

# HỌC VIỆN CÔNG NGHỆ BƯU CHÍNH VIỄN THÔNG

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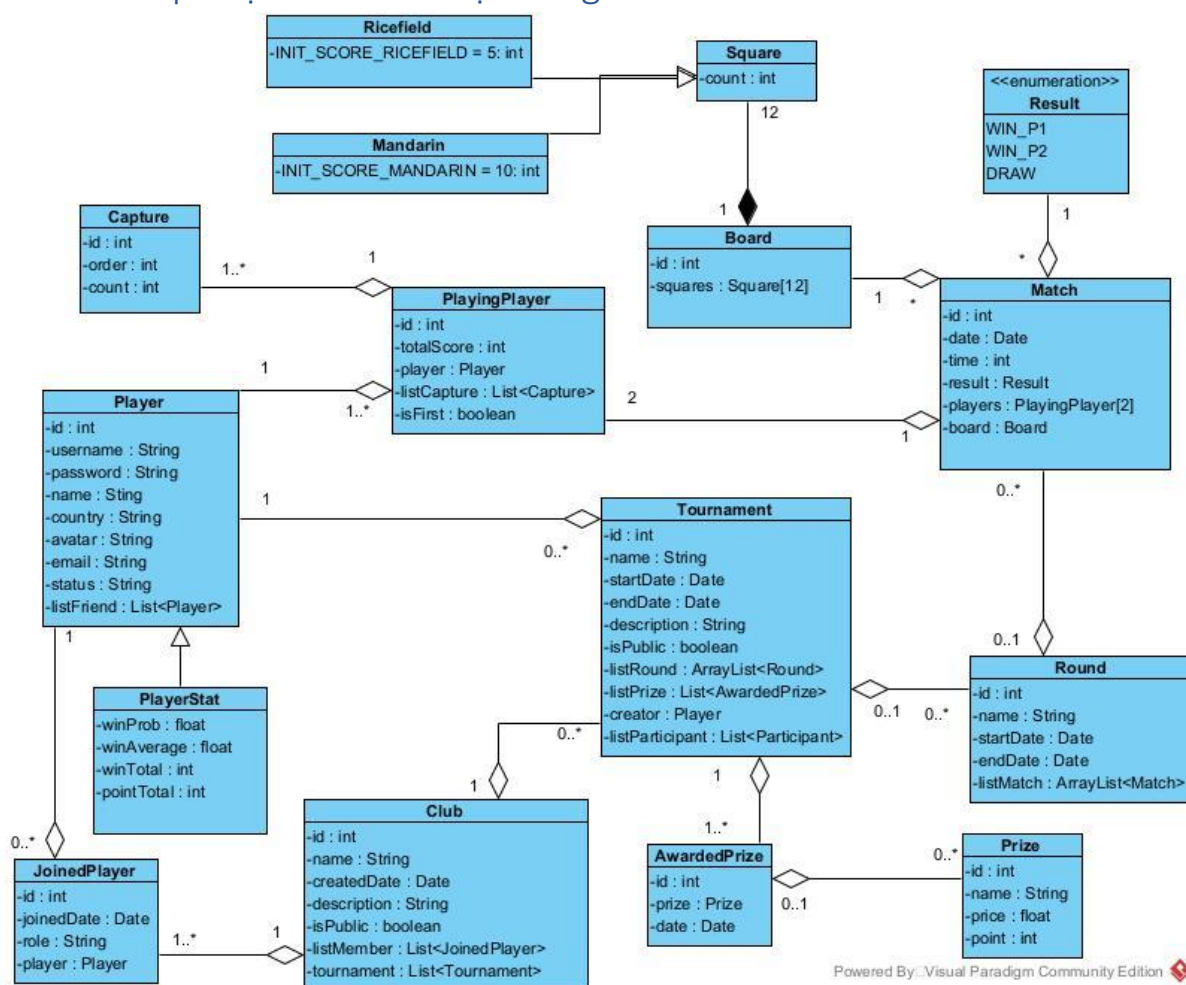
## Lập trình mạng

**Nhóm học phần:** 13  
**Tên đề tài:** Game Ô ăn quan  
**Nhóm bài tập lớn:** 08  
**Sinh viên:** Lê Đức Anh – B18DCCN016  
**Yêu cầu buổi học:** Báo cáo BTL

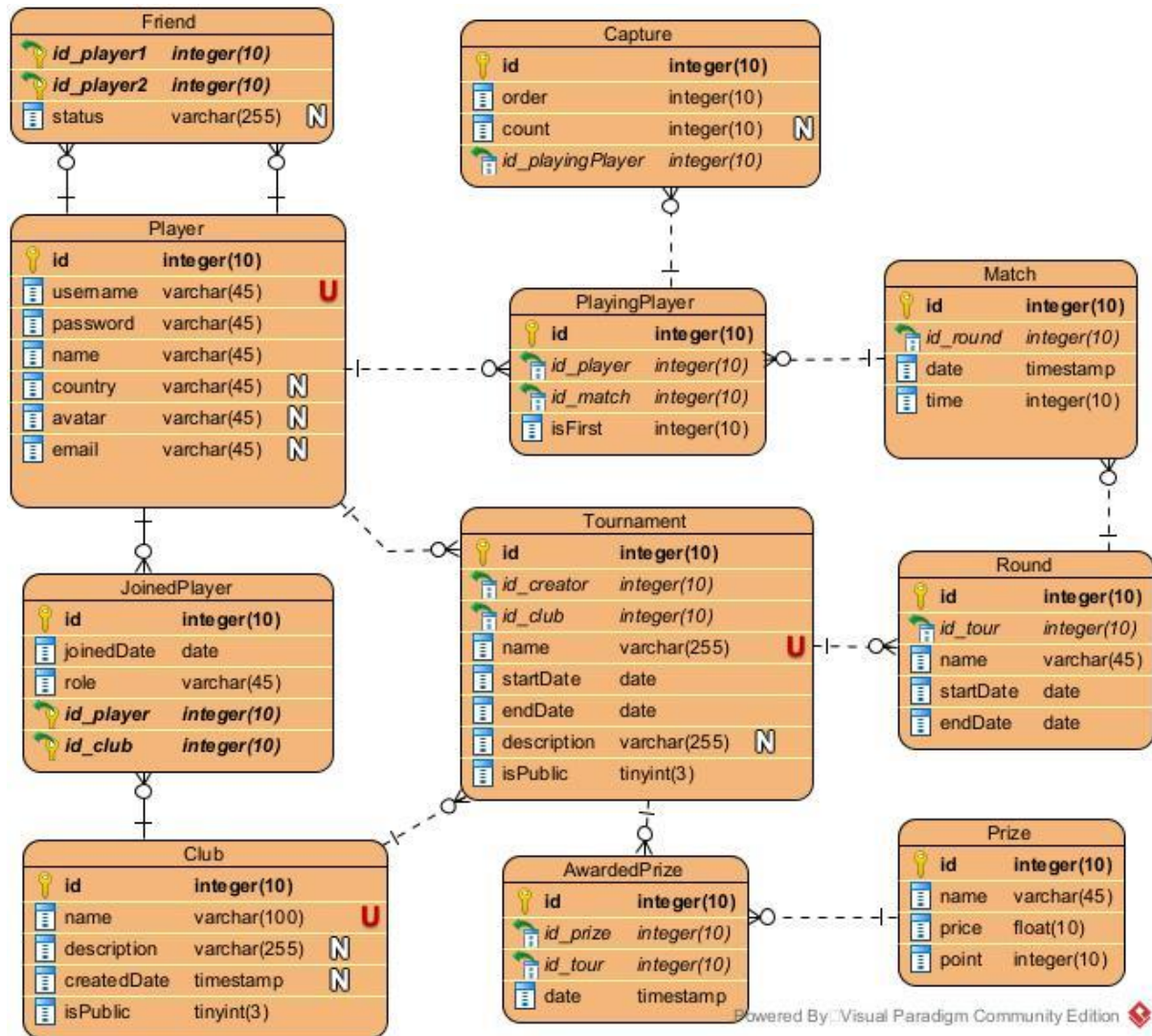
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## Thiết kế lớp thực thể toàn hệ thống

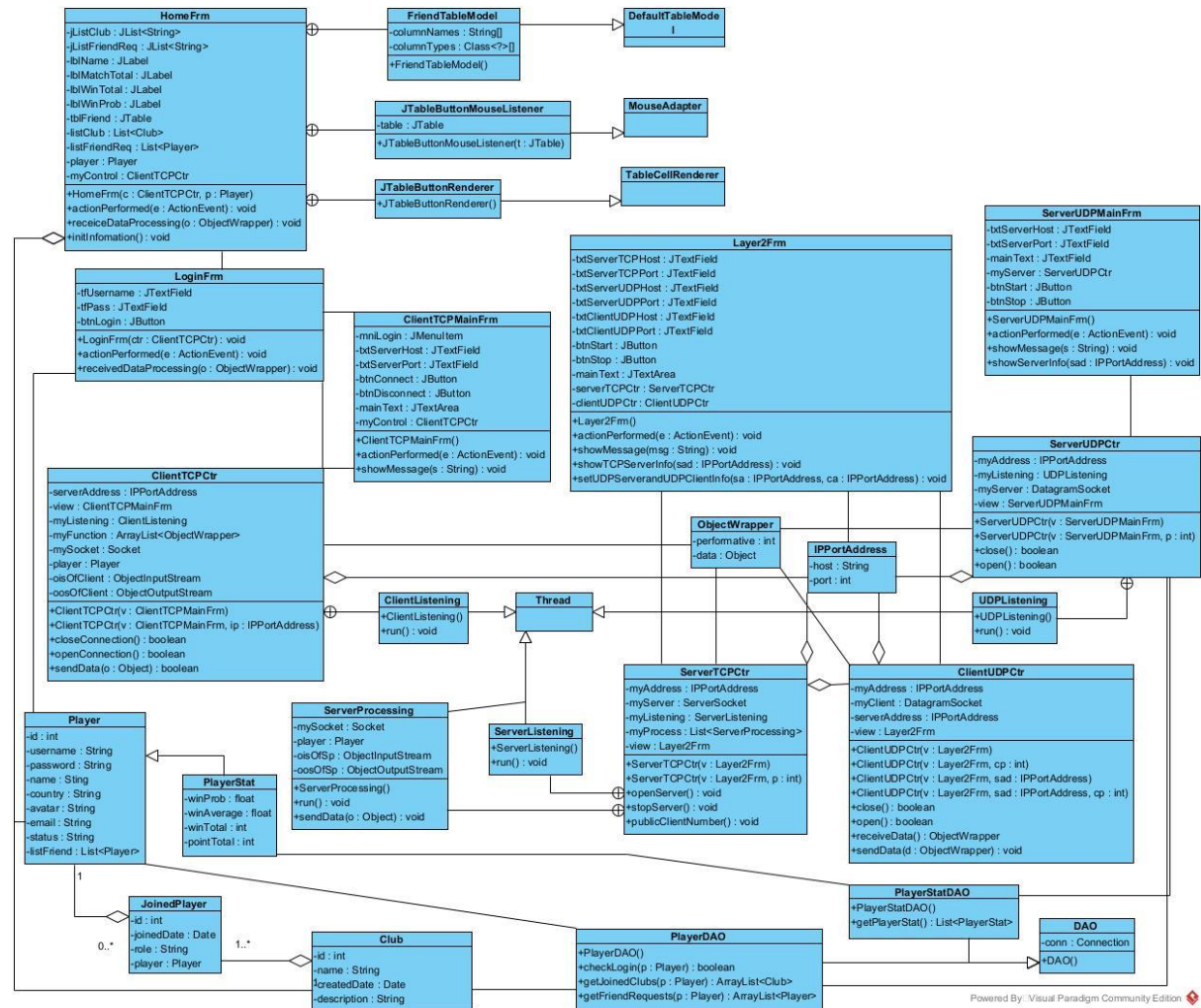


## Thiết kế CSDL toàn hệ thống



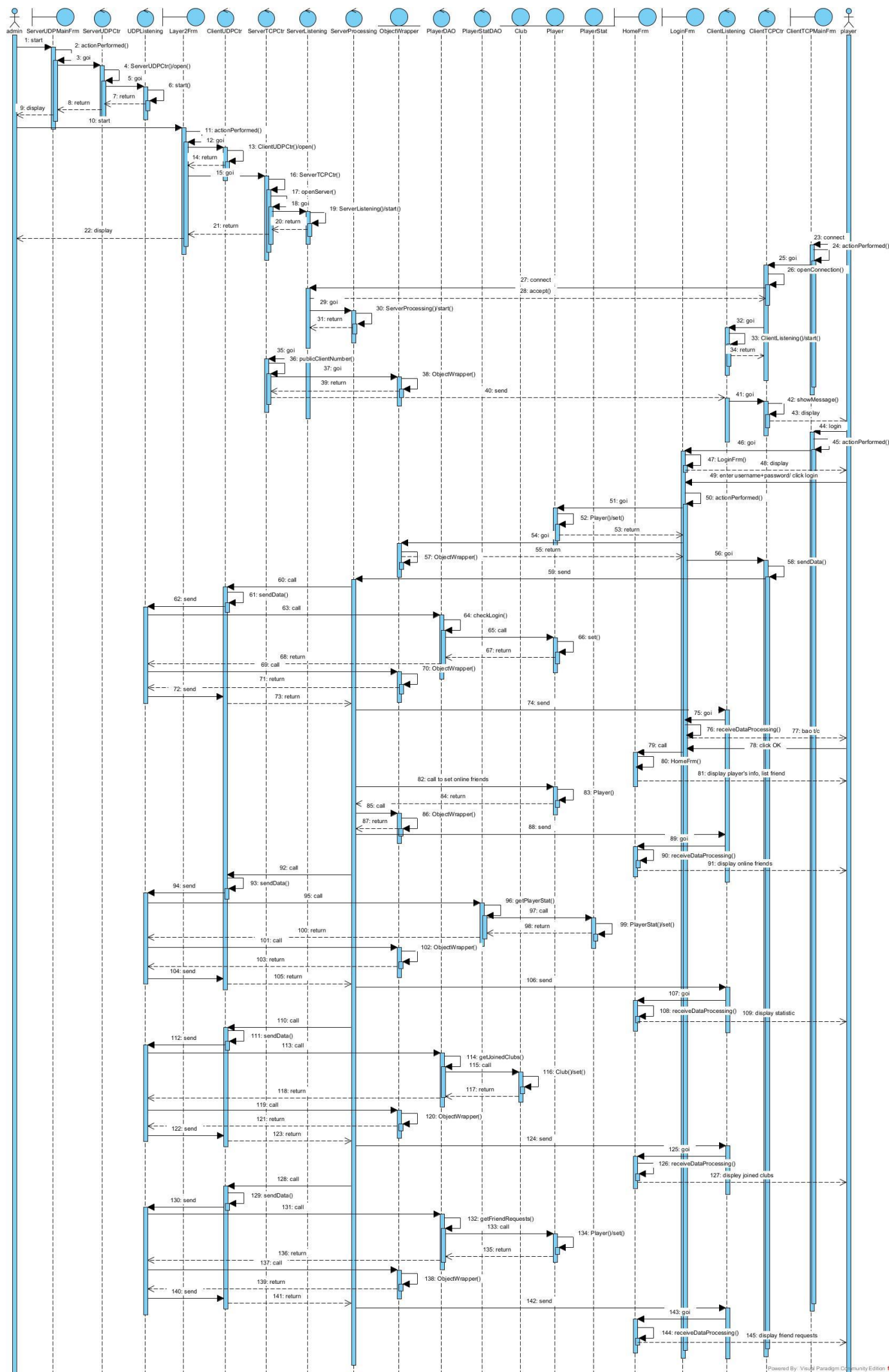
# Chức năng đăng nhập

## Biểu đồ lớp chi tiết



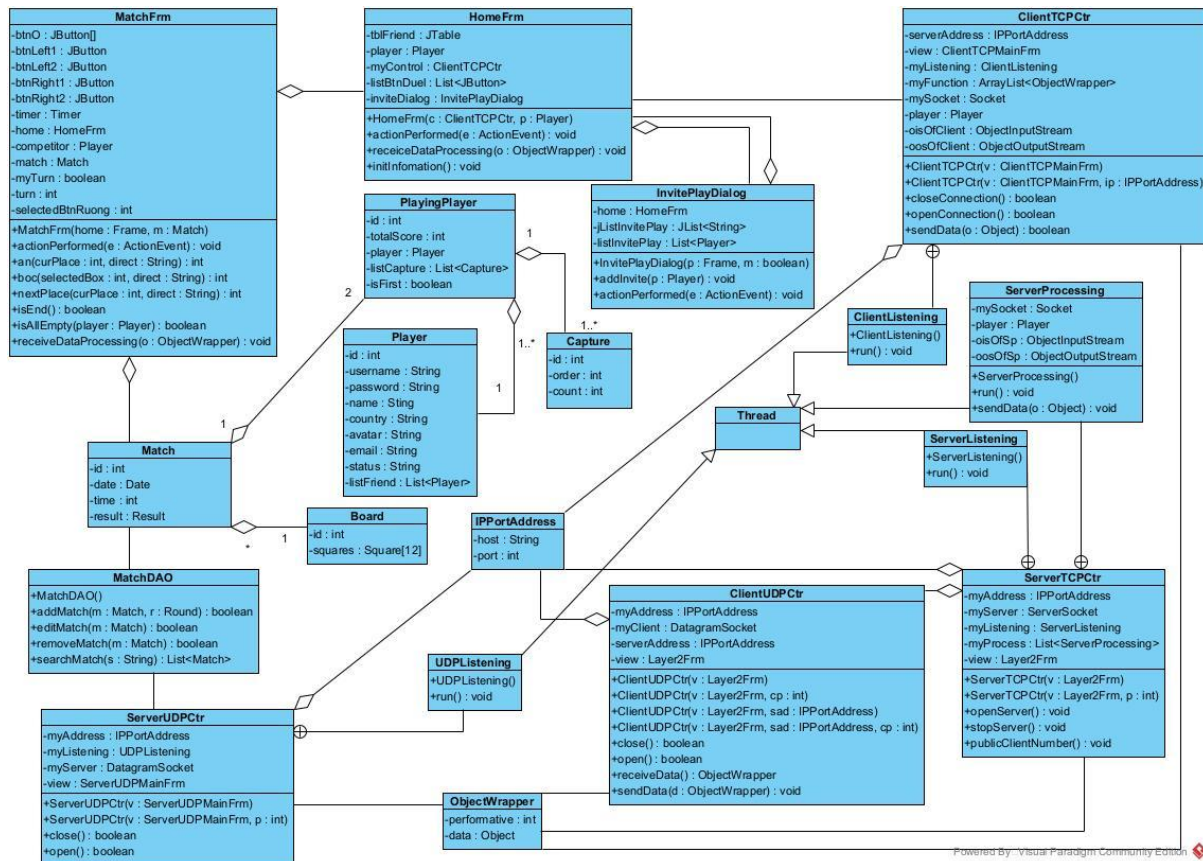
Biểu đồ tuần tự





# Chức năng chơi game

## Biểu đồ lớp chi tiết



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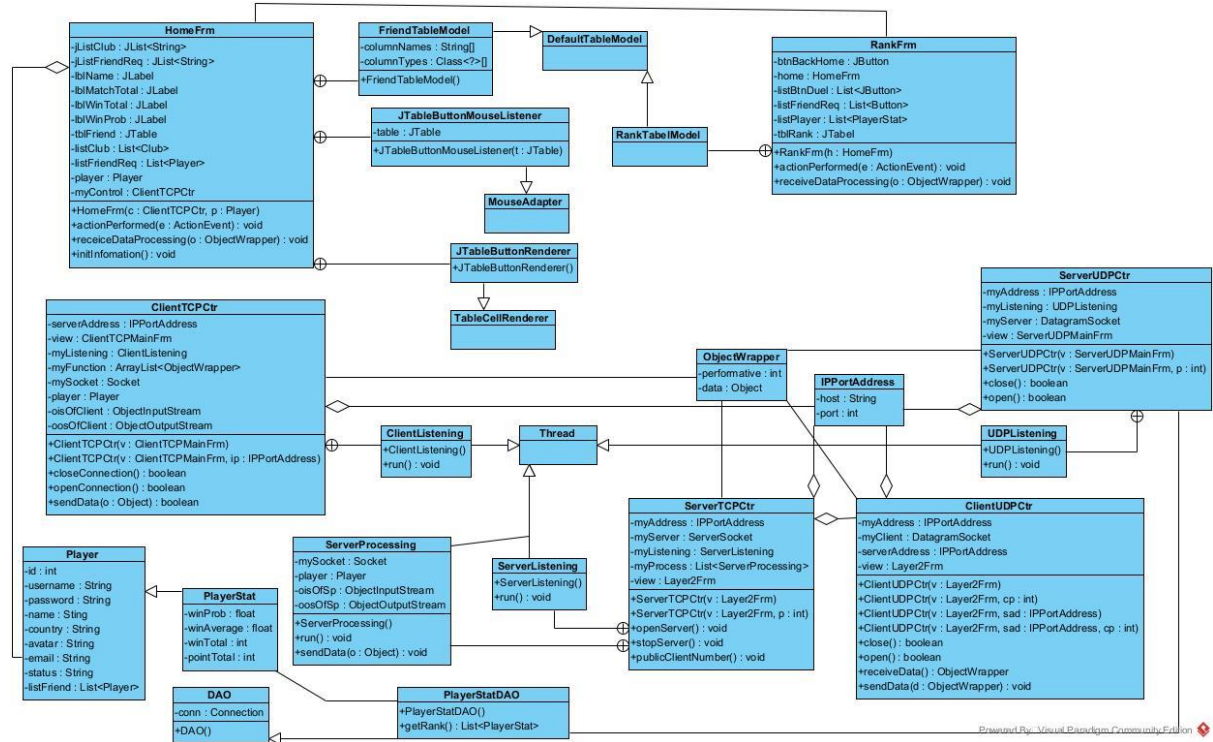
sequenceDiagram
    participant Playera as Player a
    participant HomeFrm a as HomeFrm a
    participant ClientTCPctr a as ClientTCPctr a
    participant ClientListening a as ClientListening a
    participant ServerProcessing a as ServerProcessing a
    participant MatchFrm a as MatchFrm a
    participant Player as Player
    participant ObjectWrapper as ObjectWrapper
    participant Match as Match
    participant PlayingPlayer as PlayingPlayer
    participant MatchDAO as MatchDAO
    participant ClientUDPCtr as ClientUDPCtr
    participant UDPListening as UDPListening
    participant ServerProcessing b as ServerProcessing b
    participant ClientListening b as ClientListening b
    participant ClientTCPctr b as ClientTCPctr b
