Cricket Tournament Management System

IT-214

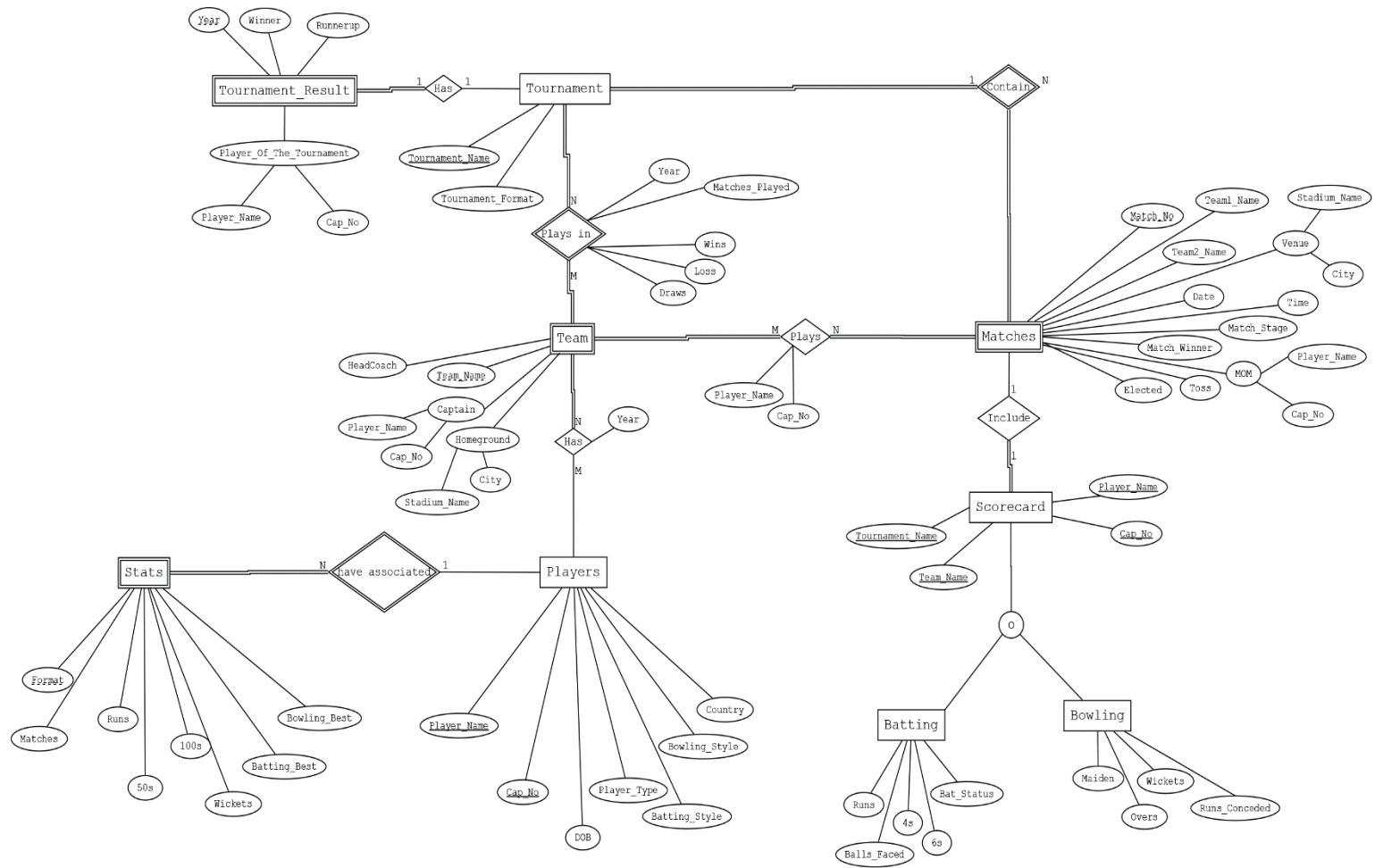Group ID :- T314

Devansh Modi – 202201198 (Mo:- 6354413363)

