**I. 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.

Ans: No

Multi-valued attributes

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **PlayerName** | **PlayerState** | **PlayerNumber** | **PlayerTeam** | **TeamCoach** | Game against | Game date | Player run |
| sachin | Maharashtra | 11 | India | Greg Chappel | Pakistan | 12/3/03 | 95 |
| sachin | Maharashtra | 11 | India | Greg Chappel | Pakistan | 25/3/03 | 22 |
| sachin | Maharashtra | 11 | India | Greg Chappel | England | 29/3/03 | 88 |
| gilchrist | Western Australia | 34 | Australia | John Buchanan | S. Africa | 10/3/03 | 42 |
| gilchrist | Western Australia | 34 | Australia | John Buchanan | S. Africa | 11/3/03 | 61 |
| 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.

Ans:

**PlayerName -🡪PlayerState**

**PlayerName 🡪 PlayerNumber**

**PlyerName🡪 PlayerTeam**

**PlayerTeam🡪 TeamCoach**

**PlayerName 🡪TeamCoach**

**Name,date🡪run**

**Name,date🡪game against**

**Etc…**

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

Ans:

Table1:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PlayerName** | **PlayerState** | **PlayerNumber** | **PlayerTeam** | **TeamCoach** |
| sachin | Maharashtra | 11 | India | Greg Chappel |
| gilchrist | Western Australia | 34 | Australia | John Buchanan |

Table2:

|  |  |  |  |
| --- | --- | --- | --- |
| **PlayerName** | Game against | Game date | Player run |
| sachin | Pakistan | 12/3/03 | 95 |
| sachin | Pakistan | 25/3/03 | 22 |
| sachin | England | 29/3/03 | 88 |
| gilchrist | S. Africa | 10/3/03 | 42 |
| gilchrist | S. Africa | 11/3/03 | 61 |
| gilchrist | New Zealand | 12/3/03 | 62 |

II.ER diagram for company database:

