Sample 3NF Problem

Questions

Consider a relation *R* with attributes *ABCDEFGH* and functional dependencies S:

S = {$A \rightarrow CD$, $ACF \rightarrow G$, $AD \rightarrow BEF$, $BCG \rightarrow D$, $CF \rightarrow AH$, $CH \rightarrow G$, $D \rightarrow B$, $H \rightarrow DEG$}

1. Compute all keys for *R*.

2. Compute a minimal basis for S. In your final answer, put the FDs into alphabetical order.

3. Using the minimal basis from the previous step, employ the 3NF synthesis algorithm to obtain a lossless and dependency-preserving decomposition of relation *R* into a collection of relations that are in 3NF.

4. Does your schema allow redundancy?

Explain all your answers and show your rough work.