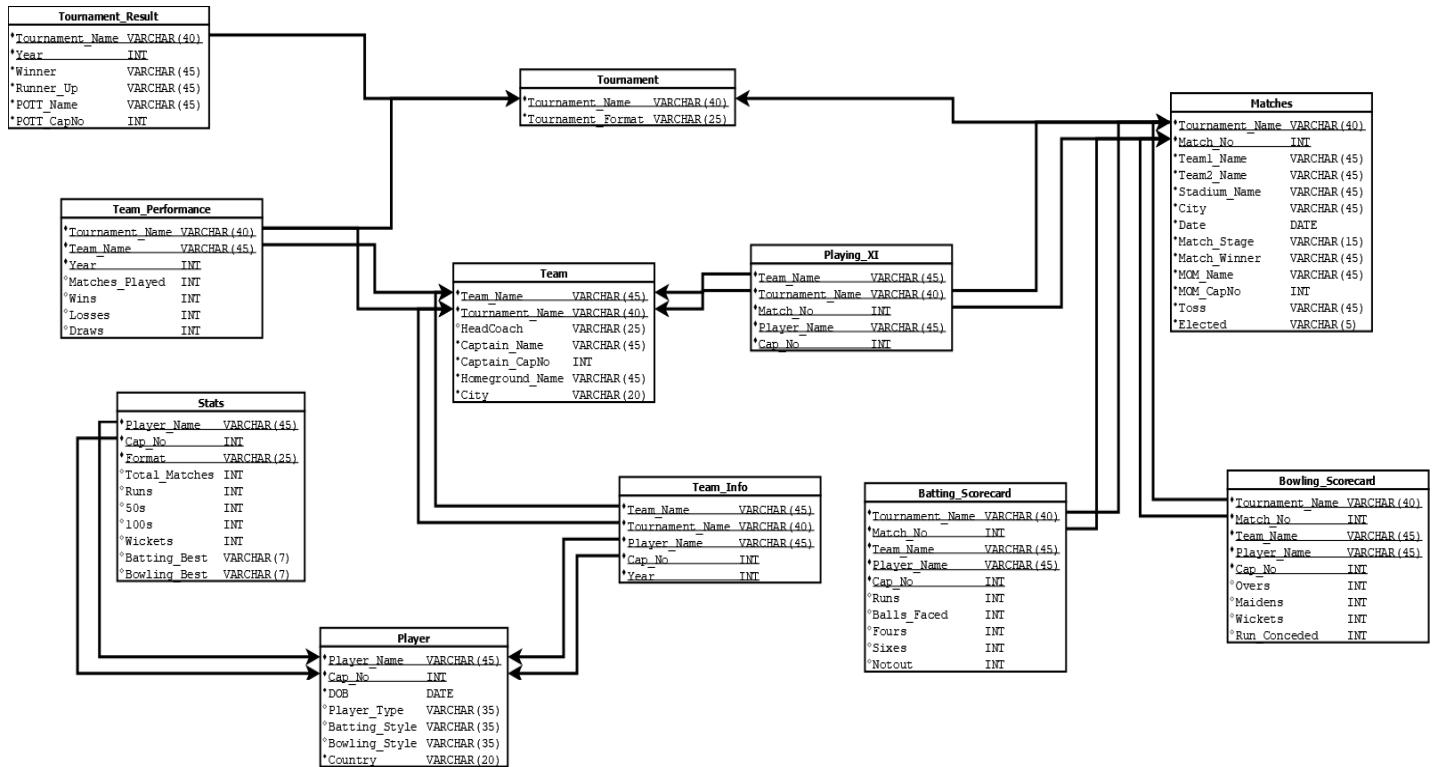Kishan Thakor - 202201217

Fajil Chauhan – 202201221

ER Diagram :