    participant MatchFrm b as MatchFrm b
    participant HomeFrm b as HomeFrm b
    participant InvitePlayDialog as InvitePlayDialog
    participant Playerb as Player b

    Playera->>HomeFrm a: 1: duel
    activate HomeFrm a
    HomeFrm a->>ClientTCPctr a: 2: actionPerformed()
    deactivate HomeFrm a
    activate ClientTCPctr a
    ClientTCPctr a->>ClientListening a: 3: call
    deactivate ClientTCPctr a
    activate ClientListening a
    ClientListening a->>ServerProcessing a: 4: get()
    deactivate ClientListening a
    activate ServerProcessing a
    ServerProcessing a-->>ClientListening a: 5: return
    deactivate ServerProcessing a
    activate ClientListening a
    ClientListening a->>MatchFrm a: 6: call
    deactivate ClientListening a
    activate MatchFrm a
    MatchFrm a->>Player: 7: ObjectWrapper()
    deactivate MatchFrm a
    activate Player
    Player->>ObjectWrapper: 8: return
    deactivate Player
    activate ObjectWrapper
    ObjectWrapper->>Match: 9: call
    deactivate ObjectWrapper
    activate Match
    Match->>PlayingPlayer: 10: send()
    deactivate Match
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 11: call
    deactivate PlayingPlayer
    activate MatchDAO
    MatchDAO->>ClientUDPCtr: 12: call
    deactivate MatchDAO
    activate ClientUDPCtr
    ClientUDPCtr->>UDPListening: 13: send()
    deactivate ClientUDPCtr
    activate UDPListening
    UDPListening->>ServerProcessing b: 14: send
    deactivate UDPListening
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 15: call
