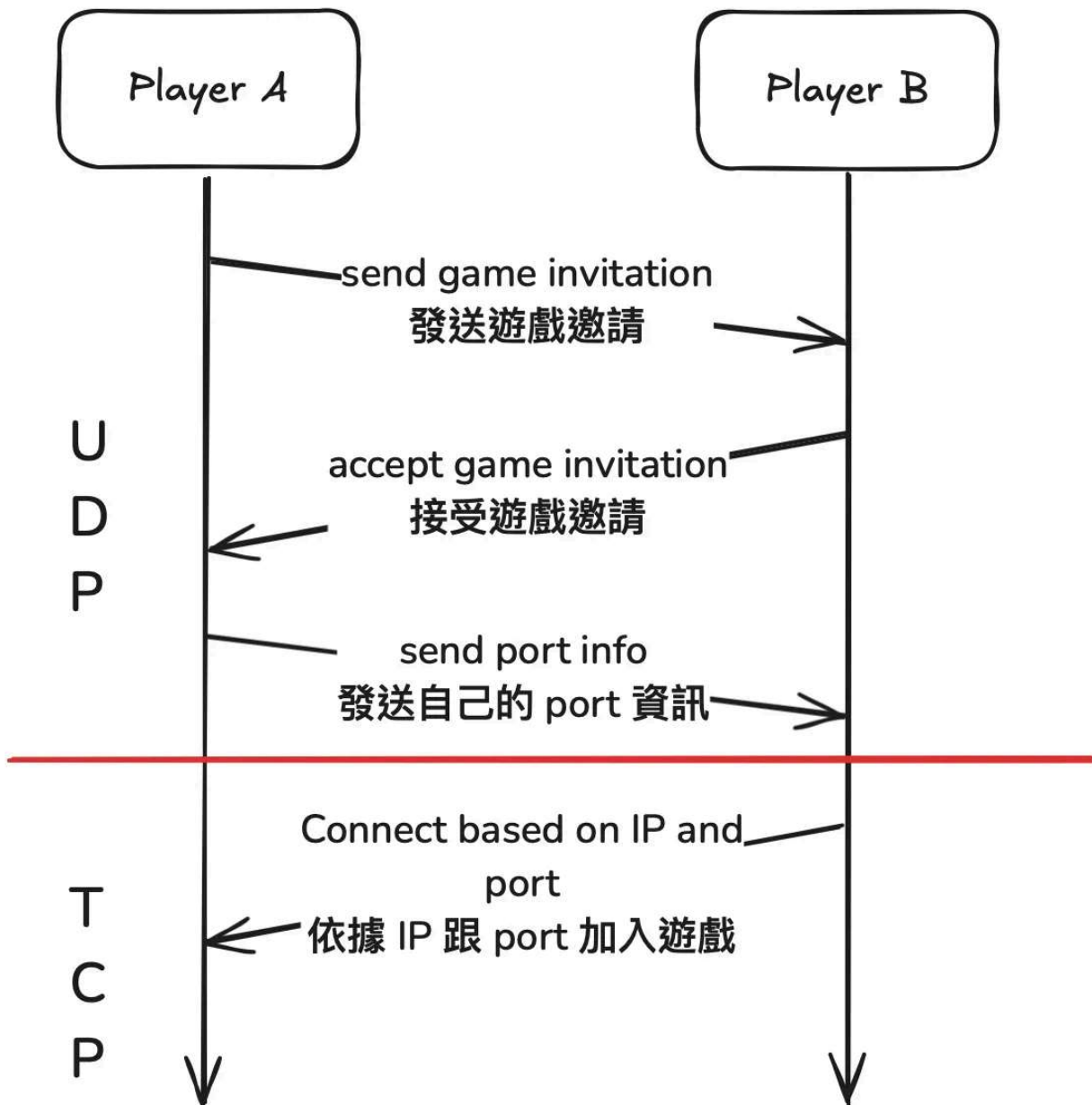


10/14 更新評分標準 Update homework ranking

Introduction

本次作業的目標是要讓同學實作能透過 TCP 以及 UDP 溝通的程式，本作業要求同學實作一個簡單的雙人連機遊戲。本作業將會分為兩個部分，第一部分是玩家發送遊戲邀請：玩家 A 要能夠透過 UDP 發送邀請給玩家 B，玩家 B 要能夠告訴玩家 B 他接收邀請，玩家 A 收到玩家 B 的回覆後要再次發送自己 Port (整個發送遊戲邀請的部分皆是透過 UDP 溝通)。第二部分是連機遊戲，玩家 B 在得知玩家 A 的 IP 與 port 後，玩家 B 要能夠透過 TCP 與玩家 A 建立連線，並透過 TCP 玩遊戲 (遊戲類型不限，只要是雙人遊戲即可，例如猜拳、西洋棋……)。

The goal of this assignment is to write programs that can communicate using both TCP and UDP, you are tasked to implement a simple two-player online game. The assignment is divided into two parts. The first part is the game invitation: Player A should send an invitation to Player B using UDP. Player B should then inform Player A that they have received and accepted the invitation. After receiving Player B's response, Player A should send their port information back (the entire invitation process must be done using UDP communication). The second part is the online game. Once Player B knows Player A's IP address and port number, Player B should connect to Player A using TCP, and they can play a game together through TCP (the type of game is not restricted, as long as it is a two-player game, e.g., rock-paper-scissors, chess, etc.).