Year Winner Runnerup

Tournament_Result —1— Has —1— Tournament —————1— Contain —N—

Player_Of_The_Tournament

Player_Name Cap_No

Tournament_Name

Tournament_Format

N

Year Matches_Played

Plays in

Wins

Loss

Draws

M

HeadCoach

Team —M— Plays —N— Matches

Team_Name

Player_Name Cap_No

Captain

Player_Name

Cap_No Homeground

Stadium_Name City

N Has Year

M

Match_No Team1_Name Stadium_Name

Team2_Name Venue City

Date Time

Match_Stage

Match_Winner

Elected Toss MOM Player_Name

Cap_No

1 Include

1

Scorecard Player_Name

Tournament_Name Cap_No

Team_Name

Stats —N— have associated —1— Players

O

Format

Runs Bowling_Best

Matches 100s Batting_Best

50s Wickets

Player_Name

Country

Bowling_Style

Cap_No Player_Type Batting_Style

DOB

Batting Bowling

Runs Bat_Status Maiden Wickets

4s Overs Runs_Conceded

Balls_Faced 6s

Relational Schema :

Tournament_Result
*Tournament_Name	VARCHAR(40)
*Year	INT
*Winner	VARCHAR(45)
*Runner_Up	VARCHAR(45)
*POTT_Name	VARCHAR(45)
*POTT_CapNo	INT

Tournament
*Tournament_Name	VARCHAR(40)
*Tournament_Format	VARCHAR(25)

Matches
*Tournament_Name	VARCHAR(40)
*Match_No	INT
*Team1_Name	VARCHAR(45)
*Team2_Name	VARCHAR(45)
*Stadium_Name	VARCHAR(45)
*City	VARCHAR(45)
*Date	DATE
*Match_Stage	VARCHAR(15)
*Match_Winner	VARCHAR(45)
*MOM_Name	VARCHAR(45)
*MOM_CapNo	INT
*Toss	VARCHAR(45)
*Elected	VARCHAR(5)

Team_Performance
*Tournament_Name	VARCHAR(40)
*Team_Name	VARCHAR(45)
*Year	INT
°Matches_Played	INT
°Wins	INT
°Losses	INT
°Draws	INT

Team
*Team_Name	VARCHAR(45)
*Tournament_Name	VARCHAR(40)
°HeadCoach	VARCHAR(25)
°Captain_Name	VARCHAR(45)
°Captain_CapNo	INT
°Homeground_Name	VARCHAR(45)
°City	VARCHAR(20)

Playing_XI
*Team_Name	VARCHAR(45)
*Tournament_Name	VARCHAR(40)
*Match_No	INT
*Player_Name	VARCHAR(45)
*Cap_No	INT

Stats
*Player_Name	VARCHAR(45)
*Cap_No	INT
*Format	VARCHAR(25)
°Total_Matches	INT
°Runs	INT
°50s	INT
°100s	INT
°Wickets	INT
°Batting_Best	VARCHAR(7)
°Bowling_Best	VARCHAR(7)

Team_Info
*Team_Name	VARCHAR(45)
*Tournament_Name	VARCHAR(40)
*Player_Name	VARCHAR(45)
*Cap_No	INT
*Year	INT

Batting_Scorecard
*Tournament_Name	VARCHAR(40)
*Match_No	INT
*Team_Name	VARCHAR(45)
*Player_Name	VARCHAR(45)
*Cap_No	INT
°Runs	INT
°Balls_Faced	INT
°Fours	INT
°Sixes	INT
°Notout	INT

Bowling_Scorecard
*Tournament_Name	VARCHAR(40)
*Match_No	INT
*Team_Name	VARCHAR(45)
*Player_Name	VARCHAR(45)
*Cap_No	INT
°Overs	INT
°Maidens	INT
°Wickets	INT
°Run_Conceded	INT

Player
*Player_Name	VARCHAR(45)
*Cap_No	INT
°DOB	DATE
°Player_Type	VARCHAR(35)
°Batting_Style	VARCHAR(35)
°Bowling_Style	VARCHAR(35)
*Country	VARCHAR(20)

Normalization Proof :

[1] Tournament:

R{Tournament_Name, Tournament_Format}.