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 16: receiveDataProcessing()
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 17: call
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>HomeFrm b: 18: InvitePlayDialog()/addInvite()
    deactivate MatchFrm b
    activate HomeFrm b
    HomeFrm b->>InvitePlayDialog: 19: display
    deactivate HomeFrm b
    activate InvitePlayDialog
    InvitePlayDialog->>Playerb: 20: click a player
    deactivate InvitePlayDialog
    activate Playerb
    Playerb->>InvitePlayDialog: 21: actionPerformed()
    deactivate Playerb
    activate InvitePlayDialog
    InvitePlayDialog->>HomeFrm b: 22: ask accept/deny
    deactivate InvitePlayDialog
    activate HomeFrm b
    HomeFrm b->>MatchFrm b: 23: accept
    deactivate HomeFrm b
    activate MatchFrm b
    MatchFrm b->>ServerProcessing b: 24: actionPerformed()
    deactivate MatchFrm b
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 25: call
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 26: Match()
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 27: call
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>PlayingPlayer: 28: PlayingPlayer()/set()
    deactivate MatchFrm b
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 29: call
    deactivate PlayingPlayer
    activate MatchDAO
    MatchDAO->>ClientUDPCtr: 30: Player()
    deactivate MatchDAO
    activate ClientUDPCtr
    ClientUDPCtr->>UDPListening: 31: return
    deactivate ClientUDPCtr
    activate UDPListening
    UDPListening->>ServerProcessing b: 32: return
    deactivate UDPListening
