CHAPTER 8
DISCUSSIONS 3

Discussion 8-10

Consider the following set *F* of FDs on the relation schema *R*=(*A*, *B*, *C*, *D*, *E*, *F*):

$$F = \{ A \rightarrow BC,\ \ C \rightarrow F,\ \ BF \rightarrow DE \}$$

Suppose *R* is decomposed into

R1=(A, B, C, F) & *R2=(B, F, D, E).*

a. What are the *restrictions* of *F* to *R1* and to *R2?*
b. Is this decomposition *dependency preserving*?

Discussion 8-11

Why is *dependency preservation* desirable?

Discussion 8-12

Give a BCNF decomposition of *student* that is both *lossless-join & dependency preserving*.

student(name, dept, college)

F = {name → dept , dept → college}

Discussion 8-13

What are the super keys and candidate keys of the following schema *R*? Is *R* in BCNF? Is *R* in 3NF?

$R(A, B, C)$

$F = \{A, B \rightarrow C , \quad C \rightarrow B\}$

Discussion 8-14

Formally define BCNF and 3NF. What are their differences?

Definition: A relation schema *R* is in *BCNF* (*3NF*) with respect to a set *F* of FDs if