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19BCS039

APRIL 08
Wednesday
099-267 • Week 15

DBMS Assignment

1.) The table is not in INF because the attribute courses contains more than value for eg.) ID-1 courses → 'OS', DBMS'. So as it is not in INF it can't be in 2NF & 3NF.

Converted Table

ID	Name	Age	Location	Courses
1	Sachin	22	Delhi	OS
1	Sachin	22	Delhi	DBMS
2	Ram	22	Jamsedhpur	DAA
2	Ram	22	Jamsedhpur	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 INF.
- Prime attributes → ID & Name
  Non-Prime → Age, location, Courses.
- FD → ID → Age, location, Course.

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S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

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• FD → Id → Age, Location, Courses.

The second table Provided in the question is already in INF So no need to convert.

Table 1:>

Primary key :- Id
Candidate key :- Id, Name + location
Prime Attributes :- Id, Name, location
Non-prime :- Age, course

Table 1.2
Primary - Id
Candidate - Id, Name + Phone, State.
Prime - Id, Name, Phone, State
Non-Prime :- Country.

Table 2:1
Primary - Emp-Id
Candidate - Emp-Id, Name, Age
Prime - Emp-Id, Name, Age.
Non-Prime :- Duty-shift-Id, Duty-shift.

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Table 2.2 :-

Primary :- Emp_Id
Candidate :- Emp_Id, Project_Id, Name, Proj.-Name
NO_of_hours
Prime - Emp-Id, Project_Id, Name, Proj_Name,
No_of_hours.

Table 3.1

Primary - Cust_Id
candidate :- Cust_Id, Cust_name, Cust_Postcode,
Cust_address

Prime - Cust_Id, Cust_Name, Cust_postcode, Cust_address

Non-prime :- Cust_loc.

Table 3.2

Primary - Building
Candidate - Building, contractor, Builder, Fee.
Prime :- Building, contractor, Builder, fee.
Non-prime :- -

Ans 2.) The table 2.1 is not in 2NF because it is not fully functionally independent as

Emp Id → Name, age

Emp, DutyShift Id → DutyShift

Converted Table

Table - 1

Emp_Id	Name	Age
101	Arun	26
102	Bobby	28
103	Suresh	32
104	Sita	24

Table - 2

EmpId	DutyShiftID	Duty
101	1	Morn
102	2	After
103	3	Nigh
104	1	Morn

Table 2.2 is not in 2NF because it is not fully functionally independent as:-

Emp Id → Name

Emp Id, Project_Id → Project_Name, no. of hours

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Table - 1

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

Table - 2

Emp_Id	Project_ID	Proj Name	No_of_hours
123	Prj_21	Speech Systems	10
321	Prj_45	HR System	15
546	Prj_24	Automate Tickets	23
765	Prj_11	NLP	16

Ans: Table 3.1 not in 3NF there exits transitive dependancies between {cust_address} & {Cust_loc} on a non-primary key which is {cust_postcode}

3NF would be

Cust_Id	Cust_Name	Cust_Postcode
25	Dell	560037
45	lenovo	560046
89	acer	210067
90	Samsung	450078

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Cust_Postcode	Cust_Loc	Cust address
560057	Bengaluru	Whitefield
560048	Bengaluru	Marathahalli
210067	Mumbai	Bandra
450078	Delhi	Delhi Central

Table 3.2
3NF would be :-

there exists transitive dependency so it is not in 3NF.
contractor → Fee

There should be no transitive dependancy in 3NF
Building → Primary key

{contractor builder fee} → non prime attribute

3NF would be

Building	Contractor	Builder
B - 2156	Taylor	Prestige
B-8765	Sandeep	Hiranandani
B-4567	Vishaka	Tata

Primary key - {Contractor, Fee}

Contractor	Fee
Taylor	2567891
Sandeep	3567356
Vishaka	4567990