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 33: call
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 34: return
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 35: ObjectWrapper()
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>HomeFrm b: 36: return
    deactivate MatchFrm b
    activate HomeFrm b
    HomeFrm b->>InvitePlayDialog: 37: call
    deactivate HomeFrm b
    activate InvitePlayDialog
    InvitePlayDialog->>Playerb: 38: send()
    deactivate InvitePlayDialog
    activate Playerb
    Playerb->>InvitePlayDialog: 39: send
    deactivate Playerb
    activate InvitePlayDialog
    InvitePlayDialog->>HomeFrm b: 40: call
    deactivate InvitePlayDialog
    activate HomeFrm b
    HomeFrm b->>MatchFrm b: 41: MatchFrm()
    deactivate HomeFrm b
    activate MatchFrm b
    MatchFrm b->>ServerProcessing b: 42: send
    deactivate MatchFrm b
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 43: call
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 44: receiveDataProcessing()
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 45: call
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>PlayingPlayer: 46: MatchFrm()
    deactivate MatchFrm b
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 47: display
    deactivate PlayingPlayer
    activate MatchDAO
    MatchDAO->>ClientUDPCtr: 48: return
    deactivate MatchDAO
    activate ClientUDPCtr
    ClientUDPCtr->>UDPListening: 49: call
    deactivate ClientUDPCtr
    activate UDPListening
    UDPListening->>ServerProcessing b: 50: call
    deactivate UDPListening