Keys: Tournament_Name

Minimal FD:

{Tournament_Name} → Tournament_Format.

{Tournament_Name}+ = {Tournament_Name, Tournament_Format}

Thus, {Tournament_Name} is the key.

BCNF Proof:

For every Minimal FD listed above {Tournament_Name} is the Candidate Key, Hence the relation is in BCNF.

[2]Tournament_Result:

R {Tournament_Name, Year, Winner, Runner_Up, POTT_Name, POTT_CapNo}.

Keys: {Tournament_Name, Year}.

Minimal FD:

$\{Tournament\_Name, Year\} \rightarrow Winner.$

$\{Tournament\_Name, Year\} \rightarrow Runner\_Up.$

$\{Tournament\_Name, Year\} \rightarrow POTT\_Name.$

$\{Tournament\_Name, Year\} \rightarrow POTT\_CapNo.$

$\{Tournament\_Name, Year\}+ = \{Tournament\_Name, Year, Winner, Runner\_Up, POTT\_Name, POTT\_CapNo\}.$

Thus, {Tournament_Name,Year} is the key.

BCNF Proof:

For every Minimal FD listed above {Tournament_Name, year} is the Candidate Key, Hence the relation is in BCNF.

[3] Team:

R{Tournament_Name, Team_Name, HeadCoach, Captain_Name, Captain_CapNo, Homeground_Name, City}.

Keys: {Tournament_Name, Team_Name}.

Minimal FD:

$\{Tournament\_Name, Team\_Name\} \rightarrow HeadCoach.$

$\{Tournament\_Name, Team\_Name\} \rightarrow Captain\_Name.$

{Tournament_Name, Team_Name} → Captain_CapNo.

{Tournament_Name, Team_Name} → Homeground_Name.

{Tournament_Name, Team_Name} → City.

{Tournament_Name, Team_Name}+ = {Tournament_Name, Team_Name, HeadCoach, Captain_Name, Captain_CapNo, Homeground_Name, City}.

Thus, {Tournament_Name, Team_Name} is the key.

BCNF_Proof:

For every Minimal FD listed above {Tournament_Name, Team_Name} is the Candidate Key, Hence the relation is in BCNF.

[4] Team_Performance:

R{ Tournament_Name, Team_Name, year, Matches_Played, Wins, Losses, Draws}.

Keys : { Tournament_Name, Team_Name, year}.

Minimal FD:

{ Tournament_Name, Team_Name, year} → Matches_Played.

{ Tournament_Name, Team_Name, year} → Wins.

{ Tournament_Name, Team_Name, year} → Losses.

{ Tournament_Name, Team_Name, year} → Draws.

{ Tournament_Name, Team_Name, year}+ = { Tournament_Name, Team_Name, year, Matches_Played, Wins, Losses, Draws}.

Thus, {Tournament_Name, Team_Name, year} is the key.

BCNF_Proof:

For every Minimal FD listed above {Tournament_Name, Team_Name, year} is the Candidate Key, Hence the relation is in BCNF.

[5]Player:

R{Player_Name, Cap_No, DOB, Player_Type, Batting_Style, Bowling_Style, Country}.

Keys : {Player_Name, Cap_No}.

Minimal FD:

{Player_Name, Cap_No} → DOB.

{Player_Name, Cap_No} → Player_Type.

{Player_Name, Cap_No} → Batting_Style.

{Player_Name, Cap_No} → Bowling_Style.

{Player_Name, Cap_No} → Country.

{Player_Name, Cap_No}+ = {Player_Name, Cap_No, DOB, Player_Type, Batting_Style, Bowling_Style, Country}.

Thus, {Player_Name, Cap_No} is the key.

BCNF_Proof:

For every Minimal FD listed above {Player_Name, Cap_No} is the Candidate Key, Hence the relation is in BCNF.

[6]Stats:

R{ Player_Name, Cap_No, Format, Total_Matches, Runs, 50s, 100s, Wickets, Batting_Best, Bowling_Best}.

Keys: {Player_Name, Cap_No, Format}.

