Div-man

Part-time

Works-in

manager

Full-time

**product**

**Divisions**

Employee

**Company**

makes

Part-time

**NORMALIZATION**

Player number player name country team coach

11 sachin India Greg Chappel

34 Adam Australia John

Player number country date number

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 S.Africa 12/3/03 62

---------------------Theory-------------------

Database Normalization is a technique of organizing the data in the database. Normalization is a systematic approach of decomposing tables to eliminate data redundancy(repetition) and undesirable characteristics like Insertion, Update and Deletion Anomalies. It is a multi-step process that puts data into tabular form, removing duplicated data from the relation tables.

First Normal Form (1NF)

For a table to be in the First Normal Form, it should follow the following 4 rules:

1. It should only have single(atomic) valued attributes/columns.
2. Values stored in a column should be of the same domain
3. All the columns in a table should have unique names.

FUNCTIONAL DEPENDENCY - The functional dependency is a relationship that exists between two attributes. It typically exists between the primary key and non-key attribute within a table.X-🡪Y

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| p-name | p-state | Team | Tem-c | Game-against | Date | runs | p-numb |
| Sachin | Maharashtra | India | Greg | Pakistan | 12/3/03 | 95 | 11 |
| Sachin | Maharashtra | India | Greg | Pakistan | 25/3/03 | 22 | 11 |
| Sachin | Maharashtra | India | Greg | Pakistan | 29/3/03 | 85 | 11 |
| Adam gilchrist | W-Australia | australia | John | S.africa | 10/3/03 | 42 | 34 |
| Adam gilchrist | W-Australia | australia | John | S.africa | 11/3/03 | 61 | 34 |
| Adam gilchrist | W-Australia | australia | John | S.africa | 12/3/03 | 62 | 34 |

### Second Normal Form (2NF)

For a table to be in the Second Normal Form,

1. It should be in the First Normal form.
2. And, it should not have Partial Dependency..

|  |  |
| --- | --- |
| p-name | p-state |
| Sachin | Maharashtra |
| Sachin | Maharashtra |
| Sachin | Maharashtra |
| Adam gilchrist | W-Australia |
| Adam gilchrist | W-Australia |
| Adam gilchrist | W-Australia |
| Sachin | maharashtra |

|  |  |  |
| --- | --- | --- |
| p-name | p-team | Player-no |
| Sachin | India | 11 |
| Sachin | India | 11 |
| Sachin | India | 11 |
| Adam gilchrist | australia | 34 |
| Adam gilchrist | australia | 34 |
| Adam gilchrist | australia | 34 |

|  |  |  |
| --- | --- | --- |
| Player name | Game date | Player run |
| Sachin | 12/3/03 | 95 |
| Sachin | 25/3/03 | 22 |
| Sachin | 29/3/03 | 85 |
| Adam gilchrist | 10/3/03 | 42 |
| Adam gilchrist | 11/3/03 | 61 |
| Adam gilchrist | 12/3/03 | 62 |

### Third Normal Form (3NF)

A table is said to be in the Third Normal Form when,

1. It is in the Second Normal form.
2. And, it doesn't have Transitive Dependency.

|  |  |
| --- | --- |
| Player team | Team coach |
| India | Greg |
| India | Greg |
| India | Greg |
| australia | John |
| australia | John |
| australia | John |
|  |  |

|  |  |  |
| --- | --- | --- |
| Player team | Game date | Game against |
| India | 12/3/03 | Pakistan |
| India | 25/3/03 | Pakistan |
| India | 29/3/03 | Pakistan |
| australia | 10/3/03 | S.africa |
| australia | 11/3/03 | S.africa |
| australia | 12/3/03 | S.africa |

It’s a 3 NF

**Boyce and Codd Normal Form** is a higher version of the Third Normal form. This form deals with certain type of anomaly that is not handled by 3NF. A 3NF table which does not have multiple overlapping candidate keys is said to be in BCNF. For a table to be in BCNF, following conditions must be satisfied:

* R must be in 3rd Normal Form
* and, for each functional dependency ( X → Y ), X should be a super Key.