





CSE3103 : Database FALL 2020

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Third Normal Form (3NF)

- A relation is in 3NF if it is satisfied the following conditions.
 - It is in the Second Normal form.
 - And, it doesn't have Transitive Dependency.

Third Normal Form (3NF)

- Example Employee

emp_id	emp_name	emp_zip	emp_state	emp_city	emp_district
1001	John	282005	UP	Agra	Dayal Bagh
1002	Ajeet	222008	TN	Chennai	M-City
1006	Lora	282007	TN	Chennai	Urrapakkam
1101	Lilly	292008	UK	Pauri	Bhagwan
1201	Steve	222999	MP	Gwalior	Ratan

- emp_state, emp_city & emp_district dependent on emp_zip.
- emp_zip is dependent on emp_id.
- transitively dependent on super key (emp_id).
- This violates the rule of 3NF.

Third Normal Form (3NF)

- To make this table complies with 3NF we have to break the table into two tables to remove the transitive dependency:
- Employee_Info

emp_id	emp_name	emp_zip
1001	John	282005
1002	Ajeet	222008
1006	Lora	282007
1101	Lilly	292008
1201	Steve	222999

Third Normal Form (3NF)

- To make this table complies with 3NF we have to break the table into two tables to remove the transitive dependency:
- Zip_Info

emp_zip	emp_state	emp_city	emp_district
282005	UP	Agra	Dayal Bagh
222008	TN	Chennai	M-City
282007	TN	Chennai	Urrapakkam
292008	UK	Pauri	Bhagwan
222999	MP	Gwalior	Ratan

Third Normal Form (3NF)

Student

student_id	name	reg_no	branch	address
10	Akon	07-WY	CSE	Kerala
11	Akon	08-WY	IT	Gujarat
12	Bkon	09-WY	IT	Rajasthan

Subject

subject_id	subject_name	teacher
1	Java	Java Teacher
2	C++	C++ Teacher
3	Php	Php Teacher

Score

score_id	student_id	subject_id	marks
1	10	1	70
2	10	2	75
3	11	1	80

Third Normal Form (3NF)

we need to store some more information, which is the exam name and total marks, so let's add 2 more columns to the Score table.

score_id	student_id	subject_id	marks	exam_name	total_marks

Take out the columns **exam_name** and **total_marks** from Score table and put them in an **Exam** table and use the **exam_id** wherever required.

score_id	student_id	subject_id	marks	exam_id

Exam Table

exam_id	exam_name	total_marks
1	Workshop	200
2	Mains	70
3	Practicals	30

