CS & IT



ENGINERING

Database Management System FD's & Normalization

DPP - 07 Discussion Notes



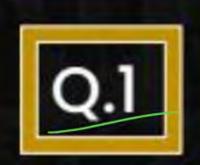
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TOPICS TO BE COVERED

01 Question

02 Discussion



Consider the following two relational schemas



Schema 1: R (P, Q, R, S) P-D, R-S [PR] - (PARS)

Not in 2NT

Schema 2: R1(P, Q, R) R2(Q, S) and the following statements.

P-) Q P-) R Q-> P

P-15

S1: If the only functional dependencies that hold on the relation in the schema 1 are $P \rightarrow Q$, $R \rightarrow S$, then relation R is in BCNF. $\longrightarrow False$

S2: If the only FD that hold on the relation in the schema 2 are $P \rightarrow Q$, $P \rightarrow R$, $Q \rightarrow P$, $P \rightarrow S$ then the relation R1 and R2 are in BCNF. $\longrightarrow \neg \square \square$

Which of the following statements are true?
Only S1 is true

ARRIVED BY Only S2 is true



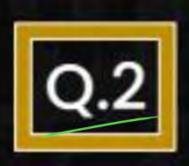
Both S1 & S2 are true



Neither S1 nor S2 are true

RI Par) R2(QS) [P-Q,P-R, U-P, P-S] PI (PAR) (P)- (PQR) BINF

R2 QS (D) (D) (D) R2 IS BCNF



Assume that a relation is in 3NF under which of the following conditions R can violate BCNF?





The table consists two candidate keys that share a common attribute.



The table consists of two non-overlapping candidate keys.



The table has a unique candidate key consisting of one attribute.



The table consists of two candidate keys each consisting of one

attribute.

R(AB) [A>B, B>A)
A, B is Candidate ky

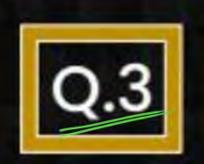
R(ABCD) [AB-CD, D-A) Condidate lægs = [AB, DB] YES HS IN BINF Ret NOTINE ROLLE

Dis Not Superkay

X Super Key

AB+10; AB X: Super legy J. Prime Attorbute

KLX



Consider a relation R(P, Q, R, S, T, U, V, W) with the



following functional dependencies: $P_{\text{oine}} = (\tilde{S}, \tilde{P}, T, U, \tilde{g})$

 $\{RW \rightarrow V, P \rightarrow QR, Q \rightarrow RUW, T \rightarrow P, U \rightarrow TV\}$, then the

relation R is in _____. (P) (PQRUWTV)



1NF

2NF

PAR QAU [PS] = [PQRSTUVW]
PS is CK [PS]



3NF



Q-W

US is C.k -(3)

TS is C.K (-(2)

Q -> RUW

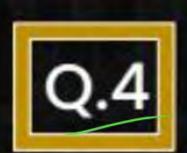
QS is CK -(4)

D.

BCNF

Propelsubjet -> Non loay Postial Dependency

Non key Attribut = [R, V. W]



Consider the following statements



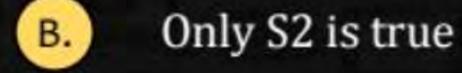
81: If the proper subset of candidate key determines nonprime attribute, then it is known as partial dependency.

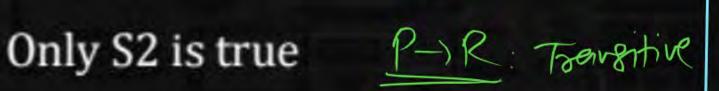
82: If P→Q and Q → R are two FD's then P → Q is known as transitive dependency

Which of the statements are/is true?



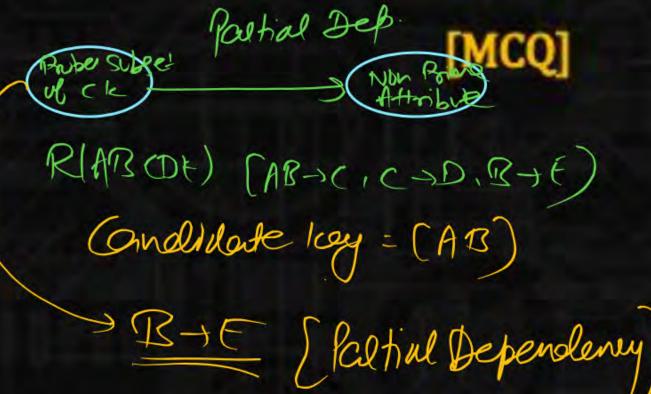
Only S1 is true PAR. QAR

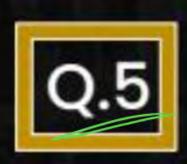












Consider the following statements about Boyce - Codd Normal [MCQ]



S1: The determinant for each functional dependency must be a super key.

82: Transitive dependencies does not result in abnormalities

in a relation in BCNF.

A. Only S1 is true

B. Only S2 is true

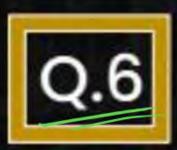
Both S1 & S2 are true

Neither S1 nor S2 are true

determinant BCNF

SOLVE

X: Super key.



Consider a table/Relation R has one candidate key, then which of the following is always true?





If R is in 2NF, then it is also in 3NF.



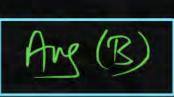
If R is in 3NF, then it is also in BCNF.



If R is in 2NF, but it is not in 3NF.



None of the above.



R(ABC) (A-3B, A-3C)

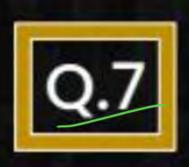
Candidate key = [A)

Risin 3NF & B(NF Both

X > y X: Super key

RIABODE) [AB > (, C. 50, R-5E) Condidate key: = (AB) R-F. Postal Dep Not in 2NF (Read the option care buly)





Let's suppose, dependencies have to be preserved and BCNF decomposition is not possible. Which of the following normal forms can be still achievable (while preserving dependencies)?



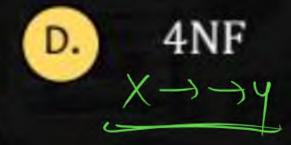
1NF



2NF



3NF

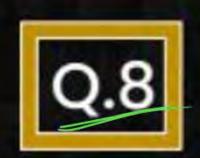


Lossless Join

Dependancy

INF 2NF RONF

May/May
No.



Consider a relation R(P, Q, R, S, T) with the set of FD's



 $\{PQR \rightarrow ST \text{ and } T \rightarrow QRS\}$ which of the following statements is

true?



F: [PQR ->ST, T->QRS]



R is not in 2NF



B. R is in 2NF but not in 3NF

PQR is C.K.



R is in 3NF but not in BCNF

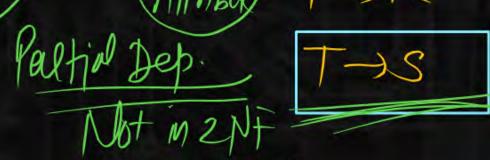
Non/cey Attrible - [S]

Proper subset

R is in BCNF $T \rightarrow QRS$

T->R

PTISCK 2



Arg (A)



