

DBMS lab Assignment

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Convert to 1NF

id	Name	Age	Location	Course
1	Sachin	22	Delhi	OS
1	Sachin	22	Delhi	DBMS
2	Ram	22	Jamshedpur	DAA
2	Ram	22	Jamshedpur	DBMS
3	Mike	23	Chennai	ML
3	Mike	23	Chennai	OS
4	Sameer	21	Bengaluru	DAA
4	Sameer	21	Bengaluru	ML
5	Vijay	22	Mumbai	ML
5	Vijay	22	Mumbai	DBMS

The table was not in 1NF as it contained multi-value attributes, eg. Course.

Since, it wasn't in 1NF, so cannot be in 2NF and 3NF.

Primary Key - Id

Candidate Key - Id, Name

Prime Attribute - Id, Name

Non-prime - Age, Location, Course

FD : $Id \rightarrow Age, Location, Course$

Q11)

The table is already in 1NF.

Not in 2NF and 3NF as functional dependencies

Primary — Id

Candidate — Id, Name, Phone, State.

Prime — Id, Name, Phone, State

Non-prime — Country

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2NF :

(i) It is not in 2NF as there is some partial dependency.

Emp-ID \rightarrow Name, Age

Emp-ID, Duty-shift-ID \rightarrow Duty-shift

Primary — Emp-ID

Candidate — Emp-ID, Duty-shift-ID

Prime — Emp-ID, Duty-shift-ID

Non-prime — Name, Age, Duty-shift

Table 1

Emp-ID	Name	Age
101	Arun	26
102	Bobby	28
103	Suresh	32
104	Sita	24

Table 2

Emp-ID	Duty-shift-ID	Duty-shift
101	1	Morning
102	2	Afternoon
103	3	Night
104	1	Morning

(ii) Not in 2NF as it has partial dependency.
 Emp-ID \rightarrow Name
 Emp-ID, Project-ID \rightarrow Project Name, No. of hours

Primary — Emp-ID

Candidate — Emp-ID, Project-ID

Prime — Emp-ID, Project-ID

Non-prime — Name, Proj-Name, No. of hours

Table 1.

Emp-ID	Name
123	Ajay
321	Chame
546	Rajesh
765	Abhishek

Table 2

Emp-ID	Project-ID	Proj-Name	No. of hours
123	Proj-21	Speech System	10
321	Proj-45	HR System	15
546	Proj-24	Automate Tickets	23
765	Proj-11	NLP	16

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3NF ::

(i) Table is not in 3NF as there exists transitive dependencies between { Cust-address } and { Cust loc } on a non-prime attribute { Cust postcode }.

Cust-Id	Cust-Name	Cust-Postcode	Cust-PostCode	Cust-loc	Cust-Add
25	Dell	560057	560057	Bangalore	Whitefield
45	Lenovo	560048	560048	Bangalore	Marathahalli
.	Acce	210067	210067	Mumbai	Bandra
70	Samsung	4500078	4500078	Delhi	Delhi central

Primary — Cust-ID

Candidate — Cust-ID, Cust-Post Code

Prime — Cust-ID, Cust-Postcode

Non-prime — Cust-Name, Cust-loc, Cust-address

(ii)

This table is also not in 3NF as there exists transitive dependency.

Primary — Building

Candidate — Building, Contractor

Prime attributes — Building, Contractor

Non-prime — Bidder, Fee

Building	Contractor	Bidder	Contractor	Fee
B-2156	Taylor	Beshige	Taylor	2567891
B-8765	Sandeep	Kiranadani	Sandeep	3567356
B-4567	Vishaka	Tata	Vishaka	4567990