**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 |

For the following questions, explain your steps clearly.

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

No

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Player**  **Name** | **Player**  **State** | **Player**  **Number** | **Player**  **Team** | **Team**  **Coach** | **Game**  **Against** | **Game**  **Date** | **Player**  **Runs** |
| 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.

PlayerName 🡪PlayerState

PlayerName🡪PlayerNumber

PlayerTeam🡪TeamCoach

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

No

|  |  |  |
| --- | --- | --- |
| **PlayerName(Primarykey)** | **PlayerState** | **PlayerNumber** |
| Sachin Tendulkar | Maharashtra | 11 |
| Adam Gilchrist | Western Australia | 34 |

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

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

No

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

|  |  |
| --- | --- |
| **PlayerTeam** | **TeamCoach** |
| India | Greg Chappel |
| Australia | John Buchanan |

|  |  |  |  |
| --- | --- | --- | --- |
| **PlayerName(forigenkey)** | **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 |