**DBMS PROJECT**

**NORMALIZATION**

**(UPTO 3NF)**

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Normalizing

Un-Normalized Tables:

**(1NF → 2NF → 3NF)**

**1) Table: FriendList**

**1NF:**

FriendList (  
 PlayerID,  
 FriendID,  
 FriendSince,  
 PlayerUsername,  
 FriendUsername  
)

**2NF:**

FriendList (  
 PlayerID,  
 FriendID,  
 FriendSince  
)  
  
Player (  
 PlayerID,  
 Username  
)

**3NF (Final):**

FriendList (  
 PlayerID (PK, FK),  
 FriendID (PK, FK),  
 FriendSince (DATE)  
)

**2) Table: GameMode**

**1NF:**

GameMode (  
 GameModeID,  
 ModeName,  
 MaxPlayers,  
 Description  
)

**2NF:**

No partial dependencies — already in 2NF.

**3NF (Final):**

GameMode (  
 GameModeID (PK),  
 ModeName,  
 MaxPlayers  
)

**3) Table: GameRequest**

**1NF:**

GameRequest (  
 RequestID,  
 PlayerID,  
 PlayerUsername,  
 PartyID,  
 GameModeID,  
 RequestTime  
)

**2NF:**

GameRequest (  
 RequestID,  
 PlayerID,  
 PartyID,  
 GameModeID,  
 RequestTime  
)  
  
Player (  
 PlayerID,  
 Username  
)

**3NF (Final):**

GameRequest (  
 RequestID (PK),  
 PlayerID (FK),  
 PartyID (FK),  
 GameModeID (FK),  
 RequestTime  
)

**4) Table: GameResult**

**1NF:**

GameResult (  
 ResultID,  
 MatchID,  
 PlayerID,  
 PlayerUsername,  
 Score,  
 Result  
)

**2NF:**

GameResult (  
 ResultID,  
 MatchID,  
 PlayerID,  
 Score,  
 Result  
)  
  
Player (  
 PlayerID,  
 Username  
)

**3NF (Final):**

GameResult (  
 ResultID (PK),  
 MatchID (FK),  
 PlayerID (FK),  
 Score,  
 Result  
)

**5) Table: Invite**

**1NF:**

Invite (  
 InviteID,  
 SenderID,  
 ReceiverID,  
 PartyID,  
 SentAt,  
 SenderUsername,  
 ReceiverUsername  
)

**2NF:**

Invite (  
 InviteID,  
 SenderID,  
 ReceiverID,  
 PartyID,  
 SentAt  
)  
  
Player (  
 PlayerID,  
 Username  
)

**3NF (Final):**

Invite (  
 InviteID (PK),  
 SenderID (FK),  
 ReceiverID (FK),  
 PartyID (FK),  
 SentAt  
)

**6) Table: Lobby**

**1NF:**

Lobby (  
 LobbyID,  
 LobbyName,  
 MaxPlayers,  
 GameModeID,  
 GameModeName,  
 ServerID,  
 ServerLocation  
)

**2NF:**

Lobby (  
 LobbyID,  
 LobbyName,  
 MaxPlayers,  
 GameModeID,  
 ServerID  
)  
  
GameMode (  
 GameModeID,  
 ModeName  
)  
  
Server (  
 ServerID,  
 Location  
)

**3NF (Final):**

Lobby (  
 LobbyID (PK),  
 LobbyName,  
 MaxPlayers,  
 GameModeID (FK),  
 ServerID (FK)  
)

**7) Table: Match**

**1NF:**

Match (  
 MatchID,  
 GameModeID,  
 ServerID,  
 LobbyID,  
 StartTime,  
 GameModeName,  
 ServerLocation  
)

**2NF:**

Match (  
 MatchID,  
 GameModeID,  
 ServerID,  
 LobbyID,  
 StartTime  
)  
  
GameMode (  
 GameModeID,  
 ModeName  
)  
  
Server (  
 ServerID,  
 Location  
)

**3NF (Final):**

Match (  
 MatchID (PK),  
 GameModeID (FK),  
 ServerID (FK),  
 StartTime,  
 LobbyID (FK)  
)

**8) Table: Party**

**1NF:**

Party (  
 PartyID,  
 LeaderID,  
 LeaderName,  
 Status,  
 PartyName  
)

**2NF:**

Party (  
 PartyID,  
 LeaderID,  
 Status,  
 PartyName  
)  
  
Player (  
 PlayerID,  
 Username  
)

**3NF (Final):**

Party (  
 PartyID (PK),  
 LeaderID (FK),  
 Status,  
 PartyName  
)

**9) Table: PartyMembers**

**1NF:**

PartyMembers (  
 PartyID,  
 PlayerID,  
 PartyName,  
 Username  
)

**2NF:**

PartyMembers (  
 PartyID,  
 PlayerID  
)  
  
Party (  
 PartyID,  
 PartyName  
)  
  
Player (  
 PlayerID,  
 Username  
)

**3NF (Final):**

PartyMembers (  
 PartyID (PK, FK),  
 PlayerID (PK, FK)  
)

**10) Table: Platform**

**1NF:**

Platform (  
 PlatformID,  
 PlatformName,  
 Manufacturer,  
 ReleaseYear  
)

**2NF:**

As there are no partial dependencies table is already in 2NF.

**3NF (Final):**

Same as 1NF

Platform (  
 PlatformID (PK),  
 PlatformName,  
 Manufacturer,  
 ReleaseYear  
)

**11) Table: Player**

**1NF:**

Player (  
 PlayerID,  
 Username,  
 Email,  
 PlatformID,  
 PlatformName  
)

**2NF:**

Player (  
 PlayerID,  
 Username,  
 Email,  
 PlatformID  
)  
  
Platform (  
 PlatformID,  
 PlatformName  
)

**3NF (Final):**

Player (  
 PlayerID (PK),  
 Username,  
 Email,  
 PlatformID (FK)  
)

**12) Table: PlayerStats**

**1NF:**

PlayerStats (  
 StatsID,  
 PlayerID,  
 Username,  
 TotalGamesPlayed,  
 TotalWins,  
 TotalLosses,  
 Rank  
)  
 **2NF:**

PlayerStats (  
 StatsID,  
 PlayerID,  
 TotalGamesPlayed,  
 TotalWins,  
 TotalLosses,  
 Rank  
)  
  
Player (  
 PlayerID,  
 Username  
)

**3NF (Final):**

PlayerStats (  
 StatsID (PK),  
 PlayerID (FK),  
 TotalGamesPlayed,  
 TotalWins,  
 TotalLosses,  
 Rank  
)

**13) Table: Schedule**

**1NF:**

Schedule (  
 ScheduleID,  
 MatchID,  
 MatchTime,  
 MatchServerLocation  
)

**2NF:**

Schedule (  
 ScheduleID,  
 MatchID,  
 ScheduledTime  
)  
  
Match (  
 MatchID,  
 ServerID  
)  
  
Server (  
 ServerID,  
 Location  
)

**3NF (Final):**

Schedule (  
 ScheduleID (PK),  
 MatchID (FK),  
 ScheduledTime  
)

**14) Table: Server**

**1NF:**

Server (  
 ServerID,  
 Location,  
 Capacity,  
 Status  
)

**2NF:**

Already atomic and fully dependent on ServerID.

**3NF (Final):**

Server (  
 ServerID (PK),  
 Location,  
 Capacity,  
 Status

)