



DBMS

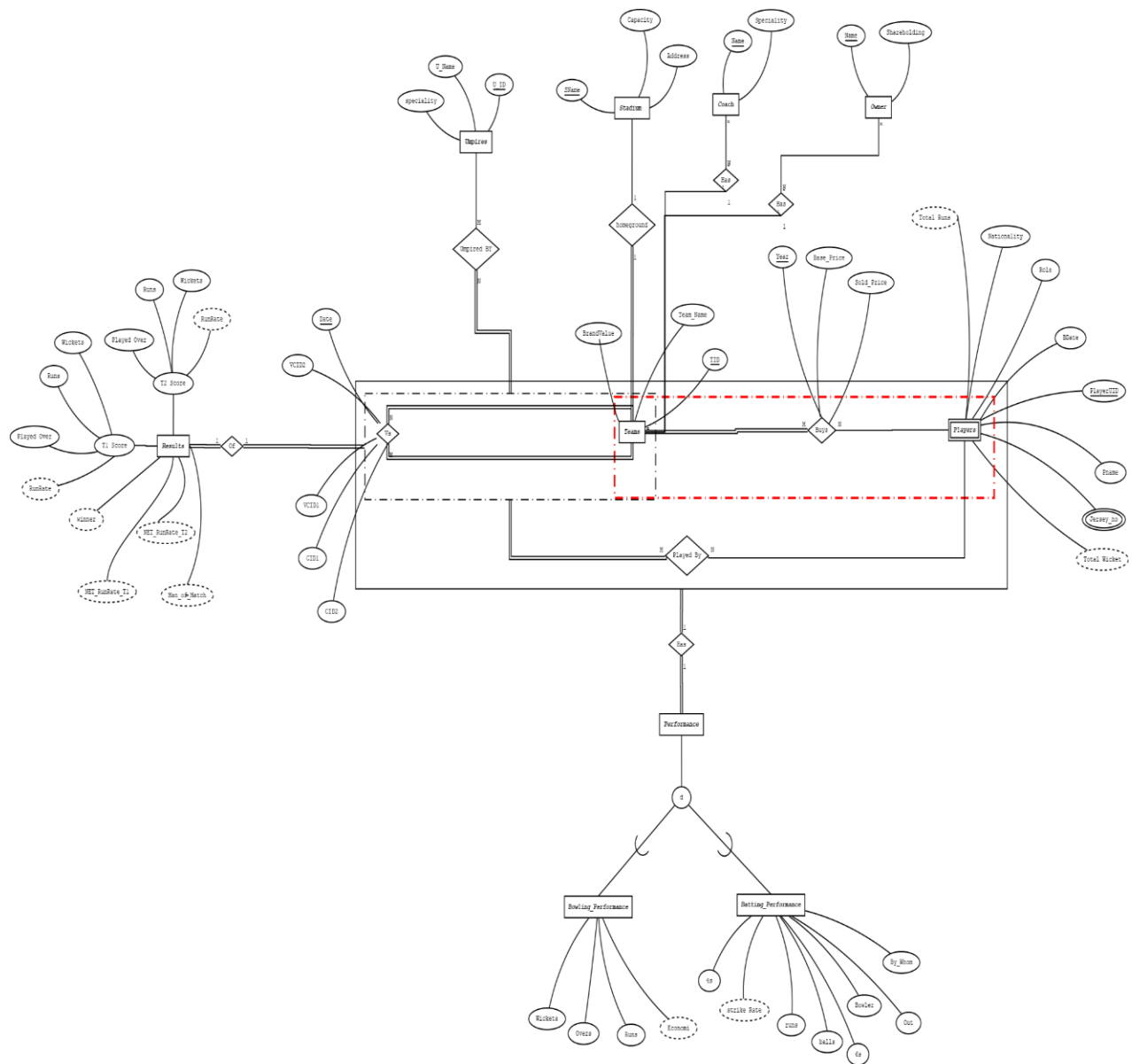
GROUP : G3_3

**TITLE : Indian Premier League (IPL)
Database Management System**

MEMBERS :

