11/01/21

DATABASE

3NF

$R = \{A, B, C, D, E, F, G, H, I, J\}$

$F = \{ABD \to E, AB \to G, B \to F, C \to S, CS \to I, G \to H\}$

① RICOPRIMENTO MINIMALE

$A^+ = \{A\}$

$B^+ = \{B, F\}$

$D^+ = \{D\}$

$AB^+ = \{A, B, G, H\}$

$BD^+ = \{D, B, F\}$

$AD^+ = \{A, D\}$

$ABD^+ = \{A, B, D, E, G, F, H\}$

$C^+ = \{C, S, I\}$

$S^+ = \{S, I\}$

$CS^+ = \{C, S, I\}$

$F = \{ABD \to E, AB \to G, B \to F, C \to S, C \to I, G \to H\}$

L	H	R
A	G	E
B	J	F
C		H
D		I

$ABCD^+ = \{A, B, C, D, E, F, G, H, S, I\}$

ABCD è chiave

② Chiusure

$ABD^+ = \{A, B, D, E, G, F, H\}$; $AB^+ = \{A, B, G, F, H\}$

$B^+ = \{B, F\}$; $C^+ = \{C, S, I\}$; $G^+ = \{H, G\}$ [ABCD]

$F = \{ABD \to E, AB \to G, B \to F, C \to S, C \to I, G \to H\}$

③ sottogruppi

$G' = \{A, B, D\}$

$F' = \{ABD \to E, AB \to G, B \to F\}$

$R' = (A, B, D, E, G, F)$

$G'' = \{A, B\}$

$F'' = \{ABD \to E, AB \to G, B \to F\}$

$R'' = \emptyset$

$G''' = \{B\}$

$F''' = \{ - - \}$

$R''' = \emptyset$

$G^{IV} = \{C\}$

$F^{IV} = \{C \to S, C \to I\}$

$R^{IV} = (C, S, I)$

$G^{V} = \{G\}$

$F^{V} = \{G \to H\}$

$R^{V} = (G, H)$

$G^{VI} = \{ABCD\}$

$F^{VI} = \{\}$

$R^{VI} = (A, B, C, D)$

per la chiave prendiamo sempre tutti i suoi attributi in una relazione

$$\begin{cases} R' = (A, B, D, E, G, F) \\ R^{IV} = (C, S, I) \\ R^{V} = (G, H) \\ R^{VI} = (A, B, C, D) \end{cases}$$

BCNF

$F = \{ ABD \to E,\ AB \to G,\ B \to F,\ C \to S,\ C \to I,\ G \to H \}$

$K = ABCD$

$AB \to G$

$AB^+ = \{A, B, G, F, H\}$

$R' = (A, B, G, F, H)$

$F' = \{ AB \to G,\ B \to F,\ G \to H \}$

$G \to H$

$G^+ = \{G, H\}$

$R''' = (G, H)$

$F''' = \{ G \to H \}$ — BCNF

$R'^{V} = R' - (R' - G)$

$R'^{V} = R' - H$

$R'^{V} = (A, B, G, F)$

$F'^{V} = \{ AB \to G,\ B \to F \}$

$B \to F$

$B^+ = \{B, F\}$

$R^V = (B, F)$

$F^V = \{ B \to F \}$ — BCNF

$R'^{VI} = R'^{V} - (R^V - B)$

$R'^{VI} = R'^{V} - F$

$R'^{VI} = (A, B, G)$

$F'^{VI} = \{ AB \to G \}$ — BCNF

$R'' = R - (R' - AB)$

$R'' = R - (G, F, H)$

$R'' = (A, B, C, D, E, I, S)$

$F'' = \{ ABD \to E,\ C \to I,\ C \to S \}$

$ABD \to E$

$ABD^+ = \{A, B, D, E\}$

$R^{VII} = (A, B, D, E)$

$F^{VII} = \{ ABD \to E \}$ — BCNF

$R^{VIII} = R'' - (R^{VII} - ABD)$

$R^{VIII} = (A, B, C, D, I, S)$

$F^{VIII} = \{ C \to I,\ C \to S \}$

$C \to I$

$C^+ = \{C, I, S\}$

$R^{IX} = (I, C, S)$

$F^{IX} = \{ C \to I,\ C \to S \}$ — BCNF

$R^{X} = R^{VIII} - (R'^{IV} - C)$

$= (A, B, C, D)$

$F^X = \{\}$ — BCNF

$\{ R''' = (G, H)\ ;\ R^{VII} = (A, B, D, E)\ ;\ R^{IX} = (I, C, J)\ ;\ R^V = (B, F)\ ;\ R^{VI} = (A, B, G)\ ;\ R^X = (A, B, C, D) \}$