

Quiz 6 Solution
Homework 3 Comments

1. Find a minimal cover for the following FD set

FDs = { $FGH \rightarrow I$, $FI \rightarrow H$, $DI \rightarrow G$, $DH \rightarrow EG$, $I \rightarrow F$, $H \rightarrow F$ }

$FGH \rightarrow I$
 $FI \rightarrow H$
 $DI \rightarrow G$
 $DH \rightarrow EG$
 $I \rightarrow F$
 $H \rightarrow F$

After step 1

$FGH \rightarrow I$
 $FI \rightarrow H$
 $DI \rightarrow G$
 $DH \rightarrow E$
 $DH \rightarrow G$
 $I \rightarrow F$
 $H \rightarrow F$

$GH^+ = GHFI$
 $I^+ = IFH$
 $D^+ = D$
 $H^+ = HF$

After step 2

$GH \rightarrow I$
 $I \rightarrow H$
 $DI \rightarrow G$
 $DH \rightarrow E$
 $DH \rightarrow G$
 $I \rightarrow F$
 $H \rightarrow F$

1. Find a minimal cover for the following FD set

FDs = { $FGH \rightarrow I$, $FI \rightarrow H$, $DI \rightarrow G$, $DH \rightarrow EG$, $I \rightarrow F$, $H \rightarrow F$ }

After step 2

$GH \rightarrow I$
 $I \rightarrow H$
 $DI \rightarrow G$
 $DH \rightarrow E$
 $DH \rightarrow G$
 $I \rightarrow F$
 $H \rightarrow F$

$GH^+ = GHF$ without $GH \rightarrow I$
 $I^+ = IF$ without $I \rightarrow H$
 $DI^+ = DIHFG$ without $DI \rightarrow G$
 $DH^+ = DHGF$ without $DH \rightarrow E$
 $DH^+ = DHEF$ without $DH \rightarrow G$
 $I^+ = IHF$ without $I \rightarrow F$
 $H^+ = H$ without $H \rightarrow F$

After step 3

$GH \rightarrow I$
 $I \rightarrow H$
 $DH \rightarrow E$
 $DH \rightarrow G$
 $H \rightarrow F$

After step 4

$GH \rightarrow I$
 $I \rightarrow H$
 $DH \rightarrow EG$
 $H \rightarrow F$

2. Use the universal table and the **Minimal Cover** FD shown below to answer parts a, b and c.

Universal Table BCDFGH

Minimal cover FD set $\{BG \rightarrow C, G \rightarrow F, C \rightarrow H, C \rightarrow G, F \rightarrow D\}$

a. Find a key for the universal table

$BG^+ = BGCDFH$

$BC^+ = BCHGFD$

b. Is the decomposition of BCDFGH into GFD and BGCH lossless? Justify your answer.

$G^+ = GFD$

c. Use 3NF synthesis to create a set of 3NF tables

$R1 = \{B, G, C\}$

$R2 = \{G, F\}$

$R3 = \{C, H, G\}$

$R4 = \{F, D\}$

H3 Comments

- RandomAccessFile Methods
 - readInt, readLong, readChar, writeInt, writeLong, writeChar
 - seek, length, setLength, close
- Freelist
 - DBTable
 - Directory
 - Buckets