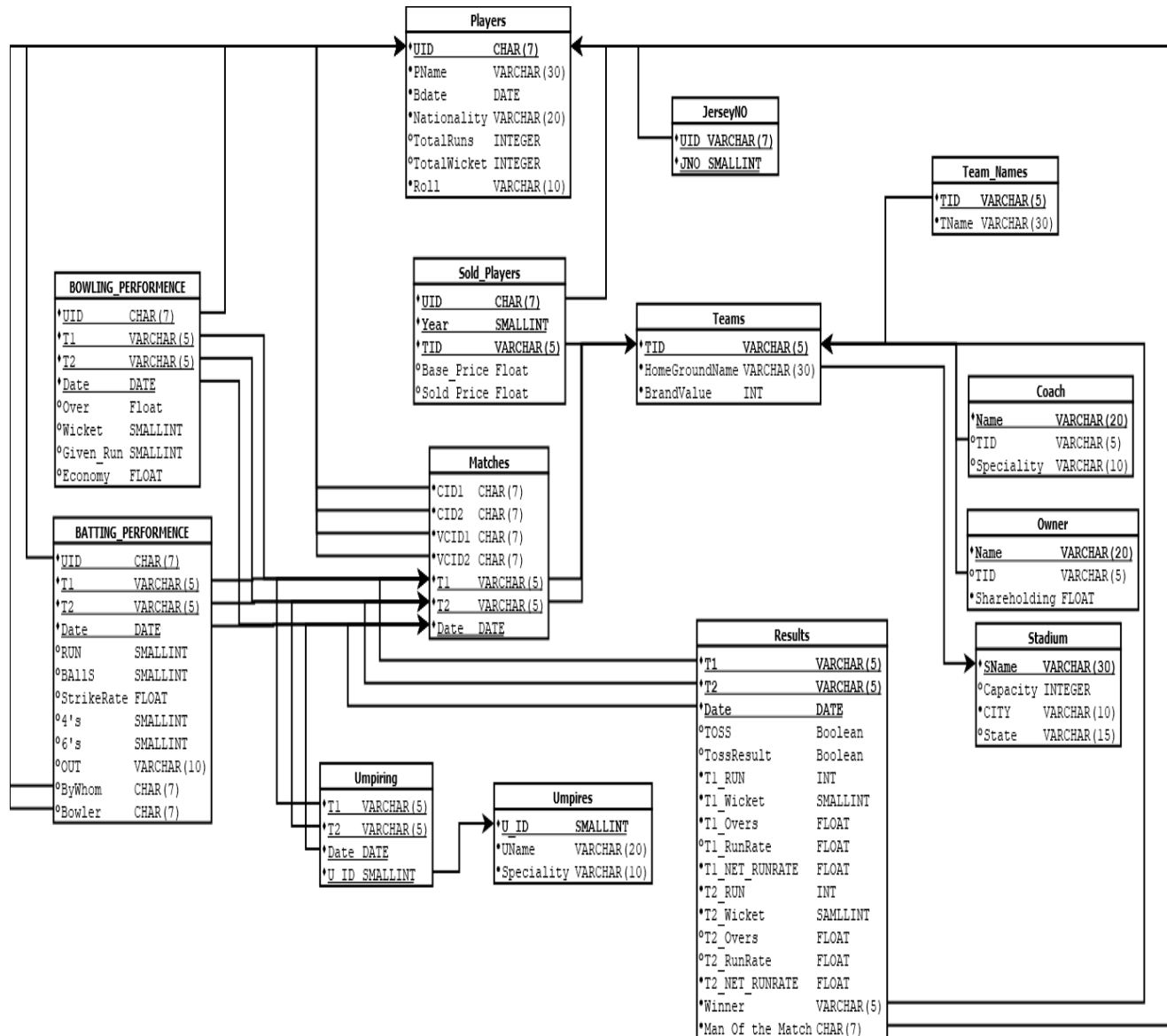
1. 202301172 : Macwan Jenish Denish
2. 202301174 : Rathva Hardik Chhabiram
3. 202301147 : Patel Jeinil Vijeshbhai
4. 202301183 : Makavana Rajkumar Bhamabhai
5. 202301199 : Joliya Vishal Parshottambha

ERD



NOTE : Here ERD is Updated

RELATIONAL SCHEMA



NOTE : Here Relational diagram is also updated.

Function dependency

1. Players Table:

- Primary Key: **UID**
- FDs: UID uniquely determines all other attributes.
 - $UID \rightarrow PName$
 - $UID \rightarrow Bdate$
 - $UID \rightarrow Nationality$
 - $UID \rightarrow TotalRuns$
 - $UID \rightarrow TotalWicket$
 - $UID \rightarrow Roll$
- Combined: $UID \rightarrow \{PName, Bdate, Nationality, TotalRuns, TotalWicket, Roll\}$
- UID which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

2. JerseyNO Table:

- Primary Key: **{UID , JNO}**
- There is no FDs so that this relation is **BCNF**.

3. Sold_Players Table:

- Primary Key: **{UID, Year, TID}** (Composite Key)
- FDs: The combination of UID and Year uniquely determines the other attributes for that specific sale instance.

- $\{UID, Year, TID\} \rightarrow Base_Price$
 - $\{UID, Year, TID\} \rightarrow Sold_Price$
- Combined: $\{UID, Year, TID\} \rightarrow \{Base_Price, Sold_Price\}$
- $\{UID, Year, TID\}$ which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

4. Teams Table:

- Primary Key: **TID**
- FDs: TID uniquely determines the home ground and BrandValue.
 - $TID \rightarrow HomeGroundID$
 - $TID \rightarrow BrandValue$
- Combined: $TID \rightarrow \{HomeGroundID, BrandValue\}$
- TID which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

5. Team_Name:

- Primary Key: **TID**
- FDs: TID uniquely determines the team's name.
 - $TID \rightarrow TName$
- TID which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

6. Coach

- Primary Key: **Name**
- FDs: Name uniquely determines the TID.
 - $Name \rightarrow TID$
 - $Name \rightarrow Specialty$
- Combined: $Name \rightarrow \{TID, Specialty\}$

