A Relation, R is in 3NF if it satisfies 2NF and no non-prime attribute of R is transitively dependent on key of 'R'

For 3NF: Relater munt be in 2NF and no transitive Dependency

02

A Relation in in 3NF of FD: X->7 waterly ony one of the following condition.

(i) X->Y & a trivial fD ie YEX, AB->A

(ii) yx > y men x'n a wperkey, AD > E

(iii) of x >> 1 then (4-X) in a prime attribute

but not in X

AD in a Key

(D)- (C) = (D) 3N2 con2h. wehnth

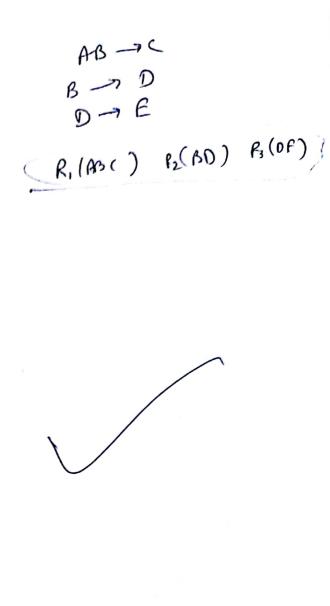
Solved Examples Q2 R(ABCDE) QIR(ABC) 0) f: (AB > c, B > D, D -> E { F: { A > B, B > c} Decompose 1+ into 3NF find in which wound from 1 find condidt key 2 find the candidate key (AB)+: {ABCDE} (A) : {ABC} Candamirty: it is 3 WF CK: A it is minim as well $B \rightarrow D \times$ A > B 1At worder root Time D-JE X 2ne Condton True Put all the attributes of FD'nin .. It in in 3NF one relater which are in 3NF Ist False & those who doesn't ratify 2nd falr Put them in anothe Julitian RIABC) PL(BD) P3(DE) (Y-CX) = (B)- [C] = B Non Prine it in not in 3NF (Q3 R(ABC) Which NF {AB->c,c->A} (AB) = { ABC} (B() = { B(A) AB -> C .: 3NF B(-> A : 3NF

Steps to Decomposin ONF

- (1) Eliminate Redundary FD and Maria Commiscale core of Fie Fe
- (2) Orch a Relation Risk for each X-> Y
- (3) If the Key, K of R doesnot occur in any relat of Ri, Cret on more relation Ri=K.

3NF R(ABODE) AB-> C, B-> D D. > E (AB) = (ABODE) CK AB-> C 3NF BJ D Not Key Non Prime . ". Not in Baf D. > E Not reg Not in 3NF R(ABC), $R_2(BD)$, $R_3(DF)$

RI (BD), RI (ABCE)



Qs 2nf on AB-> C -BC -D (AB) = {ABCD} (BC)'= {BCD} BI -D in partial dependen R2 (BCD) RI (ABC) AB-> (BC -D ~ R(ABCDEFGHIJ) AB OC, BD OEF, ADOGN, AOI, HOJ (ABD) = (ABODEFGHIJ) AB -> C X Not in 2NF ; of Park Defa. RABOLIGHIJ) P3 (ABDGNIJ) P2 (BDEF)-P3 (ADGA)~ Ry (ABDIJ) RS (AI) /RE (ABDJ) Ro(hJ)

Boyce - Cold Normal form (BINA) 2 Exterior of 3NF on Struct term A Relation in in BCNX if aftern one of the condition hold: - (i) X -> y is a trivial fD (11) X -> 7 then X in a ruperkey from Bonf in a 3 Nf by vice vene in not thre R(ABC) Rinm 3NF R(ABC) f: {AO→C,C→A} AB-> C (AB) = { AB(} CAA (B() = {AB() Pid -> Cname, Lott, Amen Suborky C: 1+ in 3NF Chame, Lot# -> Anen, Piz Anei - Chame (-> A . . it is 3,NF but not in Benef QI K(ABC DE FGMIJ) P.2 -> Are, Lot# BCNF Aner - comme (AB-OC, A7Df, B-)f Student, com - inhust F-1GH, D-TJ) (AB) = (ABIDEFGNIJ) instacta - course AB, -> C : it " BENE RICABO) Pr (DEFGHIJ)

for Gn,

De comporte of Bent Question on R (ABCDE) F: {AmBC, cmDE) A+ = [ABCDE] Condidate Key B+ = B C + =CDE D+= E+ E Look at lat FD A > BC .: in BCNF CIP DE C'in not leay .. It in not in Bent The Violate BENF Now creak two Scheman, on who attituded Violating FD, and other with original attributed minus the RMS of violaty FD (ABCDE)-DE(= ABC) R(AB() R₂ (CDE) Attach of wolch LA in Atil legy C rx ky

R(ABOD) F: { AB -> C, B -> D, C -> A) Fire of all find to closur of all arm A+ = A $C^+ - CA$ $D^+ - D$ SAB+ - ABOD ? CK IBC - ABC D? CKI Check FDn one by one ABJOC SA IN Key , .. It in in BONF B'in not in C.K . . it violate BCNF Creek two relation All outable - Rhs of Tone with Violety R2(BD)
Bin Key: it is BOMF R, (ABC) AB 'S Ky Breik it R1 (ABC) P2(BD)
3 NF R1(BC) R3(CA) R2(BD) L__ BONF, NOT FD Preserving