
DATABASE

CSE3103 : Database

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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


DBMS
data
database
distributed
shared
parallel
architecture
DBMSs
system
systems
network
processing
performance
Distributed
DDBMS
memory
centralized
access
processors
multiple
sites
site
processor
Parallel
applications
computers
nothing
Shared
single
one
local
may
typically
fragments
major
require
physically
users
within
provide
sometimes
decentralized
disk
computer
stored
logically
number
bottleneck
application
management
transparent
interconnection
Figure
organizational
administered
technology
definition
development
nodes
logical
distinction
control
scalability
approach
improve
Database
also
replicated
make
large
disks
islands
resources
based
remote
defined
controlled
directly
Date
often
Management
global
collection
structure
incompatible
provides
associated
consists
least
used
must
System
capable
databases
mode
computing
split
order
scalable
architectures
referred
operational
communication
distribution
reliability
eliminates
across
fact
machines
like
many
discuss
per
makes
user
dis
partitioned
way
com