Original Table:-

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

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sachin Tendulkar | Maharashtra | 11 | India | Greg Chappel | Pakistan  Pakistan  England | 12/3/03  25/3/03  29/3/03 | 95  22  88 |
| Adam Gilchrist | Western Australia | 34 | Australia | John Buchanan | S. Africa  S. Africa  New Zealand | 10/3/03  11/3/03  12/3/03 | 42  61  62 |

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

* No, it is Not in 1NF
* Each table cell should contain a single value.
* Each record needs to be unique.

**Player** (PlayerName, PlayerState, PlayerNumber, 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 |

1. **Using your knowledge of cricket and from the instance, identify the functional dependencies for this relation.**

PlayerNumber -> GameAgainst, GameDate

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

* Table is in 1NF (First normal form)
* No non-prime attribute is dependent on the proper subset of any candidate key of table.

Player\_Info (PlayerNumber, PlayerName, PlayerState,PlayerTeam,TeamCoach)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 11 | Sachin Tendulkar | Maharashtra | India | Greg Chappel |
| 34 | Adam Gilchrist | Western Australia | Australia | John Buchanan |

Player\_MatchInfo (PlayerNumber, 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 |

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

* Yes it is in 3NF, There is no transitive dependency