**Q)Player (PlayerName, PlayerState, PlayerNumber, PlayerTeam, TeamCoach, GameAgainst, GameDate, PlayerRuns)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **PlayerName** | **PlayerState** | **Player Number** | **PlayerTeam** | **TeamCoach** | **GameAgainst** | **GameDate** | **PlayerRuns** |
| Sachin Tendulkar | Maharashtra | 11 | India | Greg Chappel | Pakistan | 12/3/03 | 95 |
|  |  |  |  |  | Pakistan | 25/3/03 | 22 |
|  |  |  |  |  | England | 29/3/03 | 88 |
| Adam Gilchrist | Western  Australia | 34 | Australia | John Buchanan | S. Africa | 10/3/03 | 42 |
|  |  |  |  |  | S. Africa | 11/3/03 | 61 |
|  |  |  |  |  | New Zealand | 12/3/03 | 62 |

\*\*For the following questions, explain your steps clearly.

**Q.1)Is the relation in 1NF? Why or why not? If not, reduce the relation to 1NF?**

=> No. We ‘humans’ still understand the meaning of the above Table, but now we have that each row has one Person, but" GameDate and GameAgainst "for each person, this is now not in 1NF. not being in First Normal Form means misinterpreting(or violating) the definition of the Relation represented by that Table.

##1Nf##

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **PlayerName** | **PlayerState** | **Player Number** | **PlayerTeam** | **TeamCoach** | **GameAgainst** | **GameDate** | **PlayerRuns** |
| Sachin Tendulkar | Maharashtra | 11 | India | Greg Chappel | Pakistan | 12/3/03 | 95 |
| Sachin Tendulkar | Maharashtra | 11 | India | Greg Chappel | Pakistan | 25/3/03 | 22 |
| Sachin Tendulkar | Maharashtra | 11 | India | Greg Chappel | England | 29/3/03 | 88 |
| Adam Gilchrist | Western  Australia | 34 | Australia | John Buchanan | S. Africa | 10/3/03 | 42 |
| Adam Gilchrist | Western  Australia | 34 | Australia | John Buchanan | S. Africa | 11/3/03 | 61 |
| Adam Gilchrist | Western  Australia | 34 | Australia | John Buchanan | New Zealand | 12/3/03 | 62 |

**Q.2)Using your knowledge of cricket and from the instance, identify the functional dependencies for this relation?**

=> we have a Player table with attribute:(PlayerName, PlayerState, PlayerNumber, PlayerTeam, TeamCoach, GameAgainst, GameDate, PlayerRuns) Here PlayerNumber attribute uniquely identifies the PlayerName attribute of Player table because if we know the PlayerNumber we can tell the PlayerName associated with it. This is known as functional dependency and can be written as PlayerNumber->PlayerName or in words we can say PlayerName is functionally dependent on PlayerNumber .

**Q.3)Is the table you created in question 1 also in 2NF? If not decompose the relation into ones that are in 2NF?**

=> No.The normalization of 1NF relations to 2NF involves the removal of partial dependencies. If a partial dependency exists, we remove the partially dependent attribute(s) from the relation by placing them in a new relation along with a copy of their determinant.

**##2NF##**

**Table 1=>**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PlayerName** | **PlayerState** | **Player Number** | **PlayerTeam** | **TeamCoach** |
| Sachin Tendulkar | Maharashtra | 11 | India | Greg Chappel |
| Adam Gilchrist | Western  Australia | 34 | Australia | John Buchanan |

**Table 2=>**

|  |  |  |  |
| --- | --- | --- | --- |
| **Player Number** | **GameAgainst** | **GameDate** | **PlayerRuns** |
| 11 | Pakistan | 12/3/03 | 95 |
| 11 | Pakistan | 25/3/03 | 22 |
| 11 | England | 29/3/03 | 88 |
| 34 | S. Africa | 10/3/03 | 42 |
| 34 | S. Africa | 11/3/03 | 61 |
| 34 | New Zealand | 12/3/03 | 62 |

**Q.4)Is/Are the table(s) you created in question 3 also in 3NF? If not decompose into 3NF.**

No,Because Two tables have no relation

3NF:Implementing the relationship between two tables by using FK.

PlayerDatails

|  |  |  |  |
| --- | --- | --- | --- |
| **PlayerName(PK)** | **PlayerState** | **PlayerNumber** | **PlayerTeam(FK)** |
| Sachin Tendulkar | Maharashtra | 11 | India |
| Adam Gilchrist | Western Australia | 34 | Australia |

TeamInfo

|  |  |
| --- | --- |
| **PlayerTeam(PK)** | **TeamCoach** |
| India | Greg Chappel |
| Australia | John Buchanan |

Match deails

|  |  |  |  |
| --- | --- | --- | --- |
| **PlayerName(FK)** | **GameAgainst** | **GameDate** | **PlayerRuns** |
| Sachin Tendulkar | Pakistan | 12/3/03 | 95 |
| Sachin Tendulkar | Pakistan | 25/3/03 | 22 |
| Sachin Tendulkar | England | 29/3/03 | 88 |
| Adam Gilchrist | S. Africa | 10/3/03 | 42 |
| Adam Gilchrist | S. Africa | 11/3/03 | 61 |
| Adam Gilchrist | New Zealand | 12/3/03 | 62 |