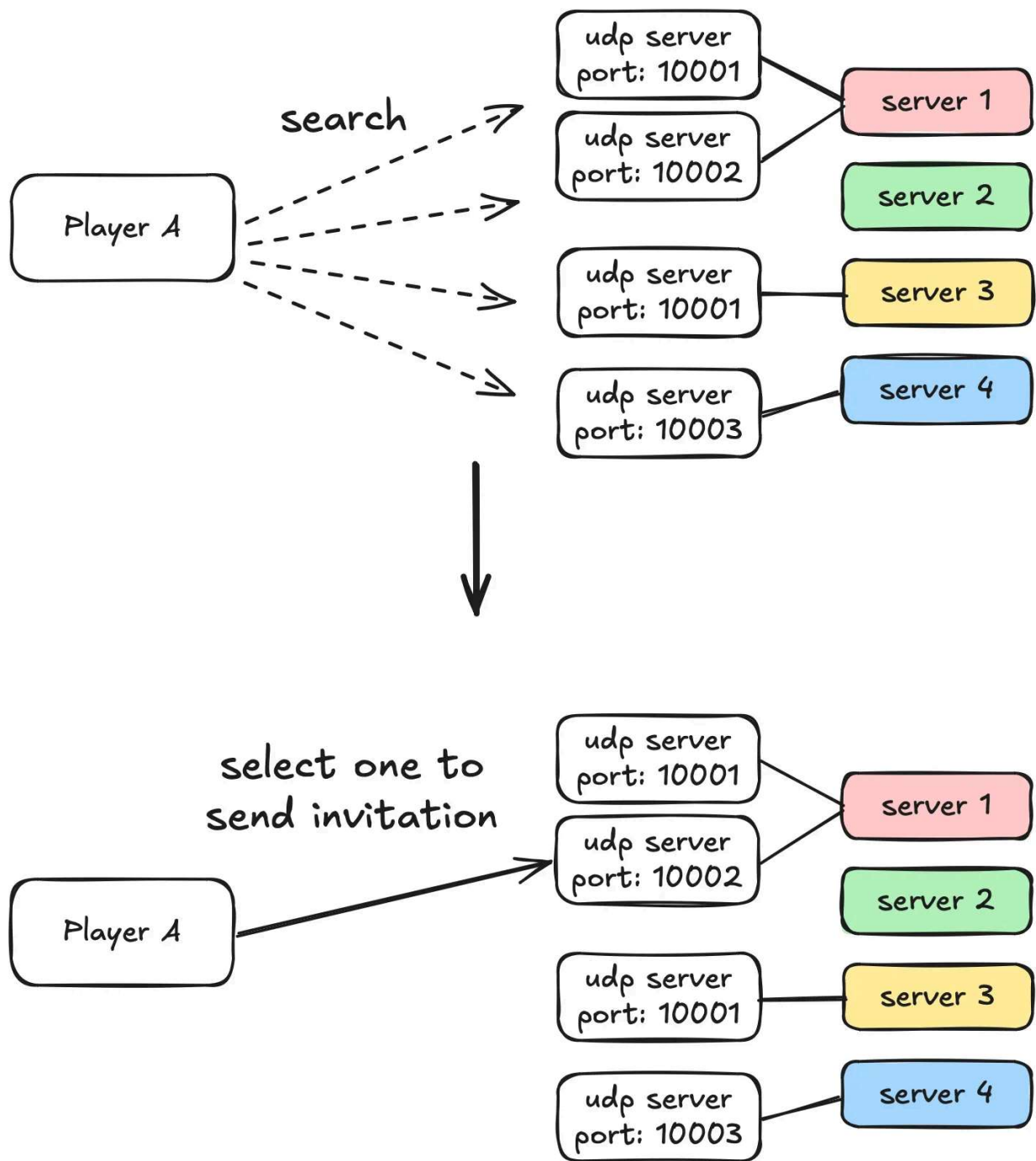


遊戲邀請 Game Invitation

一開始玩家 A 在發送邀請時，必須知道玩家 B 的 UDP server IP 位址以及 Port，為了簡化作業，本次作業玩家 B 規定要運行在系計中的 server 上（總共 4 台，請參考以下表格），並且 UDP server 的 Port 必須為 10000 以上。在發送邀請之前，玩家 A 必須檢查所有的 server 是否有其他玩家正在等待邀請。確認所有正在等待邀請的玩家後，選擇其中一個玩家發送邀請。