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 51: call
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 52: actionPerformed()
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 53: display selected call
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>PlayingPlayer: 54: click direction
    deactivate MatchFrm b
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 55: actionPerformed()
    deactivate PlayingPlayer
    activate MatchDAO
    MatchDAO->>ClientUDPCtr: 56: call
    deactivate MatchDAO
    activate ClientUDPCtr
    ClientUDPCtr->>UDPListening: 57: ObjectWrapper()
    deactivate ClientUDPCtr
    activate UDPListening
    UDPListening->>ServerProcessing b: 58: return
    deactivate UDPListening
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 59: call
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 60: send()
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 61: send
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>PlayingPlayer: 62: call
    deactivate MatchFrm b
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 63: send()
    deactivate PlayingPlayer
    activate MatchDAO
    MatchDAO->>ClientUDPCtr: 64: call
    deactivate MatchDAO
    activate ClientUDPCtr
    ClientUDPCtr->>UDPListening: 65: call
    deactivate ClientUDPCtr
    activate UDPListening
    UDPListening->>ServerProcessing b: 66: receiveDataProcessing()
    deactivate UDPListening
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 67: display
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 68: click
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 69: display selected cell
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>PlayingPlayer: 70: click direction
    deactivate MatchFrm b
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 71: actionPerformed()
    deactivate PlayingPlayer
    activate MatchDAO
    MatchDAO->>ClientUDPCtr: 72: call
    deactivate MatchDAO
    activate ClientUDPCtr
    ClientUDPCtr->>UDPListening: 73: actionPerformed()
    deactivate ClientUDPCtr
    activate UDPListening
    UDPListening->>ServerProcessing b: 74: actionPerformed()
    deactivate UDPListening
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 75: call
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 76: click direction
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 77: actionPerformed()
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>PlayingPlayer: 78: call
    deactivate MatchFrm b
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 79: ObjectWrapper()
    deactivate PlayingPlayer
    activate MatchDAO
    MatchDAO->>ClientUDPCtr: 80: return
    deactivate MatchDAO
    activate ClientUDPCtr
    ClientUDPCtr->>UDPListening: 81: call
    deactivate ClientUDPCtr
    activate UDPListening
    UDPListening->>ServerProcessing b: 82: send
    deactivate UDPListening
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 83: call
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 84: send()
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 85: send
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>PlayingPlayer: 86: call
