

CSCD 327 Lab 7 (16 points)

1. (6 points) A given relation $R=\{A, B, C, D, E\}$ is decomposed into three relations:
 $R_1=\{A, B, C\}$, $R_2=\{B, C, D\}$, and $R_3=\{A, C, E\}$
 - a. Based on the given set of FDs $F=\{B \rightarrow E, CE \rightarrow A\}$, is the above decomposition a lossless-join decomposition?
 - b. Based on the given set of FDs $F=\{AC \rightarrow E, BC \rightarrow D\}$, is the above decomposition a lossless-join decomposition?
2. (10 points) A given relation $R=\{A, B, C, D, E\}$, and a given set of FDs $F=\{AB \rightarrow C, DE \rightarrow C, B \rightarrow D\}$.
 - a. Is R in BCNF? If not, do the decomposition accordingly.
 - b. Is your decomposition a lossless-join decomposition? Why?
 - c. Is your decomposition a dependency-preserving decomposition? Why?
 - d. List all the candidate keys of relation R .
 - e. Is R in the 3rdNF? Why?