

Minimal Functional Dependency Set:

Owner_ID → Owner_Name

Owner_ID → Team_ID

Team_ID → Team_Name

Team_ID → Team_Code

Staff_ID → Staff_name

Staff_ID → Supporting_role

Staff_ID → Team_id

Sponsor_ID → Sponsor_Name

{Match_ID, Ball_No., Over_No. , Inning_No.} → Bowler

{Match_ID, Ball_No., Over_No. , Inning_No.} → Batsman_score

{Match_ID, Ball_No., Over_No. , Inning_No.} → Striker

{Match_ID, Ball_No., Over_No. , Inning_No.} → Non-Striker

{Match_ID, Ball_No., Over_No. , Inning_No.} → Extra_Runs

{Match_ID, Ball_No., Over_No. , Inning_No.} → Extra_Type

{Match_ID, Ball_No., Over_No. , Inning_No.} → Dismissal_Type

{Match_ID, Ball_No., Over_No. , Inning_No.} → Fielder_ID

Umpire_ID → Umpire_Name

Umpire_ID → Country

Player_ID → Player_name
Player_ID → Batting_Hand
Player_ID → Bowling_Type
Player_ID → DOB
Player_ID → Country
Player_ID → Score
Player_ID → Wickets
Player_ID → Catches

Match_ID → Season_ID
Match_ID → Team_ID_1
Match_ID → Team_ID_2
Match_ID → Date
Match_ID → Venue_Name
Match_ID → Toss_Won_By
Match_ID → Toss_Decision
Match_ID → Is_Superover
Match_ID → Is_DWL
Match_ID → Is_result
Match_ID → Win_Type
Match_ID → Won_By
Match_ID → Winning_Team_ID
Match_ID → Man_Of_The_Match
Match_ID → Umpire_ID_1
Match_ID → Umpire_ID_2
Match_ID → Team1_score

Match_ID → Team2_score

Match_ID → Team1_Wickets

Match_ID → Team2_Wickets

Venue_Name → City_ID

Venue_Name → Home_Team_ID

City_ID → City

City_ID → State

City_ID → Country

Season_ID → Man_Of_The_Series

Season_ID → Season_Year

Season_ID → Purple_Cap,

Season_ID → Orange_Cap

{Player_ID, Match_ID, Team_ID} → Is_Keeper

{Player_ID, Match_ID, Team_ID} → Is_Captain

{ Team_ID, Season_ID} → Position

{ Team_ID, Season_ID} → Matches_Played

{ Team_ID, Season_ID} → Won_matches

{ Team_ID, Season_ID} → Points

{ Team_ID, Season_ID} → Net_Run_Rate

Proof That relations are in BCNF:

<u>Relation Name</u>	<u>Projected FDs</u>	<u>Key(s)</u>	<u>Normal Form</u>
Owner	Owner_ID \rightarrow {Owner_Name,Team_ID}	Owner_ID	BCNF
Current_standings	{ Team_ID,Season_ID} \rightarrow Position { Team_ID,Season_ID} \rightarrow Matches_Played { Team_ID,Season_ID} \rightarrow Won_matches { Team_ID,Season_ID} \rightarrow Points { Team_ID,Season_ID} \rightarrow Net_Run_Rate	Position	BCNF
Supporting_staff	Staff_ID \rightarrow Staff_name Staff_ID \rightarrow Supporting_Role Staff_ID \rightarrow Team_ID	Staff_ID	BCNF
Venue	Venue_ID \rightarrow City_ID Venue_ID \rightarrow Home_Team_ID	Venue_ID	BCNF
City	City_ID \rightarrow City City_ID \rightarrow State City_ID \rightarrow Country	City_ID	BCNF
Sponsors	Sponsor_ID \rightarrow Sponsor_Name	Sponsor_ID	BCNF
Sponsored by	FD= { Φ }	{Team_Name,Sponsor_ID,Season_ID}	BCNF
Umpire	Umpire_ID \rightarrow Umpire_Name Umpire_ID \rightarrow Country	Umpire_ID	BCNF
Season	Season_ID \rightarrow Man_Of_The_Series Season_ID \rightarrow Orange_Cup Season_ID \rightarrow Purple_Cap Season_ID \rightarrow Season_year	Season_ID	BCNF
Matches	Match_ID \rightarrow Season_ID Match_ID \rightarrow {Team_ID_1,Team_ID_2}	Match_ID	BCNF

	Match_ID → {Date,Venue_Name} Match_ID → Toss_Won_By Match_ID → Toss_Decision Match_ID→Is_Superover Match_ID→Is_DWL Match_ID→Is_Result Match_ID→{Win_Type,Won_By} Match_ID→Winning_Team_ID Match_ID→Umpire_ID_1 Match_ID→Umpire_ID_2 Match_ID → Man_Of_The_Match Match_ID → Team1_score Match_ID → Team2_score Match_ID → Team1_Wickets Match_ID → Team2_Wickets		
Team	Team_ID → Team_Name Team_Name → Team_Code	Team_N ame	BCNF
Players	Player_ID → Player_Name Player_ID → DOB Player_ID → Country Player_ID → No._Of_Matches Player_ID → Bowling_type Player_ID → Batting_Hand Player_ID → Score Player_ID → Wickets Player_ID → Catches	Player_I D	BCNF
Ball By Ball	{Match_ID,Ball_No. , Over_No. , Inning_No.} → Striker, Non-Striker, Bowler, Batsman_Score, Extra_Runs, Extra_Type, Fielder_ID, Dismissal_Type	{Match_I D,Ball No. , Over No. , Inning No.}	BCNF
Has Played	{Player_ID,Match_ID,Team_ID}→Is_Keeper {Player_ID,Match_ID,Team_ID}→Is_Captain	{Player_I D,Match _ID,Tea m_ID}	BCNF
Plays_for	FD= {Φ}	{Team_I D,Player _ID}	BCNF

