PANASA TEJA   B191143CS

DBMS ASSIGNMENT 5

User_reg Table

User_id(A)	D.No(B)	Street(C)	Pincode(D)	Email(E)	Company name(F)	Name(G)
B0001CS	12-80	ABC	543425	abc@gmail.com	Google	Akesh
B0002CS	54/96	XYZ	854126	teja@gmail.com	Google	Teja
B0003CS	69/88	DEF	564789	jack@gmail.com	Google	Panasa
B0004CS	25-96	HEF	584682	mack@gmail.com	Google	Mackesh
B0005CS	45-75	IJK	426341	pack@gmail.com	Google	Packesh

From the above
F.D={User_id → Email, D.No → StreetPincode, (NameEmail) → Company name, (D.NoStreetPinCode) → Name, User_idD.NoStreet → Company name}

The above User_reg table **Is not in 1NF because of Redundancy and duplicates (Company name)** to avoid this make a separate table for this with foreign key as User_id and remove in the original table

User_id	D.No	Street	PinCode	Email	Name

User_id(F.K)	Company name

Now the above table is in 1NF, We will check for 2NF :
F.D={A → E, B → CD, EG → F, BCD → G, ABC → F}
The Candidate Keys are: AB+={A,B,C,D,E,F,G} uniquely identify so
Prime Attributes={A,B}   Non Prime Attributes={C,D,E,F,G}

Now we will check for partial dependency for above F.D, If it exists a partial dependency then it is not in 2NF
A → E (proper subset of Candidate key will determine non-prime attributes

Server Name

Manager_id(A)	User_id(B)	Hash(C)	Transactions(D)
M000001G	B0001CS	#1245	Monday
F000001G	B0002CS	#abcd	Tuesday
M000002G	B0003CS	#456	Wednesday
M000003G	B0004CS	#6969	Friday
F000002G	B0005CS	#541	Saturday

This is in 1NF Because no composite attributes, multi valued attributes and No Duplicates
Now we need to check whether it is in 2NF or not, so the F.D for above table is

F.D={ AB→ CD, C→A, D→B}

The Candidate keys are: AB, BC, CD, AD   Uniquely identify so
Prime attributes: {A, B, C, D}   Non Prime Attributes={ }
So there are no NPA then it is in 2NF, Now we need to check for 3NF
For 3NF one of the conditions need to be satisy for all F.D's
(I) L.H.S is super key   (ii) R.H.S is Prime attributes
AB→CD   - (I)
C→A   - (II)
D→B   - (II)

So above conditions are satisfied by all the F.D then it is 3NF

Details Table

User_id(A)	Manager_id(B)	Login Credentials(C)
B0001CS	M000001G	Monday, Tuesday, Wednesday
B0002CS	F000001G	Tuesday, Thursday, Friday
B0003CS	M000002G	Monday
B0004CS	M000003G	Wednesday, Thursday, Friday
B0005CS	F000002G	Monday, Wednesday, Saturday

The above tables consists of multi valued so it is not 1NF, reduce it to 1NF by removing multi valued attribute

User_id	Manager_id

Login Credentials

User_id	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

Now this is in 1NF Because no composite attributes, multi valued attributes and No Duplicates

Now we need to check for 2NF
F.D={A→C, B→A, CA→B}

C.K={A, B}

P.A={ A, B}   N.P.A={C}

If Candidate keys are single attributes then it is in 2NF

Now we need to check for 3NF one of the above 2 conditions need to satisfy as above mentioned

A→C − (I)

B→A - (I)

CA →B − (II)

So the above F.D is in 3NF form

Permission Table

Hash(A)	User_id(B)	Value(C)
#1245	B0001CS	1
#abcd	B0002CS	0
#456	B0003CS	0
#6969	B0004CS	1
#541	B0005CS	0

From the above table its consists of duplicates so reduce it by making another table

Hash	User_id

Hash	Value

Now it is in 1NF , we need to check for 2NF

F.D={ AB→C, A → B}

C.K ={ A}

P.A ={ A}   N.P.A= {B ,C}

If Candidate key is a single attribute then the F.D is in 2NF , Now we need to check for 3NF

AB→C − Not satisfying any of the two conditions so, it is not in 3NF

File Table

Hash(A)	File name(B)	Size(C)	Modified-date(D)
#1245	1.txt	120.0kb	24-09-2021
#abcd	2.txt	15.5kb	25-09-2021
#456	3.txt	1.00GB	23-09-2021
#6969	4.txt	500.00Mb	15-09-2021
#541	5.txt	250.00Kb	28-09-2021

 For the above table the column of Modified-date has duplicate values which is redundancy so avoid this by spilt into another table

Hash	File name	Size

Now it is in 1NF , check for 2NF
F.D={A → BC, B → ACD, D → AB}

C.K ={ A, B, D}

P.A ={ A, B, C, D}   N.P.A={}

So if Candidate are single attributes means then it is in 2NF, Now we need to check for 3NF
All the left Side are Super keys then it is in 3NF as well as BCNF which is highly stable form

Manager Table

Manager_id(A)	User_id(B)	Hash(C)
M000001G	B0001CS	#1245
F000001G	B0002CS	#abcd
M000002G	B0003CS	#456
M000003G	B0004CS	#6969
F000002G	B0005CS	#541

Above Form is in 1NF , as per no redundancy and no duplicates, no Composite Attribute
Now we need to check for 2NF
F.D={ A → C, B → A, C →AB, CA → B}

C.K= { A, B, C}

P.A ={A, B, C}   N.P.A ={}

So the above form is in 2NF , Now we need to check for 3NF

So all the left hand side are Super keys so it is in 3NF, as well as BCNF

User_login

User_id(A)	User_name(B)	Password(C)	Initiation-date(D)
B0001CS	Jack	@#$13	24-09-2021
B0002CS	Teja	!#$hj%	25-09-2021
B0003CS	Kutty	Doct@$	26-09-2021
B0004CS	Nikhil	Best Kothi@123	27-09-2021
B0005CS	Jogi	*****&^	28-09-2021

Above Relation is in 1NF , So we need to check for 2NF
F. D={A →B, B →C, A → D, BC → A}

C.K={ A, B}

P.A ={ A, B}   N.P.A={ C, D}
So above relation is in 2NF , Candidate keys are single attribute, Now we need to check for 3NF

$A \rightarrow B$ -   (I)
$B \rightarrow C$ -   (I)
$A \rightarrow D$ -   (I)
$BC \rightarrow A$ -   (II)