    deactivate MatchFrm b
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 87: receiveDataProcessing()
    deactivate PlayingPlayer
    activate MatchDAO
    MatchDAO->>ClientUDPCtr: 88: display
    deactivate MatchDAO
    activate ClientUDPCtr
    ClientUDPCtr->>UDPListening: 89: call
    deactivate ClientUDPCtr
    activate UDPListening
    UDPListening->>ServerProcessing b: 90: call
    deactivate UDPListening
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 91: call
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 92: receiveDataProcessing()
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 93: display
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>PlayingPlayer: 94: call
    deactivate MatchFrm b
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 95: ObjectWrapper()
    deactivate PlayingPlayer
    activate MatchDAO
    MatchDAO->>ClientUDPCtr: 96: return
    deactivate MatchDAO
    activate ClientUDPCtr
    ClientUDPCtr->>UDPListening: 97: call
    deactivate ClientUDPCtr
    activate UDPListening
    UDPListening->>ServerProcessing b: 98: call
    deactivate UDPListening
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 99: send
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 100: call
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 101: send()
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>PlayingPlayer: 102: send
    deactivate MatchFrm b
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 103: addMatch()
    deactivate PlayingPlayer
    activate MatchDAO
    MatchDAO->>ClientUDPCtr: 104: return
    deactivate MatchDAO
    activate ClientUDPCtr
    ClientUDPCtr->>UDPListening: 105: return
    deactivate ClientUDPCtr
    activate UDPListening
    UDPListening->>ServerProcessing b: 106: return
    deactivate UDPListening
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 107: game over
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 108: click OK
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 109: call
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>PlayingPlayer: 110: display
    deactivate MatchFrm b
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 111: game over
    deactivate PlayingPlayer
    activate MatchDAO
    MatchDAO->>ClientUDPCtr: 112: click OK
    deactivate MatchDAO
    activate ClientUDPCtr
    ClientUDPCtr->>UDPListening: 113: call
    deactivate ClientUDPCtr
    activate UDPListening
    UDPListening->>ServerProcessing b: 114: display
    deactivate UDPListening
    activate ServerProcessing b
    ServerProcessing b->>ClientListening b: 115: game over
    deactivate ServerProcessing b
    activate ClientListening b
    ClientListening b->>ClientTCPctr b: 116: click OK
    deactivate ClientListening b
    activate ClientTCPctr b
    ClientTCPctr b->>MatchFrm b: 117: display
    deactivate ClientTCPctr b
    activate MatchFrm b
    MatchFrm b->>PlayingPlayer: 118: game over
    deactivate MatchFrm b
    activate PlayingPlayer
    PlayingPlayer->>MatchDAO: 11
```



# Chức năng xem bảng xếp hạng

## Biểu đồ lớp chi tiết



## Biểu đồ tuần tự

