

Normal forms and decomposition

Definitions:

Normal forms, decomposition, lossless, lossy, dependency preserving, non dependency preserving

Tabular method for CK

Attribute set closure

2 step lossless BCNF decomposition

Exercises

Find the BCNF decomposition of the following schemas

1)

$R(A, B, C, D, E, G)$
 $F = \{ A \rightarrow BG, C \rightarrow D, CD \rightarrow E, G \rightarrow E, C \rightarrow E \}$

2)

$R(P, D, M)$
 $F = \{ PD \rightarrow M, M \rightarrow D \}$

3)

$R(A, B, C, D)$
 $F_1 = \{ C \rightarrow D, C \rightarrow A, B \rightarrow C \}$
 $F_2 = \{ B \rightarrow C, D \rightarrow A \}$
 $F_3 = \{ ABC \rightarrow D, D \rightarrow A \}$
 $F_4 = \{ A \rightarrow B, BC \rightarrow D, A \rightarrow C \}$
 $F_5 = \{ AB \rightarrow C, AB \rightarrow D, C \rightarrow A, D \rightarrow B \}$