Normal Proofs Of Relations Of Sports Schema

BCNF - For every FD **A→B** that holds on relation R, **A** is key.

COLLEGE

College_id	college_name	city	state

Functional Dependencies

College_id → college_name

College_id → city

College_id → state

KEY : College_id

Since it follows BCNF requirements

Therefore, It is in BCNF.

GAMES

Game_name	No. of players

Functional Dependencies

Game_name → No. of players

KEY : Game_name

Since it follows BCNF requirements

Therefore, It is in BCNF.

TEAMS

Team_id	College_id	Team_name	Game_name	Captain_id	Mentor_id

Functional Dependencies

Team_id → College_id

Team_id → Team_name

Team_id → Game_name

Team_id → Captain_id

Team_id → Mentor_id

Captain_id → Team_id

Mentor_id → Team_id

KEY : { Team_id }, { Captain_id }, { Mentor_id }

Since it follows BCNF requirements

Therefore, It is in BCNF.

MENTOR

Mentor_id	Mentor_name	Phone_number	College_id

Functional Dependencies

Mentor_id → College_id

Mentor_id → Mentor_name

Mentor_id → Phone_number

KEY : Mentor_id

Since it follows BCNF requirements

Therefore, It is in BCNF.

Players

Pid	Team_id	Fname	Midname	Lname

Functional Dependencies

Pid → Team_id

Pid → Fname

Pid → Midname

Pid →Lname

KEY : Pid

Since it follows BCNF requirements

Therefore, It is in BCNF.

Players_Contact

Pid	Email_id

Functional Dependencies

Pid −−≫ Email_id

KEY : { Pid, Email_id }

Since the key is all the attributes of the relation.

Therefore, It is in BCNF.

Match_Scheduler

Match_no	Team1_id	Team2_id	Match_date

Functional Dependencies

Match_no → Match_date

Match_no → Team1_id

Match_no → Team2_id

KEY : Match_no

Since it follows BCNF requirements

Therefore, It is in BCNF.

Cricket

Match_no	Team1_id	Team2_id	Team1_score	Team2_score	Winner_id

Functional Dependencies

Match_no → Team1_id

Match_no → Team2_id

Match_no → Team1_score

Match_no → Team2_score

Match_no → Winner_id

KEY : Match_no

Since it follows BCNF requirements

Therefore, It is in BCNF.

Cricket_Points

Team_id	Matches_Played	Win	Lose	Points

Functional Dependencies

Team_id → Matches_Played

Team_id → Win

Team_id → Lose

Team_id → Points

KEY : Team_id

Since it follows BCNF requirements

Therefore, It is in BCNF.

Cric_Players_Points

Pid	Matches_Played	Runs	Wickets

Functional Dependencies

Pid → Matches_Played

Pid → Runs

Pid → Wickets

KEY : Pid

Since it follows BCNF requirements. Therefore, It is in BCNF.

Basketball

Match_no	Team1_id	Team2_id	Team1_score	Team2_score	Winner_id

Functional Dependencies

Match_no → Team1_id

Match_no → Team2_id

Match_no → Team1_score

Match_no → Team2_score

Match_no → Winner_id

KEY : Match_no

Since it follows BCNF requirements

Therefore, It is in BCNF.

Basketball_Points

Team_id	Matches_Played	Win	Lose	Points

Functional Dependencies

Team_id → Matches_Played

Team_id → Win

Team_id → Lose

Team_id → Points

KEY : Team_id

Since it follows BCNF requirements

Therefore, It is in BCNF.

Basketball_Players_Points

Pid	Matches_Played	Basket	Fouls

Functional Dependencies

Pid → Matches_Played

Pid → Basket

Pid → Fouls

KEY : Pid

Since it follows BCNF requirements. Therefore, It is in BCNF.

sMatch_no → Team2_score

Chess

Match_no	Team1_id	Team2_id	Team1_score	Team2_score	Winner_id

Functional Dependencies

Match_no → Team1_id

Match_no → Team2_id

Match_no → Team1_score

Match_no → Team2_score

Match_no → Winner_id

KEY : Match_no

Since it follows BCNF requirements

Therefore, It is in BCNF.

Chess_Players_Match

Match_no.	SubMatch_no	Match_date	Pid1_id	Pid2_id	Winner_id	Time

Functional Dependencies

{ Match_no,SubMatch_no } → Match_date

{ Match_no,SubMatch_no } → Pid1_id

{ Match_no,SubMatch_no } → Pid2_id

{ Match_no,SubMatch_no } → Winner_id

{ Match_no,SubMatch_no } → Time

KEY : { Match_no, SubMatch_no }

Since it follows BCNF requirements

Therefore, It is in BCNF.

Chess_Points

Team_id	Matches_Played	Win	Lose	Points

Functional Dependencies

Team_id → Matches_Played

Team_id → Win

Team_id → Lose

Team_id → Points

KEY : Team_id

Since it follows BCNF requirements

Therefore, It is in BCNF.