Hw4 q1

#1 R(A, B, C, D, E, F)

R1(A, B, C, F)

R2(A, D, E)

FD: $A \to BC$.

$CD \to E$

$B \to D$

$E \to A$

Lossless-Join Decomposition:

$R(X, Y, Z) \to R_1(X, Y)$ $R_2(Y, Z)$ is lossless-join if $Y \to X$, $Y \to Z$

Y is the shared attri.

That's to say, shared attributes need to be the key of R1 or R2.

Answer: shared attribute is: A.

Does $A \to BCF$?

OR Does $A \to DE$?

check $A \rightarrow BCF$?

$\{A\}^+ = \{A\ B\ C\}$

$\{A\}^+ = \{A\ B\ C\ D\}$

$\{A\}^+ = \{A\ B\ C\ D\ E\}$

Thus. $A \rightarrow DE$ is correct,

Therefore: the Decomposition of R is lossless