

DBMS assignment

Topic :- Normalization

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- 1) 2) This table is not in 1NF, because in the "course" column it has multiple values. But for a table it has to be in 1NF then it must have to contain only atomic values at each row and column.

Here the attribute "Id" is the primary key and the candidate key. the attributes "Name", "Age", "Location", "course" are non prime attributes, "Id" is the prime attribute.

Converted Table :-

ID	Name	Age	Location	Courses
1	Sachin	22	Delhi	OS
1	Sachin	22	Delhi	DBMS
2	Ram	22	Tamshedpur	DAA
2	Ram	22	Tamshedpur	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 Above table is in 1NF

Q.2.1,

The table 2.1 is not in 2NF Because it is not fully functional independent as,

Emp-ID \rightarrow Name, Age

Emp-ID, Duty-Shift-ID \rightarrow Duty-Shift

Primary keys \rightarrow Emp-ID

Candidate keys \rightarrow Emp-ID, Duty-Shift-ID

Prime attributes \rightarrow Emp-ID, Duty-Shift-ID

non prime \rightarrow Name, Age, Duty-Shift

Converted Table :-

Table 1 :- Emp-ID

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

Table 2 :- Duty-shift-ID

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

* Table 2.2

The Table 2.2 is not in 2NF because it is fully functionally independent as,

Emp-ID \rightarrow Name

Emp-ID \rightarrow project-ID \rightarrow project name, no-of-hours

Primary key \rightarrow Emp-ID

Candidate key \rightarrow Emp-ID, project-ID

Prime attribute \rightarrow Emp-ID, project-ID

Non-prime attribute \rightarrow Name, project-name,

no-of-hours

Converted Table :-

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

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

3)

Table 3.1

Primary key \rightarrow cust-ID

Candidate key \rightarrow cust-ID, cust-Name, cust-Post code, cust-address

Prime attribute \rightarrow cust-ID, cust-Name, cust-Post code, cust-address

Non-prime \rightarrow cust-loc

Table 3.2 : { Here there exist transitive dependency, so it is not in 3NF }

primary key \rightarrow building

Candidate key \rightarrow building, contractor, builder, fee

Prime attribute \rightarrow building, contractor, builder, fee

Non-prime \rightarrow -

The table for 3NF would be

Building	contractor	builder
B-2156	Taylor	prestige
B-8765	Sandeep	Hiranandani
B-4567	Vishaka	Tata

Contractor	Fee
Taylor	2567891
Sandeep	3567356
Vishaka	4567990