31 Jan 2024 - DBMS-II - Week 04

Quiz 2

1. ✗

$R1(ADE)$ $R_2(ABC)$

(b) $R_1 \cap R_2 = A$ $A^+ = \{ABCDE\}$

(c) ABCE BD

$R_1 \cap R_2 = B$ $B^+ = \{BD\}$

B must uniquely identify both

(d) ABC CDE

$R_1 \cap R_2 = C$

$C^+ = \{CDEAB\}$

2.

$A \to BC$

$A \to D$

$D \to CB$

$A \to BD$

$D \to CB$

$A \to D$

$D \to CB$

3.

$A \to BC$

$C \to DE$

$B \to D$

$E \to B$

$A \to BC$

$C \to DE$

$\cup$

ABC

$A \to BC$

$B \to D$

$E \to B$

$A \to BC$

$C \to DE$

CDE

GDE

4.

ABC

$A \to BC$

CDE

$C \to DE$

$A \to ABCDE$

$D \to B$

$E \to A$

$E \to B$

$E \to$

5.

$A \to BC$

$B \to D$

$C \to DE$

* There can be multiple canonical covers for a set of functional dependency F.

Doubt:

→ If a decomposition fails BCNF or 3NF, it does not mean the decomposition is lossy.

Next class:

Testing for BCNF

$R(ABCDE)$

$F: A \rightarrow B, D \rightarrow CD$

R_1 R_2

BCNF check: $\underbrace{\alpha}_{\text{superkey}} \rightarrow \beta \in F^+$

How to check if R_2 is in BCNF ?

→ you will need restrictions.

⇒ you will need calculate F^+

→ next class : avoid F^+.