

9/04/2020

(Computer Science) 2nd Year

Subject - 'DBMS'

Fifth Normal form (5NF)

⇒ A relation is in 5NF if it is in 4NF and not contains any join dependency and joining should be lossless.

⇒ 5NF is satisfied when all the tables are broken into as many tables as possible in order to avoid redundancy.

⇒ 5NF is also known as Project-Join Normal form (PJ/NF)

Example

Subject	Lecturer	Semester
Computer	Anshika	Semester 1
Computer	John	Semester 1
Math	John	Semester 1
Math	Akash	Semester 2
Chemistry	Praveen	Semester 1

In the above table, John takes both computer and math class for semester 1 but he ~~doesn't~~ doesn't take math class for semester 2. In this case, combination of all these field required to identify a valid data.

Suppose we add a new semester as semester 3 but do not know about the subject and who will be taking that subject so we leave lecturer and subject as NULL. But all three columns together act as a primary key, so we can't leave other two column blank.

So to make the above table into 3NF we can decompose it into three relations, P_1 , P_2 & P_3 .

P_1

Semester	Subject
Semester 1	Computer
Semester 1	Math
Semester 1	Chemistry
Semester 2	Math

P_2

Subject	Lecturer
Computer	Anshika
Computer	John
Math	John
Math	Aakash
Chemistry	Praveen

P3

Semester	Lecturer
Semester 1	Anshika
Semester 1	John
Semester 1	John
Semester 2	Akash
Semester 1	Praven

Prof

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