	Name: Lakhan Rumawat
	Roll No: 1906055 Bounch: CSE1
	Course: Dakabase Management Systems
	Couose Code: CS5401
	Date: 01/12/2021
	· · · · · ·
&olytion	$1\rangle a\rangle$
~~	ODIPlayers (PID, Lincime, Country, teams, Heams, MTD, (P.) (L) (C) (Ti) (T2) (M)
	(Pi) (L) (C) (11) (12)
	Date Good Noons, Nwickets, Yourn, Place (D) (G) (Nr) (Nw) (Y) (P)
	$(D) (G) (N_R) (N_W) (Y) (P)$
	The second secon
	2 7 7 2 M D° 6 Nr Nn Y.P)
	ODI Players. (P; L, C, I, T2, M, D; G, Nr, No, Y, P)
	in the state of th
	Functional Dependencies
	Pi->L
	$\rho_i \rightarrow c$
	$M \rightarrow T_1$
	$M \rightarrow T_0$
	$\rho_i \rightarrow \gamma$
	$\rho_i \to \rho$
	$M \rightarrow D$ $M \rightarrow G$
	$\rho_{:}M \rightarrow N_{z}$
	P:M → No
	(P:M) Should be past of key because these keys are clearized by any functional dependency
	(P: M) should be functional dependency
	clearized by my

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Find ing closure of P: = Pit Pitc PINY PiAP $\rho_i \rightarrow \rho_i$ So Pi= & L,C, Pi, Y, P3 Similarly M > M (toivial property) are closuse of Manto to annual start on = oft, To, D,G, M) a supl (P; M) = & P; M,C,L,T, To, Y, P, D, G, No, No) Closuse of (Pi,M) devive all the attributes, So- it Should be key. (P; M) -> Candidate keys. Poime attainutes = { P; M} Non paime attaibutes = { L, T, T2, C, Y, P, D, G, No, No } Assuming all attributes code non-composite and not multivalued attributes

tables will be in 1st Normal form.

ODI players (P, L, T, Tz, M,D, G, No, Nw, P, Y) (P:, T,, T2, M, D, G, No, No) (Pi, L, Y, C, P) It is not in 2NF It is in 2NF (Pi, M, No, Nw) (M,T, T2, D,G2) So assuming of (a) post is (PID, MID) Player (PID, I name, Ybom, Place, Country) ODI (MID, Teams, Teams, Date, Ground) Performance (PID, MID, Nous, Nwicker) We can becover the original tables by taking natural Jain of all those tables how was challe to the born of

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X - X
Solution 1> b> Employee (Name, project No, Emp id, Marks)
fur Sake of Convinience;
John A. donatas neuma
B Project No.
Control Compile
D " Maaks
R Elenotes Jelation Employee
R (A, B, C, D)
Functional $\rightarrow AB \rightarrow D$, $BC \rightarrow D$, $A \rightarrow C$, $C \rightarrow A$, dependency,
$(AB)^+ = SABDC3$
$(AB)^{+} = \{A,B,D,C\}$ \downarrow toivial Above dependency key
AG OIL COMBINE
be key
R (ABCD)
$AB \rightarrow D$ $BC \rightarrow D$ $D \rightarrow C$
$-\frac{1}{1}$
AB -D, BC -D -A -C C -> A Pasticl dependency (not in
2NF)

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$/ (A)^{+} = \{A, c\}$
RCABD)
$AB \rightarrow D$ $Vey$ $A \rightarrow C$
So in $2NF \rightarrow because No$ $C \rightarrow A \longrightarrow Non prime$
pormany atto A holds paine
Non. " atto > C
To SUF - INC in Supply
FOX 3 NF , if X-Y
In BCNF → LHS is super key then i> gither X → Super key
ii> Else Y -> poime alto.
SO R, (AC) is in 3NF.
for a binary relation it
· D · la · la ha
R (BAC) is in BCNF because for a binday retailor in BCNF. LHS of C-A is not primary Isuper key will be always in BCNF.
will be always in BCNF.
So, Employee (Name, project No, Emp Id, Maoks)
30, chiprojet (Nut
R ₂ ( Name, Emp Id)
P, (Name, PayectNo, Marks) R2 ( Name, Emp 10)
Functional dependency preservation helds after we merge R, & R2 for Name - Empid.
Functional dependency pourid
R, & R2 108 Name - compile.

	Name: Lakhan Rumawat  Roll No: 1906055  Branch: CGE-1
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1.12.4 0	vehicle Creg. no, make, color)
olution 2)	person (eno, name, address)
	owned (eno, seg-no)
1.1	age [overy]
rain ?	Solvet eno came regino, from person, owner where
	peoson eno = van eno and peoson name = "Haxi";
	MAN THE STANK STANK
	overy tree: (Basic tree)
January / January /	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
the mi	TT (eno, name, deg. no)
1.	
	person, eno = own, eno
ý	person paime = "Hari"
	with the same of t
1	(Deason) (Owner)
,	now, (Apply destaictive)
	Select operator)
	T (eno, name, deg.no)
	Person. eno = oun. eno
	X
	(Ownex)
Pess	300. name = "Hasi"
Ý	PeoSon

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Solu Hio	on. (b) Now query efficienty using heusist	tic cippioach.		
	T (eno, name, sey.no)	Step 2		
		Moving select operator		
	6 person.eno= Owner.eno			
	Peason-name="Hadi"	Tileno, neume, deg. no)		
	Jounes	o person eno = ouner eno		
	(peoson)			
	M.			
	peoson name = "Hari"			
	T T T T T T T T T T T T T T T T T T T			
	.6			
	(Peo Son)			
	Now Replacing Cartesian Product Wi	ith Join operator		
	TT (eno, name, teg.nu)			
	L			
	pessone no=	OWNES.ENO		
	no Huesti I			
	pesson.name= "Harri" (owner)			
	6			
	(pexson)			