Minimal FD:

{Player_Name, Cap_No, Format} → Total_Matches.

{Player_Name, Cap_No, Format} → Runs.

{Player_Name, Cap_No, Format} → 50s.

{Player_Name, Cap_No, Format} → 100s.

{Player_Name, Cap_No, Format} → Wickets.

{Player_Name, Cap_No, Format}+ = { Player_Name, Cap_No, Format, Total_Matches, Runs, 50s, 100s, Wickets, Batting_Best, Bowling_Best}.

Thus, {Player_Name, Cap_No, Format} is the key.

<u>BCNF Proof:</u>

For every Minimal FD listed above {<u>Player Name, Cap No, Format</u>} is the Candidate Key, Hence the relation is in BCNF.

[7] Team_Info :

R{Tournament_Name, Team_Name, Player_Name, Cap_No, year}.

<u>Keys:</u> {Tournament_Name, Team_Name, Player_Name, Cap_No, year}.

Thus, {<u>Tournament_Name, Team_Name, Player_Name, Cap_No, year</u>} is the key.

<u>BCNF Proof:</u>

Since There are no FDs and all the attributes are the key, hence the relation is in BCNF

[8] Matches:

R{Tournament_Name, Match_No, Team1_Name, Team2_Name, Stadium_Name, City, Date, Match_Stage, Match_Winner, MOM_Name, MOM_CapNo, Toss, Elected}.

<u>Keys :</u> {Tournament_Name, Match_No}

Minimal FD:

$\{Tournament\_Name, Match\_No\} \rightarrow Team1\_Name.$

$\{Tournament\_Name, Match\_No\} \rightarrow Team2\_Name.$

$\{Tournament\_Name, Match\_No\} \rightarrow Stadium\_Name.$

$\{Tournament\_Name, Match\_No\} \rightarrow City.$

$\{Tournament\_Name, Match\_No\} \rightarrow Date.$

$\{Tournament\_Name, Match\_No\} \rightarrow Match\_Stage.$

$\{Tournament\_Name, Match\_No\} \rightarrow Match\_Winner.$

$\{Tournament\_Name, Match\_No\} \rightarrow MOM\_Name.$

$\{Tournament\_Name, Match\_No\} \rightarrow MOM\_CapNo.$

$\{Tournament\_Name, Match\_No\} \rightarrow Toss.$

$\{Tournament\_Name, Match\_No\} \rightarrow Elected.$

$\{Tournament\_Name, Match\_No\}+ = \{Tournament\_Name, Match\_No, Team1\_Name, Team2\_Name, Stadium\_Name, City, Date, Match\_Stage, Match\_Winner, MOM\_Name, MOM\_CapNo, Toss, Elected\}.$

Thus, {Tournament_Name, Match_No} is the key

BCNF Proof:

For every Minimal FD listed above {Tournament_Name, Match_No} is the Candidate Key, Hence the relation is in BCNF.

[9] Playing_XI :

R {Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No}.

Keys : {Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No}.

Thus, {Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No} is the key.

BCNF Proof:

Since There are no FDs and all the attributes are the key, hence the relation is in BCNF

[10]Scorecard :

R{ Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No, Runs, Ball_Faced, Fours, Sixes, Notout, Overs, Maidens, Wickets, Run_Conceded}.

Keys: { Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No}.

Minimal FD:

{ Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No} → Runs.

{ Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No} → Ball_Faced.

{ Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No} →
Fours.

{ Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No} →
Sixes.

{ Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No} →
Notout.

{ Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No} →
Overs.

{ Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No} →
Maidens.

{ Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No} →
Wickets.

{ Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No} →
Run_Conceded.

{ Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No}+ = {
Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No, Runs,
Ball_Faced, Fours, Sixes, Notout, Overs, Maidens, Wickets, Run_Conceded}.

Thus, {Tournament_Name, Match_No, Team_Name, Player_Name, Cap_No} is
the key.

BCNF Proof:

For every Minimal FD listed above {Tournament_Name, Match_No, Team_Name,
Player_Name, Cap_No } is the Candidate Key, Hence the relation is in BCNF.