- Name which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

7. Owner Table:

- Primary Key: **Name**
- FDs: Name uniquely determines the TID.
 - $\text{Name} \rightarrow \text{TID}$
 - $\text{Name} \rightarrow \text{Shareholding}$
- *Name* which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

8. Stadium Table:

- Primary Key: **SName**
- FDs: SName uniquely determines all other stadium details.
 - $\text{SName} \rightarrow \text{Capacity}$
 - $\text{SName} \rightarrow \text{City}$
 - $\text{SName} \rightarrow \text{State}$
- Combined: $\text{SName} \rightarrow \{\text{Capacity}, \text{City}, \text{State}\}$
- SName which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

9. Match Table:

- Primary Key : **{T1,T2,Date}** (Composite Key)
- FDs: {T1,T2,Date} uniquely determines all details about that specific match.
 - $\{\text{T1}, \text{T2}, \text{Date}\} \rightarrow \text{CID1}$
 - $\{\text{T1}, \text{T2}, \text{Date}\} \rightarrow \text{VCID1}$
 - $\{\text{T1}, \text{T2}, \text{Date}\} \rightarrow \text{CID2}$
 - $\{\text{T1}, \text{T2}, \text{Date}\} \rightarrow \text{VCID2}$

- Combined: $\{T1, T2, Date\} \rightarrow \{CID1, CID2, VCID1, VCID2\}$
- $\{T1, T2, Date\}$ which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

10. Umpires Table:

- Primary Key: **U_ID** (Note: This seems to be a different type/scope of UID than Players)
- FDs: UID uniquely determines the umpire's details.
 - $U_ID \rightarrow UName$
 - $U_ID \rightarrow Speciality$
- Combined: $U_ID \rightarrow \{UName, Speciality\}$
- **U_ID** which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

11. Umpiring :

- There is no FDs in minimal FD set $\{T1, T2, Date, U_ID\}$ is a key.
- Therefore, the Relation is in **BCNF**.

12. Result Table:

- Primary Key: **$\{T1, T2, Date\}$**
- FDs: $\{T1, T2, Date\}$ uniquely determines all result details for the match.
 - $\{T1, T2, Date\} \rightarrow Toss$
 - $\{T1, T2, Date\} \rightarrow TossResult$
 - $\{T1, T2, Date\} \rightarrow T1_RUN$
 - $\{T1, T2, Date\} \rightarrow T1_Wicket$
 - $\{T1, T2, Date\} \rightarrow T1_Overs$

- $\{T1, T2, Date\} \rightarrow T1_RunRate$
- $\{T1, T2, Date\} \rightarrow T1_NET_RUNRATE$
- $\{T1, T2, Date\} \rightarrow T2_RUN$
- $\{T1, T2, Date\} \rightarrow T2_Wicket$
- $\{T1, T2, Date\} \rightarrow T2_Overs$
- $\{T1, T2, Date\} \rightarrow T2_RunRate$
- $\{T1, T2, Date\} \rightarrow T2_NET_RUNRATE$
- $\{T1, T2, Date\} \rightarrow Winner$
- $\{T1, T2, Date\} \rightarrow Man_of_the_Match$
- Combined: $\{T1, T2, Date\} \rightarrow \{Toss, TossResult, T1_RUN, T1_Wicket, T1_Overs, T1_NET_RUNRATE, T2_RUN, T2_Wicket, T2_Overs, T2_NET_RUNRATE, T1_RunRate, T2_RunRate, Winner, Man_Of_the_match\}$.
- $\{T1, T2, Date\}$ which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

13. BOWLING_PERFORMANCE Table:

- Primary Key: **{UID, T1, T2, Date}** (Composite Key as marked)
- FDs: The combination of player, match, and date determines the bowling stats.
 - $\{UID, T1, T2, Date\} \rightarrow Over$
 - $\{UID, T1, T2, Date\} \rightarrow Wicket$
 - $\{UID, T1, T2, Date\} \rightarrow Given_Run$
 - $\{UID, T1, T2, Date\} \rightarrow Economy$ (Determinate)
- Combined: $\{UID, T1, T2, Date\} \rightarrow \{Over, Wicket, Given_Run, Economy\}$
- $\{UID, T1, T2, Date\}$ which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

14. BATTING_PERFORMANCE Table:

- Primary Key: {UID, T1, T2, Date} (Composite Key as marked)
- FDs: The combination of player, match, and date determines the batting stats.
 - {UID, T1, T2, Date} → RUN
 - {UID, T1, T2, Date} → BALLS
 - {UID, T1, T2, Date} → StrikeRate
 - {UID, T1, T2, Date} → 4's
 - {UID, T1, T2, Date} → 6's
 - {UID, T1, T2, Date} → OUT
 - {UID, T1, T2, Date} → ByWhom
 - {UID, T1, T2, Date} → Bowler
- Combined: {UID, T1, T2, Date} → {RUN, BALLS, StrikeRate, 4's, 6's, OUT, ByWhom, Bowler}
- {UID, T1, T2, Date} which is a super key and determinant of all FDs, therefore this relation is **BCNF**.

