

Normalization: Normalization is the process of organizing the data into multiple related tables to reduce the redundancy. Normalization divides the large table into smaller tables and link them using relationship.

→ Normalization is used to eliminate the undesirable characteristics like insertion, deletion and update anomalies.

There are 4 types of normal forms they are 1NF, 2NF, 3NF, BCNF.

1NF:

→ A table should be in 1NF if it contain atomic values.

→ Attribute domain should be same.

→ Unique name for attributes/columns.

2NF:

→ The table should be in 1NF.

→ No partial dependency

Functional dependency: All columns in table are dependent on one primary key.

Partial dependency: Partial dependency occurs when there are more than one primary keys in one table(candidate key) i.e., any attribute depends on any part of the candidate key.

3NF:

→ The table should be in 2NF.

→ No transitive dependency.

Transitive dependency: when one column depends on another column which is not a primary key.

2NF and 3NF Examples:

2NF:

| SID | FName | LName | Ph No | Course ID | CourseTitle | Qualification | Grade |
|-----|---------|--------------|------------|-----------|-------------|---------------|-------|
| 1 | Amulya | Arshanapelli | 9618946367 | 11 | JAVA | Advanced | A |
| 2 | Neeraja | Srisathya | 7337057374 | 22 | ROR | Certified | B |
| 3 | Kalyani | Dontula | 9019514806 | 33 | .NET | Diploma | C |
| 1 | Amulya | Arshanapelli | 9618946367 | 44 | PYTHON | Advanced | B |
| 3 | Kalyani | Dontula | 9019514806 | 55 | ANGULAR | Advanced | A |
| 2 | Neeraja | Srisathya | 7337057374 | 66 | IOS | Certified | C |
| 1 | Amulya | Arshanapelli | 9618946367 | 77 | LINUX | Diploma | A |
| 3 | Kalyani | Dontula | 9019514806 | 88 | C++ | Diploma | C |
| 2 | Neeraja | Srisathya | 7337057374 | 99 | ORACLE | Certified | B |

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3NF:

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