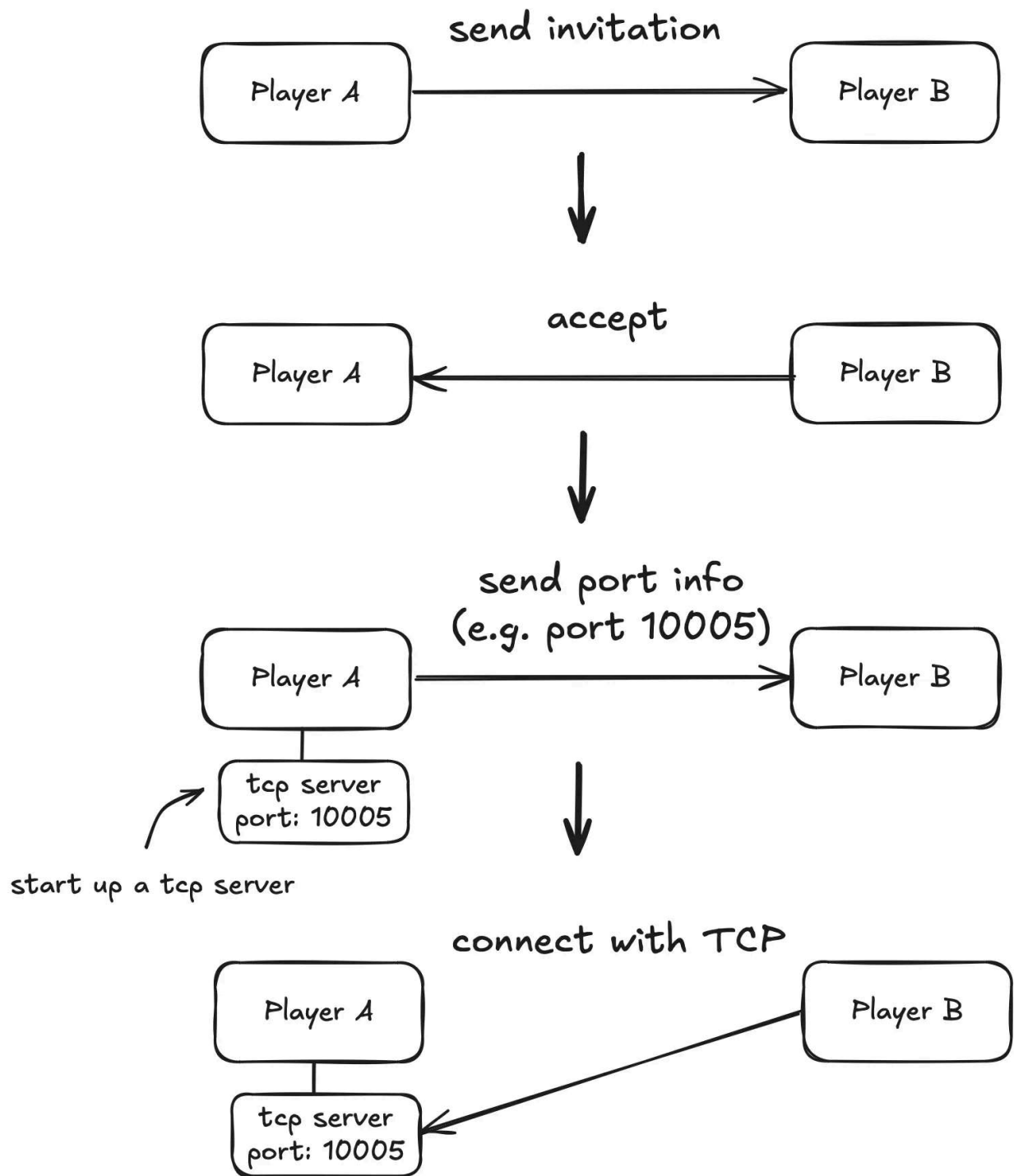
When Player A sends an invitation, they must know Player B's UDP server IP address and port. To simplify things, Player B is required to run on CSIT servers (there are a total of four servers as shown below), and the UDP server's port must be above 10000. Before sending the invitation, Player A must check all the servers to see if any players are waiting for an invitation, after searching all players who are waiting, choose one player to send the invitation.

Server Host Name	IP
linux1.cs.nycu.edu.tw	140.113.235.151
linux2.cs.nycu.edu.tw	140.113.235.152
linux3.cs.nycu.edu.tw	140.113.235.153
linux4.cs.nycu.edu.tw	140.113.235.154



當玩家 B 收到邀請時，要能夠選擇是否接受邀請，如果不接受邀請，玩家 A B 之間不會建立連線，玩家 B 恢復至等待其他玩家邀請的狀態。如果玩家 B 接受邀請，玩家 B 必須告訴玩家 A 他接受邀請，玩家 A 確認玩家 B 接受邀請後會建立一個 TCP server 並傳送該 TCP server 的 port 資訊給玩家 B。

When Player B receives the invitation, they should be able to choose whether to accept it. If Player B declines the invitation, no connection will be established between Player A and Player B, and Player B will return to waiting for other players' invitations. If Player B accepts the invitation, they must inform Player A that they have accepted it. After confirming that Player B has accepted the invitation, Player A will set up a TCP server and send the TCP server's port information to Player B.



雙人連機遊戲 two-player online game

現在玩家 B 有玩家 A 的 IP 位址 (玩家 A 的 IP 位址資訊能夠從玩家 A 發送邀請時得到) 以及玩家 A 的 TCP server port 資訊 , 玩家 B 須透過 IP 位址以及 port 連線到玩家 A 的 TCP server , 連線成功後進行雙人連機遊戲。

Now that Player B has Player A's IP address (which can be obtained when Player A sends the invitation) and the TCP server port information, Player B must use the IP address and port to connect to Player A's TCP server. Once the connection is successful, they can proceed with the two-player online game.