Name - Anuj Sudhir Kulkarni

Reg. no. - 19BCS012

DBMS Assignment

(1) Convert to 1nf

(a)

—>

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	DSMS

- The table was not in 1nf because it had more than one entries in "course".

Scanned with CamScanner

- Primary keys : {Id}

Candidate keys : {Id}, {Name, location, Age, Course}.

- Prime attributes : Id.

Non-prime attributes : Name, location, Age, course.

- Transitive dependency is not necessary since all tuples can extracted using 'Id' itself.

- Partial dependency : Since we cannot determine all other attributes using name or course or age or location attribute, it makes the relation partially dependent.

1.

(b)

ID	Name	Phone	state	country
1	Kailley	9716245698	Karnataka	INDIA
2	Janet	9876543261	Maharashtra	INDIA
3	Robert	9456735678	Andhrapradesh	INDIA
4	Thomas	9966744381	Kerala	INDIA

- The table is in 1nf already.
- Primary keys : {ID}, {Phone}

Scanned with CamScanner

- Candidate keys: {ID}, {Phone}, {Name, State}
- Prime attributes: ID, Phone.
  Non-prime attributes: Name, State, country.
- Transitive dependency: Here transitive dependency is exhibited as a non-prime attribute ~~State~~ Country is dependent on another non-prime attribute: State.
- Partial dependency: Since we cannot determine all the attributes using name or state or country, there exists partial dependency too.

(2) (a)

→

Table 1

Emp. Id	Name	Age
101	Arun	26
102	Bobby	28
103	Suresh	32
104	Sita	24

Scanned with CamScanner

Table 2

Emp-Id	Duty Shift - ID	Duty-Shift
101	1	Morning
102	2	afternoon
103	3	night
104	1.	morning.

- Primary key : {Emp-Id}
- Candidate key : {Emp-Id},
~~{Emp-Id, Duty shift-ID}~~
{Name, Age}
- Prime attributes: Emp-Id.
- Non-prime attributes: Name, Age, Duty-~~Id~~shift Id, Duty-shift.
- Transitive dependency :-
Since a non-prime attribute (Duty-shift) is dependent on another non-prime attribute (Duty-shift Id), there exist transitive dependency.
- Partial dependency :-
Since we cannot determine other attributes using Name, Age, duty_shift duty Id. Hence partial dependency exists.

Scanned with CamScanner

(2) (b)

→

Table 1

Emp_Id	Name
123	Ajay
321	Charu
596	Rajesh
765	Abhishek

Table 2

Emp_Id	Project_Id	Project_name	no. of hours
123	Prj-21	Speechsystem	10
321	Prj-45	HR system	15
596	Prj-24	Automate tickets	23
765	Prj-11	NLP	16

Primary key :- {Emp_Id}, ~~{project_Id}~~

Candidate key :- {Emp_Id}, {project_Id}

Prime attributes :- Emp-Id, Project_Id.

Non-prime attributes :- Name, project_name, no. of hours.

Transitive dependency :- does not exist.

Partial dependency :- Exist as we cannot determine all other attributes from Name and no. of hours.

Scanned with CamScanner

(3) (a)

Table 1

Cust_Id	Cust_Name	Cust_Postcode
25	Dell	560037
45	Lenovo	560046
89	Acer	210067
90	samsung	4500078

Table 2

Cust_Postcode	Cust_Address	Cust_loc
560037	Whitefield	Bangalore
560046	Marathahalli,	Bangalore
210067	Bandra	Mumbai
4500078	Delhi central	Delhi

Primary keys: {Cust_Id}
{Cust_Postcode}

candidate keys: {Cust_Name, Cust_Postcode}
{Cust_Address, Cust_loc}
{Cust_Id}
{Cust_Postcode}.

Prime-attributes: Cust_Id, Cust.Postcode

Non-prime-attributes: cust_Address, cust_loc.

Transitive dependency exists b/w cust_address cust_loc.

Scanned with CamScanner

Partial dependency :- Since we cannot determine all other attributes from cust_loc, there exists partial dependency.

(3) (b)

→ Table - 1

Building	contractor	Builder
B_2156	Taylor	Prestige
B_8765	sandeep	Hiranandani
B_4567	Vishaka	Tata

Table-2

contractor	Fee
Taylor	2567891
Sandeep	3567356
Vishaka	4567990

Primary keys :- {Building}, {Contractor}

Candidate keys :- {Contractor, Builder}, {Contractor, Fee}, {contractor}, {Building}.

Prime attributes :- Building, Contractor,

Non-prime attributes :- Builder, Fee.

Transitive dependency :- B/W contractor & Builder.

Partial dependency :- B/W contractor & fee, etc.

Scanned with CamScanner