CS3743 Hwk 7 Normalization (20 pts) - due 4/19

Show normalized relations without loss of information for the following:

R(A, B, C, D, E, F, G, H, J, K, L)

A, B, C, D 🡪 E, F, G, H, J, K, L

B, C 🡪 E, F

B 🡪 C, F

D 🡪 G, H

G 🡪 H

H 🡪 G

K 🡪 J, L

J 🡪 K

Show the resulting normalized relations. For each resulting relation, show the key and FDs.

1. Remove bad transitive functional dependencies
2. If X🡺Y and X,Z 🡺 Y then X 🡺 Y is stronger FB. Remove the weaker dependency X,Z 🡺Y
3. If X 🡺 Y and X, Y 🡺 Z, then reduce X , Y 🡺 Z to the stronger X 🡺 Z. (Also keep X 🡺 Y)

Work:

A, B, ~~C,~~ D 🡪 ~~E, F, G, H~~, J~~, K, L~~

B~~, C~~ 🡪 E, F

B 🡪 C, F

D 🡪 G~~, H~~

G 🡪 H

H 🡪 G

K 🡪 J, L

J 🡪 K

R1 (A, B, D, J)

A,B,D 🡺 J

R2(B, E, F, C)

B 🡺 E, F

B 🡺 C, F

R3(D, G)

D 🡺 G

R4(G,H)

G 🡺 H

H 🡺 G

R5(K, J, L)

K 🡺 J, L

J 🡺 K