NORMALISATIONS:

Majorly four types of major normalisations are:

a) 1st Normal Form

b) 2nd Normal Form

c) 3rd Normal Form

d)BCNF Normal Form

a) 1st Normal Form:

As per First Normal Form, no two Rows of data must contain repeating group of information i.e each set of column must have a unique value, such that multiple columns cannot be used to fetch the same row. Each table should be organized into rows, and each row should have a primary key that distinguishes it as unique.

b) 2nd Normal Form:

As per the Second Normal Form there must not be any partial dependency of any column on primary key. It means that for a table that has concatenated primary key, each column in the table that is not part of the primary key must depend upon the entire concatenated key for its existence.

c) 3rd Normal Form:

Third Normal form applies that every non-prime attribute of table must be dependent on primary key, or we can say that, there should not be the case that a non-prime attribute is determined by another non-prime attribute.

d)BCNF Normal Form: 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.

Original Table Data:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Emp\_ID | Emp\_Name | Month | Sales | Bank\_ID | Bank\_Name |
| E01 | AA | Jan | 1000 | B01 | SBI |
|  |  | Feb | 1200 |  |  |
|  |  | Mar | 850 |  |  |
| E02 | BB | Jan | 2200 | B02 | UTI |
|  |  | Feb | 2500 |  |  |
| E03 | CC | Jan | 1700 | B01 | SBI |
|  |  | Feb | 1800 |  |  |
|  |  | Mar | 1850 |  |  |
|  |  | Apr | 1725 |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Converted to 1st Normal Form

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Emp\_ID | Emp\_Name | Month | Sales | Bank\_ID | Bank\_Name |
| E01 | AA | Jan | 1000 | B01 | SBI |
| E01 | AA | Feb | 1200 | B01 | SBI |
| E01 | AA | Mar | 850 | B01 | SBI |
| E02 | BB | Jan | 2200 | B02 | UTI |
| E02 | BB | Feb | 2500 | B03 | UTI |
| E03 | CC | Jan | 1700 | B01 | SBI |
| E03 | CC | Feb | 1800 | B01 | SBI |
| E03 | CC | Mar | 1850 | B01 | SBI |
| E03 | CC | Apr | 1725 | B01 | SBI |

Table Converted to 2nd Normal Form:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Emp\_ID | Emp\_Name | Month | Sales |  | Bank\_ID | Bank\_Name |  | Emp\_ID | Bank\_ID |
| E01 | AA | Jan | 1000 |  | B01 | SBI |  | E01 | B01 |
| E01 | AA | Feb | 1200 |  | B02 | UTI |  | E02 | B02 |
| E01 | AA | Mar | 850 |  |  |  |  | E03 | B01 |
| E02 | BB | Jan | 2200 |  |  |  |  |  |  |
| E02 | BB | Feb | 2500 |  |  |  |  |  |  |
| E03 | CC | Jan | 1700 |  |  |  |  |  |  |
| E03 | CC | Feb | 1800 |  |  |  |  |  |  |
| E03 | CC | Mar | 1850 |  |  |  |  |  |  |
| E03 | CC | Apr | 1725 |  |  |  |  |  |  |

Table Converted to 3rd Normal Form:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PM\_Emp\_ID | Emp\_ID | Emp\_Name |  | PM\_Emp\_ID | Month | Sales |  | Bank\_ID | Bank\_Name |  | Emp\_ID | Bank\_ID |
| EMP\_01 | E01 | AA |  | EMP\_01 | Jan | 1000 |  | B01 | SBI |  | E01 | B01 |
| EMP\_02 | E02 | BB |  | EMP\_01 | Feb | 1200 |  | B02 | UTI |  | E02 | B02 |
| EMP\_03 | E03 | CC |  | EMP\_01 | Mar | 850 |  |  |  |  | E03 | B01 |
|  |  |  |  | EMP\_02 | Jan | 2200 |  |  |  |  |  |  |
|  |  |  |  | EMP\_02 | Feb | 2500 |  |  |  |  |  |  |
|  |  |  |  | EMP\_03 | Jan | 1700 |  |  |  |  |  |  |
|  |  |  |  | EMP\_03 | Feb | 1800 |  |  |  |  |  |  |
|  |  |  |  | EMP\_03 | Mar | 1850 |  |  |  |  |  |  |
|  |  |  |  | EMP\_03 | Apr | 1725 |  |  |  |  |  |  |