BCNF Normalization

Tables

- Player(PlayerID, Fname, Lname, Birthday, Position, Tname)
- ParticipatedIn(PlayerID, MatchNum, Blocks, Assists, MinutesPlayed, PointsScored, PassesMade)
- Match(MatchNum, Time, Homescore, Awayscore, Location)
- PlayedIn(Mnum, HomeTeam, AwayTeam)
- Team(TeamName)
- Manager(Tname, Fname, Lname, Birthday)

This relational schema is already in 1NF, but we need to introduce functional dependencies so that each non-prime attribute is fully dependent on a candidate key to satisfy 2NF. Thus, the following FD's will be introduced:

Player

PlayerID → Fname, Lname, Birthday, Position, Tname

ParticipatedIn

PlayerID, MatchNo → Blocks, Assists, MinutesPlayed, PointsScored, PassesMade

Match

MatchNum → Time, Location, Homescore, Awayscore, Location

PlayedIn

Mnum → HomeTeam, AwayTeam

Manager

Tname, Fname, Lname → Birthday

Team does not require any FD's, as it only has one attribute (which is the key).

This schema also satisfies 3NF, as there is only 1 FD for each table that has one, making transitive dependencies impossible.

This schema also satisfies BCNF, as each FD's left hand side is a key of the table it corresponds to. This includes Mnum → HomeTeam, AwayTeam, as MNum is inherently a key in and of itself due to every other attribute depending on it.